

GEORGE W. GOETHALS:
LIFE AND REFORM IN THE U.S. ARMY, 1876-1919

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ABSTRACT

Rory M. McGovern: George W. Goethals: Life and Change in the U.S. Army, 1876-1919
(Under the direction of Joseph T. Glatthaar)

In the culminating achievements of a lengthy career in the U.S. Army, George W. Goethals led the construction of the Panama Canal and managed the effort to sustain an army of approximately four million soldiers during the final year of the First World War. At the outset of that career, neither he nor the U.S. Army was prepared to meet such challenges. Using biography as a vehicle to examine a larger problem, this dissertation follows Goethals's career in order to understand the nature of change in the U.S. Army during the late-nineteenth and early-twentieth centuries as it transitioned from a frontier constabulary and coastal defense force to a modern army capable of projecting power abroad and meeting the challenges of twentieth-century warfare. Goethals's story reveals that the legacy of the Civil War and the army's failure to keep pace with changing social norms and practices in training, education, and perceptions of professionalism created a traditionalist culture that did not embrace the new structures imposed by the Root Reforms at the turn of the century, but sought to apply them to comfortably traditional norms, values, and practices. At the same time, the army's embrace of the managerial revolution and its experience of the First World War provided the impetus and momentum for cultural change. Reform was actually a decades-long process that was not complete until the army's culture shifted to realign with its new structures.

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LIST OF ABBREVIATIONS

ADAH	Alabama Department of Archives and History, Montgomery, Alabama
CCNY	City College of New York Archives and Special Collections, New York, New York
LC	Manuscript Division, Library of Congress, Washington, D.C.
NARA I	National Archives and Records Administration I, Washington, D.C.
NARA II	National Archives and Records Administration II, College Park, Maryland
RG	Record Group
USACE	Office of History, United States Army Corps of Engineers, Alexandria, Virginia
USAWW	U.S. Army Center for Military History. <i>The United States Army in the World War, 1917-1919</i> , 17 vols. Washington, DC: Center for Military History, 1988.
USMA	United States Military Academy Special Collections and Archives, West Point, New York
VMI	Virginia Military Institute Archives, Lexington, Virginia

INTRODUCTION

June 12, 1912 brought pleasant weather to the Lower Hudson Valley, allowing West Point's graduation ceremony to be held outdoors. Overlooking the Hudson River at the north end of a grassy plain that served as the cadets' drill ground, the official party—consisting of the superintendent, the graduation speaker, and a handful of alumni and aged veterans of the Civil War—gathered around the main stage. At ten o'clock sharp, the band struck up a martial tune and the corps of cadets marched with crisp precision from their barracks toward the official party. Ninety-six graduating members of the class of 1912 took their seats in front of the stage while cadets from the classes of 1913-1915 stood in formation, ready to cheer as their friends made the transition from cadet to lieutenant.¹

After a laudatory introduction from the superintendent, Colonel George W. Goethals took the stage. He was nervous. He had harbored a hatred of public speaking since his teenage years and was acutely aware that this was only the second time that West Point had invited an officer who had not yet held a general's rank to be the graduation speaker. Looking out at a multi-generational audience that included officers who long before had helped defeat the Confederacy and cadets who would soon help lead the rapidly modernizing U.S. Army, he may have felt reassured about his decision to focus his remarks on how to succeed as a military officer during times of change and uncertainty. "The duties and problems which confront the army officer in

¹ "West Point Cadets Cheer War Veterans," *New York Times*, June 13, 1912, 22.

recent years are more numerous, more varied, and complex than in former days,” he began. They key to success, Goethals explained, was to have the strength of character to be fully dedicated to any assigned mission, to recognize that they had much yet to learn, and to accept practical experience as the best possible tutor. After all, he reminded the assembled cadets, the program of instruction and training at West Point had provided them not with the full extent of all knowledge and abilities required to succeed, but with “the foundations of a structure yet to be raised.”²

Goethals derived these themes from his own career. As a quiet and unaccomplished teenager, he had reported for duty at West Point as a new cadet in 1876. At that time, the army was organized for and accustomed to its traditional role of guarding the coast and policing the frontier. Moreover, the army Goethals entered lacked formalized and robust systems of training and education to prepare its rising leaders for high command and modern warfare. Neither young Cadet Goethals nor the army he entered was prepared or equipped for the challenges that lay ahead.³ When invited to speak at West Point in 1912, however, Goethals was two years away from opening the Panama Canal to commercial traffic and six years away from successfully leading the War Department’s efforts to build and sustain an army of nearly four million soldiers during First World War. Retiring in 1919 at the end of an accomplished career, Goethals was a changed officer departing a changed institution. This dissertation examines how

² U.S. Congress, House of Representatives, *Address of Col. George W. Goethals, United States Army, at the Graduation Exercises of the Class of Nineteen Twelve, United States Military Academy, West Point, N.Y., Wednesday, June 12, 1912*, 62nd Cong., 2nd sess., 1912, H.Doc 904 (Washington, DC: Government Printing Office, 1912), 5-8. The quotations are on pages 5 and 6, respectively, and Goethals references being the only the second graduation speaker to not be a general on page 5. For Goethals’s aversion to public speaking, see George W. Goethals to Lewis Sayre Buchard, June 11, 1927, Folder 6, George W. Goethals File, City College of New York Archives and Special Collections, New York, NY.

³ The organization, function, and culture of the U.S. Army that Goethals entered in 1876 is thoroughly examined in Edward M. Coffman, *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898* (New York: Oxford University Press, 1986).

the institution evolved in the late-nineteenth and early-twentieth centuries by tracing and analyzing Goethals's life within it during that same period.

Many scholars have considered this question before, but few have approached this institutional problem from an individual perspective. Goethals spent the majority of his life serving in the army, wearing the uniform from the conclusion of Reconstruction to the conclusion of the First World War. Over the course of that career, he experienced the entire trajectory of reform within the U.S. Army during the Gilded Age and Progressive Era. A detailed examination of that experience offers the chance to reexamine from a new and unique angle the well-traversed ground of the army's transformation from a force dedicated to defending the coast and policing the frontier to a modern army with a global reach, organized and equipped for twentieth-century warfare. Such an examination also promises to enhance our understanding of the dynamics of change and adaptation in national institutions more broadly.

By examining Goethals's career, it becomes clear that the army's culture was at odds with the spirit of military reform in the late-nineteenth century and the program of reform crafted by Secretary of War Elihu Root and supported by a cadre of likeminded officers in the wake of the War with Spain in 1898. The Root Reforms were structural in nature and were intended to mold an army capable of meeting the demands of the twentieth century by creating formal systems of military education, rationalizing the command structure, and establishing a general staff corps responsible for both developing war and mobilization plans well in advance of any crisis and coordinating the execution of those plans as crises arose.⁴ Successful officers of

⁴ For overviews of Root's reforms, see Otto Nelson, Jr., *National Security and the General Staff* (Washington, DC: Infantry Journal Press, 1946), 39-72 and James E. Hewes, Jr., *From Root to McNamara, Army Organization and Administration, 1900-1963* (Washington, DC: U.S. Army Center of Military History, 1975), 6-12.

Goethals's generation advanced despite the absence of formal and rigorous systems of training and education. Generally, they interpreted their success as a validation of the unsystematic process of experiential learning that the army relied upon to develop its officers throughout the nineteenth century. This influenced an institutional culture that extolled the virtues of self-development and self-education, which in turn produced officers who hesitated to adapt in the absence of crisis and valued more highly the ability to improvise than the ability to plan.

Goethals's experience demonstrates that the gulf between the army's structural reforms and its institutional culture generated internal resistance and diluted the effect of the Root Reforms. The full potential of those reforms would not be realized until the Second World War, with the ascension of a new generation that embraced the ideas and values at the heart of the reforms, thus completing a long and slow change in the army's institutional culture. Among the more prominent officers of this younger generation were Dwight D. Eisenhower and Omar N. Bradley, who, as members of West Point's class of 1915, happened to be in formation listening to Goethals's address on that sunny June morning in 1912. Prior to their generation's rise to preeminence within the army, the Root Reforms themselves were only "the foundations of a structure yet to be raised."

The long cultural evolution that is at the heart of this narrative of army reform cannot be considered independently of the changes and evolutions that American society experienced in the late-nineteenth and early-twentieth centuries. Practitioners of "new" military history have done much valuable work in the past several decades demonstrating that armies reflect the societies they serve.⁵ This dissertation shows that the pace at which armies adapt to broader social

⁵ A succinct historiography of field of military history and analysis of military historians' adoption of social and cultural historical methods can be found in Wayne E. Lee, "Mind and Matter: Cultural Analysis in American

changes is considerably important. In the late-nineteenth and early-twentieth centuries, the U.S. Army failed to keep pace with the shifting values, standards, and norms in training and education within American society. At the same time, the army kept abreast of American society in changes to managerial and organizational theory and practice that emerged during the managerial revolution that was a hallmark of the Gilded Age and Progressive Era. Falling behind in one key area provided the army with the means to resist reform, while keeping pace in another key area provided the impetus to complete reform. Ultimately, the army's interactions with and responses to broader social change had an indelible impact on the institution itself. Understanding institutional reform in the army in this way offers valuable insights into the dynamics of change and reform in any national institution.

Military reform in the late-nineteenth and early-twentieth centuries was the product of evolving conceptions of professionalism and a redefinition of the role and purpose of the army. These, in turn, were heavily influenced by the closing of the frontier and the changing conceptions of the proper role of the United States in the world, Progressivism, and the managerial revolution. Any examination of reform and institutional culture in the U.S. Army around the turn of the century must account for these trends and their impact upon institutional culture and military reform.

The United States Census Bureau declared the frontier to be closed in 1890. Scholars have since struggled to define the frontier and explain its effect on the United States. Frederick Jackson Turner offered the first interpretation when he presented "The Significance of the

Military History, A Look at the State of the Field," *Journal of American History* 93 (2007): 1116-1162. He introduces "new" military history on p. 1117.

Frontier in American History” to the American Historical Association in 1893. In what became the standard interpretation for nearly a century, Turner argued that the American frontier was a westward-moving place and a process that encouraged the development of American democracy, spurred individualism, and fostered egalitarianism.⁶

The centennial of the Turner’s frontier thesis inspired intriguing rebuttals. Some rejected the use of the term “frontier” altogether as a nationalist and racist construction that ignored the broader history of the region we now know as “the West.”⁷ Others, however continued to see value in considering frontiers along a somewhat Turnerian conception, while moving past Turner’s racialized and nationalistic bias. Such scholars perceive the frontier to have been both place and process, emphasizing the effects that the experience of the frontier had on various cultures and sub-cultures in North America.⁸ This is the perspective from which this dissertation approaches the frontier, its “closing,” and its effects on the United States Army. The frontier was both a place and a process that continued to affect the army’s institutional culture long after it ceased defining such a large part of the army’s mission and reason for being.

As the United States consolidated its continental power, it became more active on the world stage. Many scholars have concluded that an active and imperialist American foreign policy in the late-nineteenth and early-twentieth centuries was the product of political, economic, and social ideologies that collectively formed both a rationale and a broad base of support for

⁶ Frederick Jackson Turner, *The Frontier in American History* (New York: Henry Holt, 1920), ch. 1.

⁷ See especially Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York: W.W. Norton, 1987).

⁸ Robert Hine and John Faragher have been at the forefront of this interpretation. See Robert V. Hine and John M. Faragher, *The American West: A New Interpretive History* (New Haven, CT: Yale University Press, 2000) and Robert V. Hine and John M. Faragher, *Frontiers: A Short History of the American West* (New Haven, CT: Yale University Press, 2008).

expansionist policies. Such policies shaped American interventions in Latin America and Asia from the War with Spain onward.⁹ Such a drastic increase in American activity abroad shaped Woodrow Wilson's approach to foreign policy, conditioning him and the American people to believe that the United States could and should shape and lead a new world order. This, in turn, heavily influenced both policy and public opinion on American involvement in the First World War.¹⁰

Some scholars have asserted that imperialism was also the prime cause for military reform in the late-nineteenth and early-twentieth centuries.¹¹ Others, however, take a different view. While denying that reform was intended solely for imperial expansion, they implicitly connect a more active foreign policy with early-twentieth century military reform by pointing to perceived threats by European powers and a rising Japan as principal motivations and inspirations for reform.¹² Both of these interpretations fall somewhat short. While the latter

⁹ See William Appleman Williams, *The Tragedy of American Diplomacy* (Cleveland, OH: World Publishing Company, 1959); Walter LaFeber, *The New Empire: An Interpretation of American Expansion, 1860-1898* (Ithaca, NY: Cornell University Press, 1963); Andrew J. Bacevich, *American Empire: The Realities and Consequences of U.S. Diplomacy* (Cambridge, MA: Harvard University Press, 2002); Paul A. Kramer, *The Blood of Government: Race, Empire, the United States, and the Philippines* (Chapel Hill: University of North Carolina Press, 2006). Eric Hobsbawm, *The Age of Empire: 1875-1914*, reprint edition (New York: Vintage, 1989) provides an analysis that places economic motivations for imperialism within the context of multipolar efforts to export corporate capitalism on a global scale.

¹⁰ On Wilson's decision for war, see David F. Trask, *The AEF and Coalition Warming, 1917-1918* (Lawrence, KS: The University Press of Kansas, 1993), 1-4; John Milton Cooper, *Woodrow Wilson: A Biography* (New York: Vintage, 2009), 374-385 and Justus D. Doenecke, *Nothing Less than War: A New History of America's Entry into World War I* (Lexington, KY: University of Kentucky Press, 2011). For a new and compelling examination of the American public's perception of its role in the world and in the war, see Michael S. Neiberg, *The Path to War: How the First World War Created Modern America* (New York: Oxford University Press, 2016).

¹¹ Ronald J. Barr, *The Progressive Army: U.S. Army Command and Administration, 1870-1914* (New York: St. Martin's Press, 1998).

¹² James L. Abrahamson, *America Arms for a New Century: The Making of a Great Military Power* (New York: Free Press, 1981).

more accurately describes the principal cause of reform, the army's experiences abroad had a substantive impact on the process of reform.

Military reform was also heavily shaped by the reformist spirit of the Progressive Era. Responding largely to the consequences of urbanization and industrialization in the late-nineteenth century, progressive reform swept the United States beginning in the 1890s. Scholars have struggled to provide a coherent interpretation of the Progressive Era. Major debates have arisen over whether Progressivism was a unitary movement or a pluralist movement, and from whence the impetus for reform sprang. Recent scholarship has shown that Progressivism was either a singular, middle-class-based movement that advanced upon multiple, sometimes contradictory fronts, or a collection of multiple movements that drew strength from diverse and sometimes contradictory bases of support.¹³ Understanding the variable nature of Progressivism

¹³ The classic articulation of the unitary interpretation Richard Hofstadter, *The Age of Reform: From Bryan to F.D.R.* (New York: Vintage, 1955), which contended that Progressivism was a singular movement driven by a middle class that felt threatened by a perceived loss of social status. Pluralists began to push back against the unitary interpretation in Filene, Peter G. "An Obituary for 'The Progressive Movement.'" *American Quarterly* 22 (Spring 1970): 20-34 and Daniel T. Rodgers, "In Search of Progressivism." *Reviews in American History* 10, no. 4 (December 1982), 113-132, questioning the value of Progressivism as a concept when there were so many progressive movements. While Filene questioned the utility of the term "progressive" Rodgers categorized three distinct strains of Progressivism: antimonopolism, the rise of social cohesion over individualism, and social efficiency. The pluralist interpretation gained significant traction, receiving articulate support in Arthur S. Link and Richard L. McCormick, *Progressivism* (Wheeling, IL: Harlan Davidson, 1983) and John Whiteclay Chambers II, *The Tyranny of Change: America in the Progressive Era, 1890-1920*, second edition (New Brunswick, NJ: Rutgers University Press, 2000). The first edition of the latter appeared as *The Tyranny of Change: America in the Progressive Era, 1900-1917* in 1980. Chambers argues that "new interventionism" may be a more useful construct than Progressivism because "'modernization' resulted not only from the actions of people who called themselves progressives but also from initiatives taken by other groups, including many radicals, nonprogressive reformers, and advocates of conservative reforms." Continuing, he states that "all were willing to intervene in the economy and society, and sometimes world affairs, on an unprecedented scale." See Chambers, 136. The pluralist challenge advanced, but did not completely resolve the debate. Michael McGerr recently offered a strong case for the unitary interpretation of a middle-class based Progressivism, but his interpretation allows for a more idealistic and humanistic middle class than Hofstadter's, and identifies "four quintessential progressive battles: to change other people; to end class conflict; to control big business; and to segregate society." See Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870 - 1920* (New York: Oxford University Press, 2003), xv. In contrast, a strongly-articulated recent argument for the pluralist interpretation asserts that McGerr's conception of "progressive battles" is incorrect. Instead, it contends that there were four main Progressivisms: political, economic, social justice, and foreign policy, and that these Progressivisms occasionally contradicted each other, but did not necessarily operate to the exclusion of one another. See Maureen A. Flanagan, *America Reformed: Progressives and Progressivisms, 1890s-1920s* (New York: Oxford University Press, 2007).

is vitally important to understanding military reform during the Progressive Era. It contextualizes why military officers accepted and boldly pushed for some aspects of reform, and conservatively resisted others. It explains why some historians have pointed to Progressivism as the causal factor for military reform, but have come to vastly different conclusions about the military reformers' desired ends.¹⁴ Most importantly, it helps explain how a national institution could impose structural reforms upon itself while fostering an institutional culture at odds with its new structures.

The army's culture and structures were both dramatically influenced by the managerial revolution during the late-nineteenth and early-twentieth centuries. The concept of the managerial revolution has been promulgated by historians whose work frames the "organizational synthesis." This refers to an interpretation of the late-nineteenth and early-twentieth centuries as the general point of transition between a time when local and informal groups were central to American life and a new age in which such groups were supplanted by much larger, formal, and bureaucratically-structured organizations. According to this interpretation, efforts to systematically bureaucratize political, economic, and entrepreneurial systems of management constituted a logical adaptation in response to the problems of mass industrialization and urbanization.¹⁵

A landmark work of this school of thought is Alfred D. Chandler's *The Visible Hand: The Managerial Revolution in American Business*, published in 1977. Chandler traces the

¹⁴ A thesis that presents reform as a means of acquiring an overseas empire is outlined in Barr, *The Progressive Army* versus a thesis that contends reform was a means of balancing against perceived threats from Europe and Japan in Abrahamson, *America Arms for a New Century*.

¹⁵ Louis Galambos, "The Emerging Organizational Synthesis in Modern American History," *The Business History Review* 44, no. 3 (Autumn 1970), 279-290.

evolution of small, local firms to large national corporations throughout the nineteenth century and into the twentieth. He focuses especially on the railroads, which made the transition the earliest and affected developments in industries that produced or traded in goods related to the railroads by the last few decades of the nineteenth century. These organizations ballooned so rapidly that they were forced to become pioneers in finding new ways to manage their operations efficiently. Through trial and error, these corporations self-organized, creating a distinct and conscious class of managers—technical experts in their own fields with their own hierarchies, whose motivations and methods differentiated them from both owners and workers. The managers grew more powerful, eventually becoming “the most influential group of economic decision makers” within firms constituting a managerial enterprise that was in turn becoming “the most powerful institution in the American economy.”¹⁶

The significance of Chandler’s thesis is twofold. First, it identifies a specific application of concepts of what was then referred to as “scientific management” of people and resources that became widely popular in the late nineteenth century and were applied with increasing regularity to social problems outside of the business community. Such informed the military’s approach to reform and shaped the new institutional structures it created. Second, and perhaps more importantly, the transmission of managerial enterprise from the railroads to other business sectors that Chandler depicts arguably marks the point where American society began to accept modern conceptions of professional expertise and specialization based on rigorous training and education. By the end of the nineteenth century, closely paralleling the rise of managerial

¹⁶ Alfred D. Chandler, Jr. *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Belknap Press, 1977). Quotations from page 1.

enterprise that Chandler depicts, many occupations were adapting to this new conception of professionalism, including medicine, law, education, journalism, and social work.¹⁷

Shifting from a conception of professionalism based on personal identification and self-study to one based on expertise and specialization grounded in formal training and education, American views on the value and purpose of education underwent a profound change. For most of the nineteenth century, education was considered as Horace Mann had argued it should be: widely accessible and intended not only to disseminate knowledge, but also to produce upstanding and moral citizens. As the economy expanded late in the century, that view of education was attacked on several fronts. An unlikely alliance of interest groups advocated for and influenced significant reform in American education. Where traditionalists continued to believe that the moral effect and mental discipline derived from education was more important and lasting than the knowledge imparted by education, reformers came to value more highly the transmission of knowledge itself.¹⁸

Scholars continue to debate the root cause of education reform in this period, pointing alternatively to businesses interested in producing both managers conversant in the latest theories of scientific management and efficient vocationally-trained workers, progressives who advocated for reform as a means of improving the condition of the lower class, and progressives who viewed education reform as a means of “Americanizing” newly arrived immigrants.¹⁹

¹⁷ McGerr, 128-129, Wiebe 113-127, and Martin J. Sklar, *The Corporate Reconstruction of American Capitalism, 1890-1916* (New York: Cambridge University Press, 1988), 431-432; Paul Starr, *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry* (New York: Basic Books, 1982), ch. 3.

¹⁸ David B. Tyack, *Turning Points in American Educational History* (Waltham, MA: Blaisdell Publishing Co., 1967), 121-180; Laurence Veysey, *The Emergence of the American University* (Chicago, IL: University of Chicago Press, 1982), chapters 1-4.

¹⁹ For the business interest interpretation, see W. Norton Grubb and Marvin Lazerson, “Education and the Labor Market: Recycling the Youth Problem,” in *Work, Youth, and Schooling: Historical Perspectives on Vocationalism in*

Regardless of its origins, educational reform in this period introduced within American society new curricula, new systems of pedagogy, and a sense that education could be simultaneously practical and intellectually rigorous. In this respect, society outpaced the army, whose views on education remained stubbornly traditional, despite the efforts of some forward-thinking reformers. Falling behind in this respect profoundly affected the course of military reform.

The closing of the frontier and the concurrent loss of the army's frontier mission, the development of new conceptions of the proper role of the United States in the world, the emergence of Progressivism, the managerial revolution, and advances in the practice and theory of education influenced both the army's institutional culture and the course military reform in the late-nineteenth and early-twentieth centuries. Many then and since characterized military reform as a process of professionalization. In order to fully examine military reform, then, it is necessary to consider conceptions of professions and professionalism within the context of the U.S. Army in the late-nineteenth and early-twentieth centuries.

Historians of the U.S. Army have long debated when, how, and why the army became a legitimate, autonomous profession. The traditional interpretation that long dominated the field holds that it was not a profession until reforms in the early twentieth century established a general staff capable of crafting and coordinating war plans and created a formally institutionalized system of training and education to produce competent, well-trained officers capable of leading at the most senior levels of the army. Adherents of this school of thought

American Education, ed. Harvey Kantor and David Tyack (Stanford, CA: Stanford University Press, 1982), 110-141. For the social justice interpretation, see Lawrence Cremin, *The Transformation of the School: Progressivism in American Education, 1876-1951* (New York: Alfred A Knopf, 1961). For the Americanization interpretation, see Tyack, as well as Patricia Albjerg Graham, *Schooling in America: How the Public Schools Meet the Nation's Changing Needs* (New York: Oxford University Press, 2005), ch. 1.

have referred to the last decades of the nineteenth century as a “Military Renaissance” in which a small body of far-sighted reformers emerged to initiate a period of professionalization.

According to this interpretation, the army began to move out of its pre-professional dark ages with individual initiatives that collectively helped set conditions for transformational reforms during Elihu Root’s tenure as Secretary of War from 1899 to 1904. The career officer and sometime historian William A. Ganoe first formulated this thesis in *The History of the United States Army* (1924). Ganoe’s interpretation was subsequently ratified three decades later by historian Walter Millis in his examination of the evolution of U.S. military policy since the American Revolution, *Arms and Men: A Study in American Military History* (1956).²⁰

One year after Millis’s work was published, Samuel Huntington’s widely influential *The Soldier and the State* (1957) codified the military renaissance thesis as accepted wisdom.

Huntington, a political scientist, theorizes that the essential elements of professionalism are a corporate identity, a sense of responsibility, and expertise—and that expertise is best developed, refined, and exercised in a distinct military sphere that is relatively isolated from society and subject to minimal interference from civil government. He places the beginning of the army’s professionalization in the late-nineteenth century. Huntington believed the army’s frontier mission provided the physical and psychological isolation necessary to allow officers to construct a distinct body of expertise and a military sphere with which they personally identified at a time when American society was becoming increasingly conditioned to accept occupational

²⁰ William A. Ganoe, *The History of the United States Army* (New York: Appleton, 1924), 355-418; and Walter Millis, *Arms and Men: a Study in American Military History* (New Brunswick, NJ: Rutgers University Press, 1986), 131-210. *Arms and Men* was originally published in 1956.

specialization and expertise. This set off a period of change culminating with the Root reforms, which Huntington interprets as “the creation of the American military profession.”²¹

Military historian Russell F. Weigley offered the first notable modification of this interpretation in 1967 in *The History of the United States Army*. While he supports the notion that reforms of the late-nineteenth and early-twentieth centuries represented a military renaissance of sorts, Weigley places the origins of the American military profession in the period between the years 1820 and 1840. Framing military professionalism rather narrowly as expertise derived from the study of history, strategy, and certain fundamental principles of warfare, Weigley argues that it originated in Europe in response to the increasing complexity of warfare wrought by the development of massive citizen armies during the Napoleonic wars. This nascent military professionalism was then transmitted to the army when officials at the U.S. Military Academy imported Prussian theories and French practices to reform the curriculum at West Point.

Weigley contends that although this military professionalism spread throughout the antebellum army in the form of professional journals and the periodic formation of short-lived technical schools, the immediate effect of military professionalism was blunted by social trends in Jacksonian America that resisted occupational specialty, mistrusted professional autonomy, and restrained professional consolidation. He contends that the professionalization of the military served to further isolate it from society, providing the psychological isolation that he

²¹ Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, MA: Belknap Press, 1957), 7-18 and 222-269. “The Creation of the American Military Profession” is the title of chapter 9.

perceives to be a condition that helped spawn a late-nineteenth century military renaissance.²²

By portraying professional reform as something that can only take place in isolation, Weigley sustains a significant and highly problematic component of Huntington's argument.

The notable difference in this case, however, is that Weigley's conception of the military renaissance marks not the origin of the American military profession, but the rebirth and reapplication of older ideas of how to make the army and its officers more expert in the theory and practice of warfare. Like Huntington, Weigley points to a society better conditioned by Progressivism to accept occupational specialization and professional autonomy as an explanatory factor of why the reforms of the late-nineteenth and early-twentieth centuries had a more lasting effect. Unlike Huntington, he points to the emergence of the United States as a global power in the wake of the War with Spain, and the nearly disastrous mobilization for that war, as equally significant factors.²³

Weigley's interpretation of these reforms as a new application of an old conception of professionalism, rather than as the generating source of professionalism, sets up his other major departure from Huntington and previous formulations of the military renaissance thesis. He argues that the Root Reforms were incomplete, and that their only unqualified success was the establishment of an effective institutional system of military education for its officers.

According to Weigley, the other major development of Root's tenure, the General Staff, was hampered by internal resistance within some quarters of the army, Congressional resistance, and an improvisational nature rooted in the fact that none of the officers appointed to the new body

²² Russell F. Weigley, *History of the United States Army*, Enlarged edition (Bloomington, IN: Indiana University Press, 1984), 144-172 and 265-294.

²³ Weigley, *History of the United States Army*, 299-312

had any experience in or knowledge of general staff functions and operations. He suggests that this resistance prolonged the processes of change. Unfortunately, Weigley was satisfied with having blurred to some extent the bold line that his predecessors had drawn to categorically separate the old and the new army. He did not probe the nature of resistance to the General Staff.²⁴

Weigley's interpretation was not immediately popular among military historians. Timothy K. Nenninger's groundbreaking examination on military education in the turn-of-the-century army acknowledges that the roots of military professionalism took hold between the War of 1812 and the Civil War, but argues that "with the exception of the service academies, all the permanent characteristics that identify the American military as a profession originated in the years between the Civil War and the First World War."²⁵ Around the same time, Edward M. Coffman began work on his seminal two-volume social history of the army, tellingly titled *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898* (1986) and *The Regulars: The American Army, 1898-1941* (2004). In these works, Coffman stakes out the position that while its seeds were planted early in the nineteenth century, American military professionalism truly began to develop in the late-nineteenth century. He argues that Elihu Root harnessed the ideas and initiatives of late-nineteenth century reformers and lessons learned from the War with

²⁴ Weigley, 313-341

²⁵ Timothy K. Nenninger, *The Leavenworth Schools and the Old Army: Education, Professionalism, and the Officer Corps of the United States Army, 1881-1918* (Westport, CT: Greenwood Press, 1978), 6-7. The quotation is on page 7.

Spain, and packaged them into an effective program of reform that fundamentally transformed the army. “Elihu Root,” he concludes, “fixed the course for the twentieth century.”²⁶

This reflected what was at that time generally accepted wisdom. Most scholars continued to interpret reform in the late-nineteenth and early-twentieth centuries as the beginning of military professionalism in the U.S. Army. Much of the debate then shifted away from questions about timing and toward questions about motivations for professionalization. Peter Karsten argued that professional reform in the army, like reform in the navy, sprang from self-interested and ambitious junior officers rebelling against the lack of opportunity and upward mobility in the peacetime military.²⁷ Unconvinced, James Abrahamson pointed instead to military threats perceived by the officer corps. He argued that army officers shaped their agendas of reform in order to more effectively balance against the military capabilities of potentially hostile foreign powers.²⁸ Later, Ronald J. Barr posited that professionalization was a tool of expansionist-minded officers and politicians eager to build a military better suited for an imperialist agenda.²⁹ Although these three points of view are strikingly different, they all spring from the common assumption that the period of reform in the late-nineteenth and early-twentieth centuries was fundamentally transformational, bringing the army into a new professional age.

The ground has begun to shift in the last three decades. Military historians have seized upon implications of two aspects of Weigley’s interpretation to carry the point further and mount

²⁶ Edward M. Coffman, *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898* (New York: Oxford University Press, 1986); and Edward M. Coffman, *The Regulars: The American Army, 1898-1941* (Cambridge, MA: Belknap Press, 2004). The quotation is from Coffman, *The Regulars*, 415.

²⁷ Peter Karsten, “Armed Progressives: The Military Reorganizes for the American Century,” in *Building the Organizational Society: Essays on Associational Activities in Modern America*, ed. Jerry Israel (New York: Free Press, 1972), 197-232.

²⁸ Abrahamson, *America Arms for a New Century*.

²⁹ Barr, *The Progressive Army*.

a more direct challenge to the military renaissance thesis. One of these pushes beyond Weigley's suggestion that the Root Reforms were incomplete and questions whether they had any real impact on military thought and practice. The other focuses upon Weigley's antebellum periodization of American military professionalism, suggesting that other interpretations have unfairly analyzed past degrees of professionalism according to modern standards.

Those who have recently questioned the significance of turn-of-the-century reform base their conclusions on an apparent consistency and continuity in military thought and practice within the army in the decades preceding the First World War. In *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885-1920* (2006), Daniel R. Beaver argues that despite radical changes in structures and technology, there was more continuity than change in the functional behavior of the various parts of the War Department throughout the period of reform. In defense of the conduct of the administrative bureaus of the War Department during the War with Spain and prior to 1917, he suggests that human nature is inclined to resist change, and that altering ingrained behavior would naturally be more gradual and incremental than adopting new technology and reshaping organizational structures.³⁰

One year later, Brian Linn published *The Echo of Battle: The Army's Way of War*, which argued that there has been a significant degree of continuity in military thought throughout U.S. history. Linn argues that American military thought has always been defined by the interplay of three dominant schools of strategic thought: "Heroes," who typically form aggressive, offensive strategies and emphasize the human element in war; "Guardians," who prefer defensive strategies that rely upon the effective use of technology; and "Managers," who perceive efficient

³⁰ Daniel R. Beaver, *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885-1920* (Kent, OH: Kent State University Press, 2006).

organization and utilization of resources to be the key to victory. With this framework, Linn interprets reform in the late-nineteenth and early-twentieth centuries not as a function of professionalization, but as the result of a temporary rise of the “Managers” to institutional preeminence in the continuous ebb and flow of competition and collaboration between the three archetypes.³¹

While at times guilty of overgeneralization, both Beaver and Linn have made a significant contribution to the debate about reform and professionalization in the army by emphasizing a point that has for too long been ignored.³² They rightly call attention to the human element of institutional reform. Patterns of thought and behavior which have existed long enough to become habit do not change as quickly or as easily as organizational and institutional structures, which can be created, destroyed, or altered in only the amount of time it takes to write and sign the necessary orders.

Another notable recent challenge to the military renaissance thesis comes from three authors who argue persuasively that American military professionalism originated in the antebellum period. William B. Skelton’s *An American Profession of Arms: The Army Officer Corps, 1784-1861* (1993) stakes the claim that although it lacked robust educational and developmental systems and institutions beyond the United States Military Academy at West Point, the army of the nineteenth century had important professional features. The most important of these, which Skelton regards as the key to military professionalism at that time, was

³¹ Brian M. Linn, *The Echo of Battle: The Army's Way of War* (Cambridge, MA: Harvard University Press, 2007). Late-nineteenth and early-twentieth century reform is covered in pages 93-115.

³² Linn is forced to argue in very general terms to assert intellectual continuity over more than two centuries of military experience. Beaver, on the other hand, speaks in general terms when presenting his conception of the collective motivations of a number of senior leaders of the administrative bureaus known for their resistance to reform.

a stable officer corps that deeply identified with the army and was committed to lengthy careers of military service.³³ In his 1998 *Journal of Military History* article, Mark R. Grandstaff agrees that professionalism had been fully established in the antebellum army, but makes the important observation that the Civil War had so completely altered the demographics of the officer corps that subsequent professional reform had different stimuli, motivations, and characteristics, and should therefore be regarded as a second phase in professionalization.³⁴ Most recently, Samuel J. Watson's sweeping two-volume study of the army's officer corps between the War of 1812 and the Mexican War reaffirms the origins of the American military profession in the antebellum period after 1820, but differs from Skelton by centering it on the development of a collective sense of responsibility and subordination to civil government among a stable, cohesive, and expert officer corps.³⁵

Collectively, these three authors call attention to the dangers inherent in using modern conceptions and definitions of professionalism to evaluate degrees of professionalism in the past. Watson makes the case most strongly and succinctly when he states, "Like most complex human phenomena, professionalism is a shifting, relative, constructed phenomenon, not an unconditional or permanent one."³⁶ This position is strongly supported by scholars who have identified forms of military professionalism rooted in personal identity and self-study as early as the late-eighteenth century that parallel similarly-framed and similarly-dated forms of

³³ William B. Skelton, *An American Profession of Arms: the Army Officer Corps, 1784-1861* (Lawrence, KS: University Press of Kansas, 1992).

³⁴ Mark R. Grandstaff, "Preserving the 'Habits and Usages of War': William Tecumseh Sherman, Professional Reform, and the U.S. Army Officer Corps, 1865-1881, Revisited," *Journal of Military History* 62 (July 1998): 521-545.

³⁵ Samuel J. Watson, *Jackson's Sword: The Army Officer Corps on the American Frontier, 1810-1821* (Lawrence, KS: University Press of Kansas, 2012); and Samuel J. Watson, *Peacekeepers and Conquerors: The Army Officer Corps on the American Frontier, 1821-1846* (Lawrence, KS: University Press of Kansas, 2013).

³⁶ Watson, *Jackson's Sword*, 11.

professionalism identified by sociologists who have studied the development of civilian professions within American society.³⁷ Such work persuasively demonstrates that professionalism is a social and cultural construction.

Most recently, J.P. Clark has made an invaluable contribution to this debate with *Preparing for War: The Emergence of the Modern U.S. Army, 1815-1917* (2017). He examines shifting conceptions of purpose, practice, and professionalism in the army by tracing a century's worth of arguments about how best to prepare for war within four successive generations of army officers. He labels these as the foundational, Civil War, composite, and progressive generations, and defines them by the consensus they each arrive at about war preparation and military professionalism. There is much to be commended in this approach. Clark's generational model moves beyond demonstrating that military professionalism is a social and cultural construction and shows how the construction itself changed incrementally from one generation to the next.³⁸

Because professionalism is a social and cultural construction that—like society and culture themselves—is subject to generational adjustment, it is impossible to understand professional reform in the army during the late-nineteenth and early-twentieth centuries without understanding how military officers perceived professionalism, professional competence, and reform. Such perceptions were at the bedrock of the army's institutional culture. This

³⁷ See Ira D. Gruber, *Books and the British Army in the Age of the American Revolution* (Chapel Hill, NC: University of North Carolina Press, 2010), 3-64; Don Higginbotham, *George Washington and the American Military Tradition* (Athens, GA: University of Georgia Press, 1984); and Starr, 30-78.

³⁸ J.P. Clark, *Preparing for War: The Emergence of the Modern U.S. Army, 1815-1917* (Cambridge, MA: Harvard University Press, 2017). At the same time, such a model risks placing too much emphasis on generational transition as the most important impetus for cultural change. Generational transition alone does not guarantee cultural change; other factors must be considered as well. As will be shown in this study, external shock is at least as significant an impetus for cultural change as generational transition.

dissertation examines the relationship between military reform and the army's institutional culture through the lens of an officer's career that spanned nearly the entire period of reform.

George W. Goethals provides a unique vantage point to examine reform in the army. He was a lieutenant and a captain during the post-Reconstruction years of debate about reform and the future of the army. He was a major when the most significant reforms were created, and helped with their implementation. As a major general during the First World War, he crafted and implemented a significant part of the army's adaptation to resolve crises in the mobilization effort caused largely by years of internal resistance to reform. Following Goethals's career and analyzing reform from his perspective will continue to shift the focus away from the intent behind reform and toward the effects of the interaction between society, reform, and institutional culture.

Surprisingly little has been written about Goethals. Joseph Bucklin Bishop and his son Farnham wrote the only published book-length biography of George W. Goethals between 1928 and 1930. The elder Bishop, a journalist by trade, served under Goethals in Panama as the secretary to the Isthmian Canal Commission. Originally placed on the commission as President Theodore Roosevelt's personal spy, he quickly came to respect and admire Goethals, becoming one of his most steadfast and vocal supporters. Bishop began working on this biography when Goethals passed away in 1928, but died soon thereafter. His son, also a journalist, managed to complete the manuscript and send it to his publisher only weeks before his own untimely death. While a monument to loyal friendship, this work is far from an impartial scholarly appraisal of a significant life. Intended to praise a recently departed friend, it is at times polemical and hagiographical. Written so soon after its subject's passing, *Goethals: Genius of the Panama*

Canal (1930) is in many instances inaccurate. It records as fact the hearsay and legend that surrounded a relatively famous figure. As its title suggests, this book is most concerned with Goethals at Panama and generally pays only cursory attention to other periods in Goethals's life.³⁹

Whether out of fear of meeting the same sad fate as the Bishops or not, no scholar has attempted a full biographical study of Goethals. Walt Griffin came the closest in a Ph.D dissertation completed in 1988. This is a work of admirable scholarship in which Griffin interprets Goethals's managerial philosophy as being founded upon a generally constant effort to centralize executive power under one responsible person at the top of a rationalized organizational hierarchy. As its title implies, however, Griffin's dissertation analyzes Goethals almost entirely in the context of the Panama Canal. Other parts of Goethals's life appear briefly, only as a factual prelude and postscript to his years leading the effort to construct the Panama Canal. Griffin makes little effort to discern how Goethals developed this managerial ethic, or to examine the broader implications of Goethals's career beyond the years he spent at the Panama Canal.⁴⁰ Phyllis A. Zimmerman also produced a monograph on George W. Goethals's service during the First World War. While her research is notable, her conclusions demand modification as she misinterprets and undervalues the long-term impact of Goethals's work within the War Department.⁴¹

³⁹ Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper & Brothers, 1930).

⁴⁰ Walt Griffin, "George W. Goethals and the Panama Canal," (PhD diss., University of Cincinnati, 1988).

⁴¹ Phyllis A. Zimmerman, *The Neck of the Bottle: George W. Goethals and the Reorganization of the U.S. Army Supply System, 1917-1918* (College Station, TX: Texas A&M University Press, 1992).

This dissertation uses the biography of George W. Goethals as a method of examining the broader problem of the relationship between the course of reform and the army's institutional culture. Such an approach follows the example of Drew Gilpin Faust, whose *James Henry Hammond and the Old South: A Design for Mastery* (1982) amply demonstrates that a close study of a representative individual can shed considerable light on the social and cultural dynamics of a larger group. Although specific events and biographical details are unique to Hammond's life experience, Faust demonstrates that his general patterns of behavior, relationship with his slaves, and political philosophies reveal as much about South Carolina's antebellum planter class as they do about Hammond himself.⁴² Goethals's experiences, military thought, managerial philosophy, conceptions of professionalism, and attitudes about training and development are similarly applicable on both individual and collective levels. Where Goethals's experiences and attitudes can be applied on the collective level, they frame the army's institutional culture and reveal his generation's relative ambivalence about reform.

Institutional culture is central to this dissertation's entry into the debate about army reform during the late-nineteenth and early-twentieth centuries. Institutional culture is the "habitual practices, default programs, hidden assumptions, and unreflected cognitive frames" that constitute a "repertoire . . . of habits, skills, and styles" which serve to inform decisions and behavior of and within an organization established for political or social purposes. It is influenced by the broader culture of the society the institution serves, and is transmittable within

⁴² Drew Gilpin Faust, *James Henry Hammond and the Old South: A Design for Mastery* (Baton Rouge, LA: Louisiana University Press, 1982). For a similarly exemplary work, see Thomas Alexander Hughes, *Over Lord: General Pete Quesada and the Triumph of Tactical Air Power in World War II* (New York: Free Press, 1995), which effectively uses Quesada's biography to trace the evolution of close air support and air-ground integration tactics and doctrine in World War II and the cultural struggle within the U.S. Army Air Corps, and later within the U.S. Air Force, between advocates of strategic air power and advocates of tactical air power.

the institution from generation to generation through socialization, indoctrination, teaching, imitation, actions, and symbols.⁴³ While it is subject to evolution over time, the pace of change tends to be relatively slow because cultural change necessarily involves questioning and adjusting established habits and traditions, a process which invites resistance.⁴⁴

This dissertation examines the institutional culture of the U.S. Army from the perspective of George W. Goethals's generation of officers. In general, these officers entered the army between 1870 and 1890, and their careers spanned the vast majority of the period of reform from the last decades of the nineteenth century until the close of the First World War. This generation bridged the gap between the old army, organized to function as a frontier constabulary and coastal defense force, and the modern army, organized for expeditionary warfare in the twentieth century. Yet change did not happen in a vacuum. The generation that built the bridge between the old army and the new as the nineteenth century gave way to the twentieth did so with familiar tools and materials. Those who implemented the new reforms did so in terms of old concepts that they knew well and still believed to be sound, generally consistent with the prevailing institutional culture. This profoundly affected the course of reform.⁴⁵

⁴³ This definition is derived from Wayne E. Lee, "Warfare and Culture," in *Warfare and Culture in World History*, ed. Wayne E. Lee (New York: New York University Press, 2011), 3; and Isabel V. Hull, *Absolute Destruction: Military Culture and the Practices of War in Imperial Germany* (Ithaca, NY: Cornell University Press, 2005), 2. The first quotation appears in both; the second is taken from the former.

⁴⁴ This is drawn from Mark Grimsley, "Success and Failure in Civil War Armies: Clues from Organizational Culture," in *Warfare and Culture in World History*, ed. Wayne E. Lee (New York: New York University Press, 2011), 115-141. Grimsley suggests that the habits and traditions of organizational culture prevented commanders who inherited previously existing field armies, with the exception of Robert E. Lee, were consistently unable to influence their commands' character and culture as fully and as quickly as they intended. See especially pages 122-134. Although Grimsley deals with organizational culture of field armies—large parts of a larger whole—his ideas are equally valid at the institutional level.

⁴⁵ This view of Goethals's generation complements J.P. Clark's interpretation of what he labels the "composite generation." See Clark, *Preparing for War*, 7-8.

Analyzing institutional culture and the course of reform from the perspective of Goethals and his generation of officers is an adaptation of the “history from the middle” as advocated by Paul Kennedy. Kennedy argues that the traditional practice of writing military history from the top-level perspective of commanding generals and statesmen and more recent trends of analyzing military history from the bottom, focusing on the experience of soldiering and combat, are valuable but provide incomplete perspectives. He holds that analyses of causality and change must account for the existence and identification of a problem, the creation or discovery of a solution, and the application of the solution. The latter two, according to Kennedy, are the most critical aspects to narratives of causality and change. Because the creation or discovery of a solution and its subsequent application usually fall within the purview of individuals at neither the highest nor the lowest ends of military hierarchies, they often cannot be adequately addressed in top-down or bottom-up analyses. Kennedy urges historians who encounter problems with noticeable gaps when analyzed from the top and from the bottom to change course and approach from the middle.⁴⁶

Kennedy’s model has its share of limitations. The most glaring is that its applicability depends on the existence of an empowered “middle.” Typically, military historians consider general officers to constitute the top, and everyone else to constitute the bottom. This is the case because traditionally, general officers make the plans and policies and everyone else executes the plans and adheres to the policies. This began to shift in the late-nineteenth century when industrialized warfare became complex enough to require sizable planning and coordinating

⁴⁶ Paul Kennedy, “History from the Middle: The Case of the Second World War,” *Journal of Military History* 74 (January 2010): 35-51. This article provides the theoretical model and a single demonstrative case study. The full use of the model is better demonstrated in Paul Kennedy, *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War* (New York: Random House, 2013).

bodies within military organizations. As militaries recognized this need and adapted accordingly, they created bodies of mid-level officers responsible for developing and shaping plans and policies to a significant degree. Thus was born an empowered “middle,” defined not only by rank, but also by function. Consequently, Kennedy’s model appears to be suitable only for problems in military history situated during and after this development.

Army reform in the late-nineteenth and early-twentieth centuries is a problem whose chronological and analytical difficulties point to the utility of a from-the-middle approach. Scholarship calling attention to functional continuity within the War Department in spite of reformist policies suggests that there are unresolved analytical gaps in top-down histories from the perspectives of both leading reformers and also leading sources of resistance to reform. The view from the bottom in this case is irrelevant. Enlisted soldiers in this period had no voice in how the army was organized and run, and had no part in the most significant reforms of the period.

To advance the debate, the problem must be approached from the middle as it existed at the turn of the century—from the perspective of officers who did not decide upon creating the General Staff or formal systems of education and development, but were nevertheless ordered to help design and implement such reforms. Goethals’s generation of officers who entered the army between 1870 and 1890 is the appropriate focus of a from-the-middle analysis of army reform. These officers were, for the most part, the captains and majors who manned the first General Staff and graduated with the earliest classes of the Army War College. In effect, they were the engineers who built the machines of reform after receiving the necessary orders and guidance from their superiors.

Their responses to this process and the attitudes they developed about these new institutional structures were critically important. These officers continued to shape the course of reform as they advanced to higher positions within the army's hierarchy. The captains and majors of the early 1900s eventually became the generals of 1917-1918 who were responsible for charting the course of both the war effort and the still-evolving army. The attitudes that these officers developed as captains and majors informed their decisions as generals. At the end of the narrative, then, this turns into history from the top. This is a hybrid approach that recognizes the natural feedback loop within institutions that produce their own leaders. Once at the top, these leaders did not make decisions in a vacuum. Their decisions were informed to a significant degree by experiences and observations from their rise through the ranks. This adaptation of history from the middle is particularly well suited for studying change over a long period of time within institution like the U.S. Army that promote from within.

Biography lends itself to this type of analysis, offering entire careers for examination. However, collective biography is ill-suited for the task. Probing not only the effects of institutional culture on officers' values, practices, and perceptions; but also the effects of officers' values, practices, and perceptions on the shape and course of reform requires intimate detail. While a collective biography would add breadth to the analysis, it would sacrifice much in detail. The more effective approach in this case would be to trade breadth for detail—to identify a representative officer from the generation that entered the army between 1870 and 1890, and study that individual's career in order to discern the relationship between institutional culture and the course of reform. The key is to find a legitimately representative officer.

George W. Goethals is the ideal representative officer of his generation. Having entered the army earlier than most of the significant reform initiatives were enacted, and having left it

immediately after the First World War, he experienced the entire trajectory of institutional reform in the late-nineteenth and early-twentieth centuries. During the period of reform, Goethals interacted extensively with both sides of what is now generally interpreted to represent the ideological divide over the merits of reform: the General Staff and the traditional administrative bureaus within the War Department.⁴⁷ In different stages of his career, Goethals held assignments in two of the traditional bureaus and the first General Staff, and was assigned to the Army War College at its inception. Most significantly, he never had a readily discernible ideological agenda. Prior to World War I, he had been neither an advocate for nor a denigrator of reform. On the question of reform, Goethals represents the uncommitted center in his generation of officers and provides an opportunity to glimpse the interactions of institutional culture and reform generally free from ideological burdens. This is a quality noticeably lacking in works that approach reform from the perspectives of leading reformers and in works that rely heavily upon the perspectives of leading anti-reformist partisans.⁴⁸

Because he was an engineer, some will object to the notion that Goethals can be considered a representative officer of his generation. Compared to the rest of the army, the Corps of Engineers was a relatively small and highly technical branch. The frequent interactions with civilians that were part and parcel of its civil engineering projects had the potential to produce a unique subculture of engineer officers isolated from the army's broader institutional

⁴⁷ Goethals's assignments and relationships on both sides of this divide will be detailed in chapters 3, 4, 6, and 7 of the dissertation. On tensions between the General Staff and the administrative bureaus, see James E. Hewes, Jr., *From Root to McNamara, Army Organization and Administration, 1900-1963* (Washington, DC: U.S. Army Center of Military History, 1975), 10-50; and Otto Nelson, Jr., *National Security and the General Staff* (Washington, DC: Infantry Journal Press, 1946), 73-273.

⁴⁸ Examples of the former include Ronald G. Machoian, *William Harding Carter and the American Army: A Soldier's Story* (Norman, OK: University of Oklahoma Press, 2006) and T.R. Brereton, *Educating the U.S. Army: Arthur L. Wagner and Reform, 1875-1905* (Lincoln, NE: University of Nebraska Press, 2000). The best example of the latter is Daniel R. Beaver, *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885-1920* (Kent, OH: Kent State University Press, 2006).

culture. At first glance, some of Goethals's experiences seem to reinforce this view. When the class of 1880 graduated from West Point, Goethals was one of only two who were assigned to the Corps of Engineers.⁴⁹ Later in life, he would complain that during his service in the Corps of Engineers, some non-engineer colleagues believed that he "was not considered as belonging to the army, being then dubbed a 'mud digger.'"⁵⁰ But one should neither jump to conclusions based on a simple reading of numbers, nor allow of intra-service branch parochialism to mask the larger picture.

It is true that the Corps of Engineers was smaller and more technical than branches of the line—infantry, cavalry, and artillery. But for Goethals and his fellow engineers, similar to their colleagues in the line, small amounts of training and a more significant interplay of skill, personal connections, and chance defined their career trajectories. In fact, the only major difference in this regard was that line officers were subject to even less formal training and interaction with institutional systems than engineer officers, who received such little formal training that they considered it to be an insignificant component of their lives as army officers. Despite the more technical nature of engineering, institutional systems and structures affected the careers of engineers and line officers to comparable degrees.⁵¹

Furthermore, the civil aspects of the mission of the Corps of Engineers did not isolate its officers from the mainstream institutional culture. Engineers like Goethals still weighed in on

⁴⁹ U.S. Department of War, *Annual Reports of the War Department*, 46th Cong., 2nd sess., 1880, House Executive Document 2, vol. II, Part 1 (Washington, DC: Government Printing Office, 1880), 1.

⁵⁰ George W. Goethals to George H. Morgan, February 6, 1925, Folder 40, George W. Goethals Papers, Manuscript Division, Library of Congress, Washington, DC.

⁵¹ This is a point that will receive significant elaboration in chapters 1-4 of the dissertation. For a good example of the development of a highly successful line officer of Goethals's generation, see Edward M. Coffman, *The Hilt of the Sword: The Career of Peyton C. March* (Madison, WI: University of Wisconsin Press, 1966), 1-51.

the army's professional debates and reforms of the day, mixed well with their colleagues from the line during war and when assigned to continental departments during peacetime, and were integrated into both the General Staff and the newly-institutionalized military education system after the Root reforms were implemented in 1903. This preserved not only their identity as army officers, but also their acceptance within the larger community of army officers. As one of Goethals's friends and colleagues remembered shortly after his death about Goethals's relationship with his West Point classmates, "throughout his life he was their leader and the center about which the members of the class gathered whenever they held a reunion."⁵² After a lifetime of service as an artillery officer, division and corps commander, and Chief of Staff of the U.S. Army, Major General Charles P. Summerall put it most succinctly when he said, "General Goethals was one of the great army figures of our day."⁵³

Goethals's contemporaries certainly did not disqualify him as a representative officer of his generation simply because he was an engineer. Neither should historians. A thorough examination of the course of Goethals's life and career reveals broadly applicable lessons that will advance the scholarly debate about army reform by bringing to the forefront the under-examined relationship between institutional culture and institutional reform.

Although this dissertation uses biography as a means of examining a larger problem, the narrative is not a standard biography. Rather than providing a strictly chronological narrative of George W. Goethals's life from birth to death, this dissertation uses Goethals's career as a means

⁵² Gustav J. Fiebeger, "George Washington Goethals," *Fifty Ninth Annual Report of the Association of Graduates of the United States Military Academy at West Point, New York, June 8, 1928* (Saginaw, MI: Seeman & Peters, 1929), 127.

⁵³ "Army Men Pay Tribute," *New York Times*, January 22, 1928, 30.

of analyzing institutional culture and the nature of change in the army between the end of Reconstruction and the end of World War I. Accordingly, while this narrative adheres to chronology as much as possible, it values thematic clarity more than chronological orthodoxy. Because of this, all of the following thematically-organized chapters involve some amount of chronological overlap with at least one other chapter.

The first three chapters trace Goethals's career through 1907 as a means of analyzing how and why the Root Reforms created a schism between institutional structures and institutional culture. Chapter 1 focuses upon officers' perceptions of the value and purpose of training and education, establishing training and education as its point of departure from the society it served. Chapter 2 considers the effect of the frontier upon the army and its institutional culture, arguing that the army's frontier mission and disposition rendered antiquated views about training and education necessary, but that what was born of necessity became enshrined as tradition and long outlived the conditions that justified it. Chapter 3 considers the decade surrounding the Root Reforms. It builds upon the first two chapters to show that the conditions that made the Root Reforms possible were not extreme enough to broadly undermine faith in traditional systems and practices. Accordingly, while officers of Goethals's generation tolerated the new structures, they attempted to mold the new structures to fit traditional norms, values, and practices.

The last three chapters examine Goethals's career from 1907-1919 as a means of explaining how and why the army's institutional culture shifted to realign with the new structures imposed at the turn of the century. Chapter 4 looks at Goethals's years leading the construction of the Panama Canal, using his systems and style of management to demonstrate the extent to which army officers at that time subscribed to the managerial revolution. Chapter 5 focuses on

the problems that plagued the American war effort in 1917, arguing that the managerial revolution provided a conceptual framework that army officers and the American public alike used to diagnose institutional weaknesses within the army. Chapter 6 examines on Goethals's work in the War Department in 1918, and the short-term solutions that the War Department implemented in an attempt to repair a deeply troubled war effort. These solutions constituted an implicit recognition of the problems inherent in the army's traditional systems, values, and practices. It was this recognition and the debates surrounding it that allowed the next of generation of officers—that of George C. Marshall and Dwight D. Eisenhower—to complete the realignment of the army's institutional culture with its structures as the army entered its next major test, the Second World War.

CHAPTER 1

“No Further Need for Professors, Instructors, and Text Books:” Stagnation in Military Education

Speaking to a journalist early in his retirement from a nearly four-decade-long career in the United States Army, George W. Goethals argued that “the best man . . . learns in the only school that is worth anything—experience.” Explaining that position, he said, “No system of training will carry an incapable or unfaithful man to success.” “The world today,” he reasoned, “is a practical one, and it demands results.”¹ In his musings, Goethals presented a perception of the value of formal training and education that was common among his generation of army officers. Reflecting the values imposed upon them by the army’s institutional culture, the officer corps of the late-nineteenth and early-twentieth century army rejected the notion that formal, classroom-based education had a significant role to play within the military profession. On this point, however, the army had failed to keep pace with changes in American society.

American education was fertile ground for reform in the late-nineteenth and early-twentieth centuries. The experience of the Civil War, the expansion and diversification of the economy, and the growth of enormous corporations revealed that the modern industrial age was defined by problems and issues that were tremendously complex in both size and scope. Such complexity could no longer be met by a society of generalists. American society began to embrace specialization in most walks of life. Whether one was to be a lawyer or a factory

¹ Samuel Crowther, “Don’t Fear to Attempt a Thing Just Because it Looks Big,” *American Magazine*, January 1922, 16.

worker, Americans generally came to believe that some amount of formal training and education had an important and active role to play in qualifying a person for a specific occupational group and a life as a productive member of society.

The U.S. Army's view of education, however, was more analogous to the theories Horace Mann promulgated earlier in the nineteenth century than to new philosophies and practices that American educators, universities, and professional associations advanced in the late-nineteenth and early-twentieth centuries. The army ascribed a purely moral value to education and expected its junior officers as apprentices to learn their trade through years of practical experience. But American institutions of higher education, industry, and civil professions within American society had for the most part soundly rejected this view of education and training by the turn of the century. Changes to the perceived value of education both coincided with and contributed to a gradually changing conception of professionalism that moved beyond personal identification and self-study to embrace formal systems of specialized education and training.

The army and its officers, however, rejected the notion that formal education was an important component of the military profession. Despite some attempts at reform in the late-nineteenth century, the officer corps held firmly to outmoded beliefs and practices in the sincere belief that the methods and systems that produced Ulysses S. Grant and Robert E. Lee earlier in the century could not be improved. As officers reared under a system that explicitly favored experiential learning over classroom education rose through the ranks, they credited their success to the perceived merits of that system. This self-reinforcing cycle created an institutional culture conditioned to resist and dilute attempts to reform the army's education system in the early-twentieth century. The gulf that separated American society and its army over the proper purpose and methods of education was perhaps the most important factor that delayed the

ultimate fulfillment of late-nineteenth and early-twentieth century military reform until the interwar years by helping to create an institutional culture within the army that was inclined to resist fundamental change.

George W. Goethals was the middle child of John and Marie Baron Goethals. Belgian by birth, John had immigrated to Brooklyn from Amsterdam in 1848. Marie arrived three years later. Although she had also come by way of Amsterdam, they had not met prior to her arrival in New York. The two married and settled into a house on State Street in Brooklyn, with John having found secure employment as a carpenter in a well-established shop across the East River on 9th Street in New York. In 1856, John and Marie earned full American citizenship and welcomed their first child, a boy named John after his father. George was born at their home in Brooklyn two years later, on June 29, 1858. A baby girl named Annie was born in 1860, completing the recently-established Brooklyn branch of the Goethals family.²

Goethals led an unexceptional childhood. He grew up in a working-class neighborhood in Brooklyn, with his older brother as his closest playmate. He was somewhat introverted, a trait that he never quite outgrew, and generally followed his older brother's lead in their youthful adventures around Brooklyn. He displayed a keen fascination with the local volunteer fire company and with the soldiers encamped at nearby City Park and Fort Greene during the Civil

² "Goethals, Canal Builder, a Brooklyn Boy," *Brooklyn Daily Eagle*, October 12, 1913, 1; and Bishop and Bishop, 27. Very little is known about Goethals's early family life. No correspondence between Goethals and his parents or siblings survives today. The relationship was in all likelihood estranged at some point in Goethals's early adulthood, possibly shortly after George entered the Army, when John and Marie moved with Annie to California, where they died in 1888 and 1899, respectively. In later years, George refused to speak to interviewers about his family and childhood, and Annie refused to speak to interviewers about George. George's older brother John granted one lengthy interview to *The Brooklyn Daily Eagle*, in which he remembers their childhood fondly and displays no hostility or ill-will toward his brother.

War, who passed at least some of their time by arming the Goethals children with sticks and drilling them. There is no evidence that John Goethals served in the military during the war, and the war itself had little impact on the lives of the rest of the Goethals family.³

As Goethals approached school age, perceptions and practices of education in the United States were beginning to change. Producing good and productive citizens had long been at the foundation of American educational thought. Horace Mann, whose views dominated American educational thought for much of the nineteenth century, argued that the true purpose of education was to provide students with the means and general awareness they needed to fulfill civic obligations as adults. According to Mann's position, the specific facts of any given lesson would be lost over time, but the value of education lay in the general promotion of literacy and basic arithmetic abilities—and, most importantly, in imbuing students with mental and physical discipline. Such an interpretation of the purpose of education suited a society that believed providing a person with the means to be a well-functioning adult provided that person with the means to lead a reasonably successful life.⁴ Goethals's early education was founded upon this traditional view.

Along with his brother, Goethals began his formal education in the fall of 1864 at a public school near their home in Brooklyn. At school, he was studious enough to satisfy his parents, but frequently demonstrated a penchant for mischief. Because they were kept after school so often, George and his brother John cut holes in the fence surrounding the school yard so they could slip away during the noontime recess to eat a meal at home on days they

³ "Goethals, Canal Builder, a Brooklyn Boy," *Brooklyn Daily Eagle*, October 12, 1913, 1.

⁴ Barbara Finkelstein "Perfecting Childhood: Horace Mann and the Origins of Public Education in the United States" in *Biography* 13, no 1 (Winter 1990), 6-20.

misbehaved in the morning and already knew they would be punished and kept late after school. At times the punishment would be corporal, but this did not keep the Goethals boys from acting out. “We had a theory in those days,” recalled John, “that a short hair in the palm of the hand would keep the strap from hurting. The great difficulty was to keep the hair in place.”⁵

In 1868, the Goethals family moved across the river to a home on East Fourth Street near what is now Manhattan’s East Village so the elder John Goethals could be closer to work and avoid the inconvenience and occasional hazards of a daily commute by ferry. George was placed in Public School Number 15 to continue his education, now one grade behind his brother John due to his age. At that school, Goethals matured into a more serious student. He caught the attention of Nathan P. Beers, the school’s headmaster. Seeing promise in George Goethals, Beers advanced him ahead a full year, back into the same class as his brother John, and kept a close eye on his progress.⁶

He did not begin to become a more serious student out of any newly discovered love of learning. Instead, it had much to do with ambition. According to his brother John, “At that time, George had an idea that he wanted to be a lawyer, and he studied hard.”⁷ Marie Goethals had always worked to stoke the fire ambition in her children, and in their friends for that matter. A childhood friend of the Goethals boys later recalled with reverence more than a half-century later that Marie would not only foster and encourage her children’s goals, but also urged him,

⁵ “Goethals, Canal Builder, a Brooklyn Boy,” *Brooklyn Daily Eagle*, October 12, 1913, 1.

⁶ “Goethals, Canal Builder, a Brooklyn Boy,” *Brooklyn Daily Eagle*, October 12, 1913, 2.

⁷ “Goethals, Canal Builder, a Brooklyn Boy,” *Brooklyn Daily Eagle*, October 12, 1913, 2.

whenever she saw him, to work hard and keep pursuing his dream of attending the U.S. Naval Academy.⁸

Marie's efforts began to bear fruit as her children became adolescents and young teenagers. Both George and John did well enough in school to place lofty goals within reach. Though driven, the younger Goethals was not focused. Towards the end of grammar school, he abandoned his legal ambitions and began to dream of being a doctor. But it was not to be. John also had designs on the medical profession, and the family could only afford to fund one son's medical training.⁹ After graduating in 1872 at the age of fourteen, Goethals spent his summer working as a cashier and bookkeeper in a fruit and vegetable market, then matriculated with the entering class at the City College of New York. At the time, City College was free for male residents of the city who had attended public school in the city for at least twelve months and could pass college's entrance examination.¹⁰

Goethals applied for admission to City College and took its entrance examination in June 1872. The exam was designed to test applicants' knowledge and aptitude in spelling, reading, writing, arithmetic, English grammar, geography, U.S. history, and algebra. The shy fourteen-year-old must have been nervous as he prepared to be examined and judged; he allowed the registrar to mistakenly record his name as George Washington Goethals without objection or correction, if he had even noticed it in that moment. He had actually been christened George William Goethals, but Washington stuck with him for the rest of his life and into posterity.

⁸ Bishop and Bishop, 28.

⁹ Thomas Goethals interview by author, Vineyard Haven, MA, December 21, 2012.

¹⁰ "Goethals, Canal Builder, a Brooklyn Boy," *Brooklyn Daily Eagle*, October 12, 1913, 2; for City College's requirements see "Twenty-Fourth Annual Register of the College of the City of New York, 1872-1873," CCNY, 20-21.

Goethals may not have even been aware of the error until he arrived at West Point. But as he later explained, after the U.S. Army knew him as George Washington Goethals, he had “never seen fit to have the records of the War Department changed, as it requires an unnecessary amount of red tape.”¹¹

Goethals’s performance on the entrance examination was thoroughly unexceptional. He fared well enough to be admitted, but not so well as to stand out in any significant way. Comparatively, he received marginally acceptable score in English grammar; average scores in writing, arithmetic, U.S. history, and algebra; and high scores in spelling, reading, and geography.¹² He had a strong intellect, as Nathan Beers had previously recognized, but was not naturally brilliant or gifted. Goethals would have to work hard to achieve any greatness inside or outside of the classroom. Ambition had motivated him to become more studious during his time in grammar school, yet his ambition had not been sufficiently consistent or focused to motivate him to reach his full potential. City College would provide some of that necessary motivation.

Goethals entered the world of higher education as it was fundamentally changing. In the years following the Civil War, alternatives to Horace Mann’s theories were increasingly popular. More and more, American society perceived an intrinsic value in knowledge itself. Educators began to argue that the true purpose of education was not to build character, but to impart knowledge. As society gradually embraced the notion that there was a practical value to

¹¹ For the initial mistake, see Applicant #118, “Applicants for Admission to the College, June 1872,” in Admission 1867-1873 book, Box 9, NYCC Office of the Registrar, CCNY. For Goethals’s subsequent explanation, see George W. Goethals to E.B. Barnes, November 13, 1912, Container 17, George W. Goethals Papers, LC.

¹² Applicant #118, “Applicants for Admission to the College, June 1872,” in Admission 1867-1873 book, Box 9, NYCC Office of the Registrar, CCNY.

education, innovation and reform transformed the field—especially in higher education and professional education.¹³

The postwar years were nothing short of revolutionary for American higher education. In a nation remade and redefined by war, American society began to accept a view of education that was less rigid and purely theoretical, and more democratic, egalitarian, scientific, technical, practical, and open to new pedagogical techniques than before the war. New colleges and new leadership at older institutions emerged, each with a distinct interpretation of what was wrong with American higher education. Deeply-rooted trends and traditions in American higher education—including its woeful neglect of women, overly rigid curricula, strict focus on character development rather than scholarship, dependence upon rote memorization and recitation, and relative inaccessibility for average people—faced challenges from many quarters.

While no one institution claimed to have solutions for every perceived problem, American higher education became a laboratory unto itself, defined in the late-nineteenth and early-twentieth centuries by bold innovation and experimentation. Land-grant colleges and free or inexpensive urban institutions like City College democratized higher education, offering unprecedented opportunities to children of workers, small artisans, and farmers. New universities introduced collaborative seminars, developed curricula that combined theoretical scholarship with practical training and education, and gave students more leeway to pursue their own academic interests through the introduction and refinement of elective systems. Most institutions of higher learning looked resolutely forward, fully embracing and often leading

¹³ David B. Tyack, *Turning Points in American Educational History* (Waltham, MA: Blaisdell Publishing Co., 1967), 121-180; Laurence Veysey, *The Emergence of the American University* (Chicago, IL: University of Chicago Press, 1982), chapters 2-3.

innovation and change. As one university president declared, “In this day of unparalleled activity in college life, the institution which is not steadily advancing is certainly falling behind.” At the time that he enrolled, City College was a vibrant institution that had embraced some, though not all, of these reforms.¹⁴

In that environment, Goethals’s scholarly abilities improved somewhat, but his goals continued to fluctuate. While consistently above average, his academic performance varied as his ambitions changed. Early in his time at City College, Goethals gave serious consideration to a career as a naval officer and directed his efforts toward preparing for admission to the U.S. Naval Academy. Accordingly, he performed remarkably well in his studies during his first two years, finishing his first year ranked thirty-first out of a class of 158, and then ranked eleventh out of a class of 104 at the end of his second year.¹⁵ After receiving word from the Secretary of the Navy that there would be no vacancies for midshipmen from his district, Goethals redirected his ambitions toward going into business. On at least two occasions, he was prepared to drop out of City College to pursue potential business opportunities, but ultimately yielded to his father’s wishes that he continue his studies. Goethals’s academic performance suffered somewhat from this ambivalence. He finished his third year ranked twenty-fourth out of a class of seventy-five.¹⁶

¹⁴ Frederick Rudolph, *The American College & University: A History*, Second edition (Athens, GA: University of Georgia Press, 1990), 241-372. See also John R. Thelin, *A History of American Higher Education*, Second edition (Baltimore, MD: Johns Hopkins University Press), 74-204; Daniel T. Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge, MA: Belknap Press, 1998), 97-98 and 108-110. The quotation is from Rudolph, *The American College & University*, 329.

¹⁵ At that time, City College followed a five-year curriculum, with the first year being the introductory year and the second, third, and fourth years being the freshman, sophomore, junior, and senior years, respectively. See “Twenty-Fourth Annual Register of the College of the City of New York, 1872-1873,” Annual Registers, CCNY, 11-15.

¹⁶ Goethals’s changing ambitions are outlined in “Goethals, Canal Builder, a Brooklyn Boy,” *Brooklyn Daily Eagle*, October 12, 1913, 2; his academic standing during his introductory, freshman, and sophomore years can be found in the June 1873, July 1874, and June 1875 Merit Rolls in Box 3 – 1870-1876, Merit Rolls, CCNY.

Although he certainly showed potential, Goethals's collegiate career through 1875 was generally unremarkable, a fact that his City College classmates noticed and commented upon many years later. One classmate remembered Goethals only as a "quiet, reserved, almost shy boy" who "was one of the group that tried for a high stand."¹⁷ Another described him as "rather quiet and reserved, undemonstrative, and not a brilliant or exceptional student; just one among many."¹⁸ More tellingly, a third classmate declared, "My recollections of George W. Goethals at the College include nothing salient. He was an average student, just one of us, without any special distinction."¹⁹

As fall turned to winter in 1875, Samuel Sullivan "Sunset" Cox, the Democratic congressman representing New York's 6th Congressional District, announced that his district had a vacancy at West Point due to his previous nominee's academic failure. The news immediately piqued Goethals's interest. As the son of an immigrant carpenter, however, Goethals had no strong political connections to help him secure the nomination. He sought advice from his old grammar school principal, Nathan Beers, who was not only happy to help, but was in an excellent position to do so.²⁰

The maxim that all politics are local rang true in New York City in 1875. Beers had connections with one of his school's trustees—a man by the name of Miehring—and a coroner named Henry Waltman, who together constituted the most significant political power in Cox's

¹⁷ "Statement of Leigh H. Hunt, '77," undated, George W. Goethals File, CCNY.

¹⁸ Frank H. Gilbert to Donald A. Roberts, March 3, 1912, George W. Goethals File, CCNY.

¹⁹ A.H. Man to Donald A. Roberts, March 31, 1928, George W. Goethals File, CCNY.

²⁰ "Goethals, Canal Builder, a Brooklyn Boy," *Brooklyn Daily Eagle*, October 12, 1913, 2. Beers's critical role in obtaining the nomination for Goethals is also indicated in George W. Goethals to N.P. Beers, May 1, 1876 and O.B. Ackerly to George W. Goethals, December 17, 1912; both found in Container 18, George W. Goethals Papers, LC.

district. Beers pressured Mr. Miehl, who in turn took Goethals's case to Waltman. Here Goethals's army career almost failed to launch, as the coroner had already promised the nomination to his nephew. The nephew, however, was the only child of a mother who was aghast at the idea of her son in the army. She persuaded him to decline the nomination. Beers and Miehl then renewed their efforts on Goethals's behalf. Waltman relented and sent word to the congressman that he had decided that Goethals should have the nomination. Cox then waived his usual competitive examination process and officially extended the nomination to Goethals on April 17, 1876.²¹ Wasting no time, Goethals reported to West Point and was one of 73 cadets to pass the medical and academic examinations required for admission. Another four would be added to the rolls later in the summer. He and his classmates were immediately processed and sent to begin their military training at their first annual summer encampment at West Point.²²

Transferring from City College to West Point in 1876, Goethals was actually moving against the grain of progress. The U.S. Army had not kept pace with the changing perceptions and practices of education in American society. As the gateway to a career as an army officer, West Point's most significant military function was to introduce cadets to the military profession. Life at the academy immersed Goethals and like-minded cadets in military culture and imbued them with a sense of purpose and responsibility, and a deep personal identification with the

²¹ "Goethals, Canal Builder, a Brooklyn Boy," *Brooklyn Daily Eagle*, October 12, 1913, 2.

²² George W. Goethals to N.P. Beers, May 1, 1876, Container 18, George W. Goethals Papers, LC and "Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1877," 23-35, Official Registers of Officers and Cadets, USMA. Goethals did not complete his studies at CCNY, but was designated a graduate of the CCNY class of 1877 and granted a Bachelor of Science degree by a special vote of the college faculty in 1922. See S.W. Rudy, *The College of the City of New York: A History, 1847-1947* (New York: The City College Press, 1949), 200.

army.²³ Theoretically, such commitment would take the form of self-study, which was in turn perceived as the measure of an officer's level of professionalism.²⁴ Originally an unwritten rule inherited from eighteenth-century norms, the army codified this conception of professionalism at the end of the nineteenth century by instituting a system of annual efficiency reports for its officers that required each officer to submit a summary of their extracurricular reading and other efforts to improve their knowledge and expertise in the military profession throughout the course of the year.²⁵

When Goethals arrived, then, West Point was relatively stagnant as an institution of higher education. Other American colleges and universities implemented significant changes, including the transition to the elective system, expansion and diversification of curricula, and adoption of more inclusive and engaging forms of pedagogy. But West Point remained committed to a highly technical curriculum focused primarily on mathematics and science, and conducted instruction through rote recitation and frequent grading through which instructors assessed and competitively ranked cadets' academic performance. Remaining wedded to traditional theories and practices of education was a deliberate policy. The leadership of West Point and the army alike believed that theirs was the best method to condition cadets' minds to

²³ William B. Skelton, *An American Profession of Arms: the Army Officer Corps, 1784-1861* (Lawrence, KS: University Press of Kansas, 1992), 167-180; William B. Skelton, "West Point and Officer Professionalism, 1817-1877," *West Point: Two Centuries and Beyond*, ed. Lance Betros (Abilene, TX: McWhiney Foundation Press, 2004), 26-35; Edward M. Coffman, *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898* (New York: Oxford University Press, 1986), 96-103.

²⁴ Ira D. Gruber, *Books and the British Army in the Age of the American Revolution* (Chapel Hill, NC: University of North Carolina Press, 2010), 23-34; Paul Starr, *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry* (New York: Basic Books, 1982), 18 and 30-112; and Don Higginbotham, *George Washington and the American Military Tradition* (Athens, GA: University of Georgia Press, 1984), 118-124.

²⁵ George W. Goethals, "Officer's Individual Report," May 24, 1890, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

analyze and solve military problems, and that the academic system that produced Generals Grant, Lee, Jackson, and Sherman required no adjustments. Essentially, West Point's curriculum was designed to develop the mental and physical discipline that was believed to foster martial greatness.²⁶

As it was intended, life at the academy immersed Goethals and his colleagues in the military culture and imbued them with a sense of purpose and responsibility, and a deep personal identification with the Army.²⁷ There was, however, an ugly side to this socialization to the military profession. Hazing new cadets had been in practice at West Point since at least the 1830s, when it had maintained a generally benign and harmless character that was limited only to a cadet's first summer encampment prior to the Civil War. The postwar years saw a general decline in discipline among the corps of cadets as officers assigned to West Point were disinclined to enforce policies and regulations that seemed petty and trivial in light of their wartime experiences. The consecutive assignments of two weak and ineffective academy superintendents between 1864 and 1871 only exacerbated this trend. Hazing grew to encompass the entire fourth-class (freshman, or "plebe") year, and ranged in severity from periodic public humiliation to significant physical violence. Despite the efforts of more active and energetic superintendents, such hazing continued through Goethals's cadet years and beyond, until a

²⁶ Stephen A. Ambrose, *Duty, Honor, Country: A History of West Point* (Baltimore, MD: Johns Hopkins University Press, 1966), 191-198; Lance Betros, *Carved from Granite: West Point Since 1902* (College Station, TX: Texas A&M University Press, 2012), 2-3 and 18-21; Theodore J. Crackel, *West Point: A Bicentennial History* (Lawrence, KS: University Press of Kansas, 2002), 137 and 159-160; and Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper & Brothers, 1930), 42.

²⁷ Skelton, *An American Profession of Arms*, 167-180; William B. Skelton, "West Point and Officer Professionalism, 1817-1877," *West Point: Two Centuries and Beyond*, ed. Lance Betros (Abilene, TX: McWhiney Foundation Press, 2004), 26-35; Coffman, *The Old Army*, 96-103.

congressional investigation in the wake of a cadet's death in 1900 produced legislation barring the worst forms of hazing in 1901.²⁸

The immediacy of the sharp change from a civilian to a military existence and the hazing that accompanied it made the transition a harsh experience for all cadets. Although Goethals had as difficult an adjustment to the military as all of his classmates, he adjusted well to life at the academy. In all likelihood, this was because the competitive environment at West Point and the clear end of a commission as an officer in the U.S. Army finally provided Goethals with a well-defined goal on which he could focus his ambitions and energies. He emerged from his summer training in a frame of mind that allowed him to excel in the classroom.

The introduction to the military profession that West Point provided led Goethals to identify deeply with the army and to channel his ambitions toward rising to the top of his class. This was no easy feat—West Point fostered an intensely competitive environment. Accordingly, he put all of his energies into his studies. When “lights out” was sounded at ten o'clock each night, Goethals would lie prone on the floor while his roommates draped a large blanket over him, taking care to weigh it down along the edges with books at regular intervals, so he could continue to study by the undetected light of a kerosene lamp well into the night.²⁹ According to his older brother, when their father wrote Goethals to express his concern about too much study at the expense of sleep, “George's reply was that he would not be satisfied to merely plod through his studies, that he was there for work and he was going to do all in his power to come

²⁸ Ambrose, *Duty, Honor, Country*; Crackel, *West Point*, 141-145; Betros, *Carved from Granite*; and Donald B. Connelly, “The Rocky Road to Reform: John M. Schofield at West Point, 1876-1881,” in *West Point: Two Centuries and Beyond* (Abilene, TX: McWhiney Foundation Press, 2004), 175-178.

²⁹ “Goethals, Canal Builder, a Brooklyn Boy,” *Brooklyn Daily Eagle*, October 12, 1913, 2; and “Statement of Leigh H. Hunt, '77,” undated, George W. Goethals File, CCNY.

out at the head of his class.”³⁰ He very nearly achieved that goal. He was rated second in his class at the end of every academic year. At the end of his first-class (senior, or “firstie”) year, he was still rated second overall, although he was the top cadet in civil and military engineering after achieving a perfect score in that department.³¹

Goethals also thrived outside of the classroom at West Point. Although he remained somewhat introverted and clung to a long-held fear of public speaking that he would never escape, Goethals began to feel more confident and socially at ease in relationships with his fellow cadets on an individual basis.³² As he became more comfortable socially, he became a very popular cadet. Gustav Fiebeger, a graduate of West Point’s class of 1879 and one of the few close friends that Goethals carried throughout his entire adult life, recalled, “It was not long before we discovered in Goethals the qualities which had made him popular with his class.” He explained, “With a winning personality, he was dignified, yet friendly, modest, but self-confident, honorable and upright, cheerful in disposition, quick at repartee and somewhat sarcastic in a pleasant way, military in carriage and neat in dress, never coarse in language or thought.”³³ Well-liked within the corps of cadets, many of whom referred to him playfully as “Goat,” the class of 1880 elected Goethals to be their president and selected him to design the class ring. Years later, Fiebeger would recall of Goethals’s relationship with his classmates that

³⁰ “Goethals, Canal Builder, a Brooklyn Boy,” *Brooklyn Daily Eagle*, October 12, 1913, 2.

³¹ “Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1877,” 20; “Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1878,” 16, Official Registers of Officers and Cadets, USMA, 16; “Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1879,” 14, Official Registers of Officers and Cadets, USMA; “Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1880,” 12 and 28, Official Registers of Officers and Cadets, USMA.

³² George W. Goethals to Lewis Sayre Burchard, June 11, 1927, George W. Goethals File, CCNY.

³³ Gustav J. Fiebeger, “George Washington Goethals,” *Fifty Ninth Annual Report of the Association of Graduates of the United States Military Academy at West Point, New York, June 8, 1928* (Saginaw, MI: Seeman & Peters, 1929), 127.

“throughout his life he was their leader and the center about which the members of the class gathered whenever they held a reunion.”³⁴

Ultimately, while West Point had inspired Goethals to excel in and out of the classroom because it thoroughly imbued him with strong senses of purpose and belonging, its academic impact on him was far less substantial. Goethals always recalled fondly his time at West Point, but he did not value it as an educational experience. He would later tell the graduating class of 1912 that West Point had not provided cadets the knowledge and abilities required to succeed as officers, but with “the foundations of a structure yet to be raised,” and that their real education would be introduced gradually through practical experience.³⁵ He believed that his education at West Point had provided only a means to an end, and to his mind, his experience validated that perception. Goethals’s academic success allowed him to become one of only two members of the class of 1880 to be commissioned as a second lieutenant in the Corps of Engineers.³⁶ After a brief stay at West Point to serve as an astronomy instructor, Goethals departed for Long Island when the next Engineer School of Application class began in the fall of 1880.

Postgraduate professional education was not entirely unusual in American society in the late-nineteenth century. It became more popular because of the increasingly widespread belief in the intrinsic and practical value of education, and the emerging consensus that occupational specialization in the modern industrial age required formal programs of training and education.

³⁴ Quotation from Fiebeger, 127. See also Bishop and Bishop, 40-51. For Goethals’s nickname of “Goat,” see George H. Morgan to George W. Goethals, August 22, 1911, Container 14, George W. Goethals Papers, LC.

³⁵ U.S. Congress, House of Representatives, *Address of Col. George W. Goethals, United States Army, at the Graduation Exercises of the Class of Nineteen Twelve, United States Military Academy, West Point, N.Y., Wednesday, June 12, 1912*, 62nd Cong., 2nd sess., 1912, H.Doc 904 (Washington, DC: Government Printing Office, 1912), 5-8. The quotation is on page 6.

³⁶ Ambrose, 199; *Annual Reports of the War Department*, 46th Cong., 2nd sess., 1880, vol. II, Part 1, 1.

When Johns Hopkins incorporated individual schools for selected professions into its university structure in 1876, other universities soon followed suit. While universities and colleges themselves at first established curricula for specialized training in professions for which they opened schools, nationally centralized professional organizations began to exert more authority in validating and recognizing universities' professional schools and programs as legitimate. Professional associations such as the American Medical Association and the American Bar Association emerged in the late-nineteenth and early-twentieth centuries, and asserted considerable authority in reforming and standardizing professional education and training within the fields of business, medicine, law, social work, education, journalism, engineering, and forestry, among others.³⁷

Generally, then, the notion that training and education had a legitimate and necessary role in occupational and professional specialization became much more popular in American society throughout the late-nineteenth and early twentieth-centuries. This produced a growing consensus that education provided critical opportunities for occupational or professional success. Accordingly, another aspect of the transformation of higher education in the United States was the development of robust programs of specialized vocational and professional education. The army, however, failed to keep pace with the society it served, remaining wedded to antiquated philosophies and methods of occupational and professional training and education despite the best efforts of forward-thinking reformers.

³⁷ Thelin, *A History of American Higher Education*, 129-154; Starr, 17-21 and 79-179; Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870-1920* (New York: Oxford University Press, 2003), 128-129, and Robert H. Wiebe, *The Search for Order, 1877-1920* (New York: Hill and Wang, 1967), 113-127; Chandler, *The Visible Hand*, 130-133 and 466-468.

Despite the changes in civil society, education and training played only a minor supporting role in an army officer's career in the late-nineteenth century. For those of Goethals's generation, formal systems of training and education featured significantly only during the first few years of most officers' careers. The training officers received in their first years was expected to provide a foundational introduction to the profession and, in the case of specialized branches of the army, a base of technical knowledge. Officers expected that practical experience would provide all the necessary training and education thereafter. They continued to see little need for more rigorous education or institutionalized training systems.

To some extent, the army acknowledged the need for some specialized training for officers to become introduced to the branches of the army to which they belonged. Although West Point provided an introduction to the profession and a formal education to its cadets, it gave budding officers only a limited amount of practical military training. Recognizing that the academy did not produce expert practitioners of all its branches, the army generally entrusted lieutenants' technical training to the units to which they first reported after graduation. It experimented with the concept of schools of application—formal schools with standardized curricula to provide branch-specific training to newly commissioned lieutenants—for infantry, cavalry, and artillery in the 1820s, and again for artillery from 1857-1861. These measures were limited and temporary due to a lack of interest, resources, funding, and in the latter case, the outbreak of the Civil War. Within three years of the war's end, the army's technical branches—the Corps of Engineers, the Signal Corps, and the Artillery—each opened new schools of application. These evolved in concept and content over time, but remained for the most part

incomplete experiments that continued to be refined throughout the late 1880s and 1890s, and were not fully trusted within the institution itself for some time thereafter.³⁸

This acknowledgement of the need for postgraduate military education was not confined to the technical branches. Despite continued confidence in the systems and processes that produced the Civil War generation, the army's high command began to accept that changes in tactics, military organization, and technology in the late-nineteenth century called for a better-trained officer corps. Ironically, while many officers pointed to the Civil War to justify their resistance to reform, some of the leading proponents of new experiments in postgraduate military education were general officers from the Civil War. It was William T. Sherman, then serving as Commanding General of the U.S. Army, who ordered the establishment of the School of Application for Infantry and Cavalry at Ft. Leavenworth, Kansas in 1881. The school's purpose was to train junior officer in small-unit tactics. Its target audience consisted primarily of the most junior officers of the line—second lieutenants. Instruction and curriculum in the early years was haphazard, but by 1889, the school developed a practical program that prepared young officers for small-unit leadership within the context of the army's frontier mission.³⁹

Goethals experienced a similarly unfinished and haphazard curriculum at the Engineer School of Application from 1880-1882. He made the short trip from West Point to Willets Point, New York, a post occupying 136 acres on a peninsula extending into the Long Island Sound in northern Queens County. Henry L. Abbot, a Civil War veteran with a distinguished record, had

³⁸ Coffman, *The Old Army*, 96-97 and 274; and Skelton, *An American Profession of Arms*, 248-254; and James L. Abrahamson, *America Arms for a New Century: The Making of a Great Military Power* (New York: Free Press, 1981), 33.

³⁹ Timothy K. Nenninger, *The Leavenworth Schools and the Old Army* (Westport, CT: Greenwood Press, 1978), 1-33.

designed the Engineer School of Application “with a view to meet the actual needs of young officers resulting from the fact that while admirably trained in the rudiments of their profession,” they still had “much to learn about the use and care of delicate surveying, astronomical, and other instruments in constant use by the Corps of Engineers.”⁴⁰

From such humble conceptual beginnings, Abbot continually modified the course until 1885, when it had expanded to a two-and-a-half year long curriculum and earned final sanction from the War Department. At the time Goethals attended, however, the school was slightly less than two years in length and still maturing. In addition to familiarization with specialized engineering equipment, Goethals studied survey procedures, military reconnaissance, astronomy—Willels Point had a state of the art observatory that discovered a comet in June 1881—meteorology, field fortifications, military photography, harbor mining, and coastal defense.⁴¹

While undoubtedly more helpful to Goethals than sending him straight from West Point to his first assignment, precious little of the material was immediately relevant for a junior engineer officer. Not much of the course beyond the familiarization with engineering equipment and the instruction in survey and reconnaissance was actually applicable in Goethals’s duties during his first twenty years of service. The Engineer School of Application was still a developing concept at that time. Fortunately for those who came later, the curriculum that the

⁴⁰ Bishop and Bishop, *Goethals*, 53; Gustav J. Person, “The Engineer School of Application at Willets Point,” *Engineer* 42 (May-August 2012): 49-50; Quotation from Henry L. Abbot, “Early Days of the Engineer School of Application,” *United States Army Engineer School of Application Occasional Papers*, No. 14. (Washington, DC: Engineer School of Application, 1904), 4.

⁴¹ U.S. Army Corps of Engineers, *Annual Report of the Chief of Engineers to the Secretary of War for the Year 1881*, 47th Cong., 1st sess., House Executive Document 1, pt. 2, vol. II (Washington, DC: Government Printing Office, 1881), 419-425.

War Department approved in 1884 included more practical instruction in civil and military engineering.⁴² But these changes came too late to benefit Goethals, whose experiences at Willets Point had no lasting or meaningful impact on him. His surviving correspondence contains not a single reference to or recollection of his time at the Engineer School of Application.

Improvements elsewhere in army education were negligible, limited, or slow to materialize until the early-twentieth century. Under the leadership of visionary reformers Arthur L. Wagner and Eben Swift, the program of instruction at Ft. Leavenworth expanded in the late 1880s and 1890s to include more advanced tactics, strategy, logistics, war games, and a standard orders process. Although Wagner and Swift implemented visionary reforms, the near-term result was an awkward situation in which a relatively advanced curriculum was thrust upon a student body comprised mostly of the army's most junior officers. Older regimental commanders looked upon the Leavenworth schools with jaundiced eyes and continued to fill vacancies there with seemingly expendable lieutenants whose absence would not be sorely missed. As George C. Marshall, who entered the army's postgraduate schools at Ft. Leavenworth in 1906, later recalled that at the turn of the century, "the opposition to any studious preparation of the older officers was very decided." The Ft. Leavenworth schools did not truly mature until the decade preceding World War I, and failed to gain wider acceptance within the army until after World War I.⁴³

The failure of the officer corps to grasp the possibilities of more robust training and education was not due to a complete lack of effort at reform. Sherman was not the only officer

⁴² Abbot, "Early Days of the Engineer School of Application," 35-37.

⁴³ Timothy K. Nenninger, *The Leavenworth Schools and the Old Army* (Westport, CT: Greenwood Press, 1978), 34-50. See also T.R. Brereton, *Educating the U.S. Army: Arthur L. Wagner and Reform, 1875-1905* (Lincoln, NE: University of Nebraska Press, 2000), 47-66. The Marshall quotation can be found in Larry I. Bland and Joellen K. Bland, eds., *George C. Marshall Interviews and Reminiscences for Forrest C. Pogue*, Revised edition (Lexington, VA: George C. Marshall Research Foundation, 1991), 152.

from the Civil War generation who recognized the need for a more structured system of military education. His erstwhile Civil War subordinate, John B. Schofield, shared this view. In the early 1890s, after he became Commanding General, Schofield attempted to institutionalize professional study by implementing an officers' lyceum at each post. But Schofield's efforts were, to their detriment, based on the waning interpretation that professionalism was defined by personal identification and self-study. Schofield's plan called for officers to select a military topic that interested them and annually produce an essay on it. That was the extent of Schofield's guidance on the matter. Unsurprisingly, then, Schofield's lyceum program produced little that was useful in the short amount of time that it existed. Vague and hardly enforceable pronouncements of policy stood little chance of inspiring a fundamental shift in the army's institutional culture, which was characterized, in part, by a distinct and persistent strand of anti-intellectualism.⁴⁴

With persistent anti-intellectualism limiting formal systems of training and education, Goethals's time at Willets Point in his first two years out of West Point was actually the last formal training he received from the army in a career that lasted nearly four decades. Although he was a member of its inaugural class of 1905, the U.S. Army War College at that time was not a truly educational institution. Goethals's experiences there reflected more continuity than change in an institutional culture that rejected of formal training and education.

The army's resistance to the educational mandate incorporated into Secretary of War Elihu Root's sweeping reforms in 1903 illustrated the rigidity of its institutional culture and

⁴⁴ Jason Patrick Clark, "The Many Faces of Reform: Military Progressivism in the U.S. Army, 1866-1916" (PhD diss., Duke University, 2009), 160; and Donald B. Connelly, *John M. Schofield & the Politics of Generalship* (Chapel Hill, NC: University of North Carolina Press, 2006), 318-321.

discomfort with formal education. From his first year in office as Secretary of War, Root had envisioned that the U.S. Army War College would be a dual-purposed institution. On one hand, Root intended it to “direct the instruction and intellectual exercise of the Army, to acquire the information, devise the plans . . . and to advise the Commander in Chief upon all questions of plans, armament, transportation, mobilization, and military preparation and movement.” On the other hand, he intended it to serve as a school in which officers would “receive instruction . . . in the science of war, including the duties of the staff, and in all matters pertaining to the application of military science to national defense.”⁴⁵ Development of the War College concept stalled in 1902 and early 1903 as the board designated to plan and organize it functioned almost entirely as Root’s personal staff during the effort to secure passage of a bill authorizing the creation of the General Staff Corps. After the bill was passed, the War Department put more thought into the college and its relationship to the General Staff and eventually determined that because both organizations were at least partly intended to consider and develop war plans and mobilization systems, the college would be an adjunct component of the General Staff. In 1903, Root assigned the newly-promoted Brigadier General Tasker H. Bliss to serve as the first president of the U.S. Army War College.⁴⁶

Bliss was an uncommon officer. He was raised by academics and inherited their intellectual nature. He entered West Point after having already studied for a year at Lewisburg University, where his father was a professor of classical languages. He graduated from West Point in 1875 as an artillery officer, and spent only three of the next twenty-three years with his

⁴⁵ U.S. Department of War, “Report of the Secretary of War,” *Annual Reports of the War Department*, 56th Cong., 1st sess., 1899, House Executive Document 2 (Washington, DC: Government Printing Office, 1899), 49 and 50.

⁴⁶ Harry P. Ball, *Of Responsible Command: A History of the U.S. Army War College* (Carlisle Barracks, PA: The Alumni Association of the U.S. Army War College, 1983), 79-86.

regiment. He spent the rest of his career in unconventional assignments teaching French and artillery at West Point, teaching strategy at the Naval War College, serving as an aide to Commanding General John Schofield and Secretary of War Daniel S. Lamont, and serving as the military attaché to the U.S. Ambassador to Spain prior to the War with Spain in 1898. Once the war came, he returned from Spain for wartime service, eventually joining the First Army Corps in its expedition to Puerto Rico as the chief of staff of one of its divisions. Subsequently, he served as the collector of customs for Havana. His herculean efforts in that position reformed a corrupt bureau and increased the revenue for the military-run government of Cuba during the postwar occupation. His service caught the attention of Secretary Root, who in 1902 rewarded Bliss with a promotion to brigadier general, despite the fact that he was then only a major in the regular army. Bliss was an intellectual whose career experiences had kept his mind occupied with matters on a much higher plane than most of his peers. Root believed he was the natural choice to lead the new War College.⁴⁷

It is surprising, then, that Bliss countered Root's vision for the U.S. Army War College with a somewhat anti-intellectual plan of his own. As president of the new institution, Bliss was responsible for all professional education in the army. When he issued orders in November 1901 establishing the Army War College, Root helped consolidate a formal, rationalized, and tiered system of professional education that began at West Point, progressed to schools of application for technical training, continued onward to post schools and lyceums for regimental officers, then advanced to the Leavenworth schools, and culminated at the War College. In formalizing this system, Root initiated a fundamental change in the processes of officer development within

⁴⁷ J.P. Clark, *Preparing for War: The Emergence of the Modern U.S. Army, 1815-1917* (Cambridge, MA: Harvard University Press, 2017), 202.

the army by tacitly acknowledging that formal education was a more legitimate component of professionalism and means professional development than self-study. Despite his deeply intellectual nature, nearly thirty years of experience in an army that valued experiential learning far more than formal education had conditioned Bliss against a wholehearted embrace of Root's model. Accordingly, he designed and ran the Army War College as a practical apprenticeship for rising General Staff officers.⁴⁸

Bliss first broached the subject in a lengthy memo to the Secretary of War in August 1903. He opined that "an examination of the curricula of" post schools, schools of application, and Leavenworth schools "show that they go, or are intended to go, to the limit in the matter of direct theoretical instruction of officers." He then reasoned, "It is evident that if instruction is to be continued on this general line at the War College, it will involve a repetition of what has been given at the other service schools," and that "manifestly all this will be a waste of time and a degradation of the institution from its true function." He summarized his case by declaring, "When an officer has passed through the course to which he must have been subjected before he comes to the War College he must have learned, (unless there be a great fault somewhere) all that he needs to know of the theory of the art of war," and that "from that time on he should learn things by doing things."⁴⁹

Bliss was either successful in convincing the Secretary of War, or was allowed to carry on because Root was preparing to retire in early 1904 and had concluded that his imminent departure from office precluded further efforts on behalf of his vision for the War College. Bliss

⁴⁸ See John D. Wainwright, "Root versus Bliss: The Shaping of the Army War College," *Parameters* 4 (March 1974): 52-65; and Clark, *Preparing for War*, 203-204.

⁴⁹ Tasker H. Bliss, "Memorandum," August 3, 1903, File AWC 1147, Box 1, Entry 294, RG 165, NARA II, 15-16. Underlines are in the original.

received no argument from Root's successor, William H. Taft, when he made a similar argument in another report early the following year. Bliss stated that the components of the education system below the War College "go to the limit of useful training by the ordinary scholastic methods," and that "after passing them there is no further need for professors, instructors, and text books." Continuing, he described collaborative planning with experts from various branches as "an essential part of the art of war and which can be learned not from books and professors but only by patient and unostentatious labor in doing these things themselves." Bliss believed the primary purpose of the War College was to serve as a planning and supplemental staff agency, with a useful side effect of allowing its members to train on planning and problem solving through sheer repetition. "Thus," he concluded, "the scholastic work of the War College will not consist in the study of general principles but in the application of these principles to the details of a specific plan."⁵⁰ Accordingly, the U.S. Army War College spent its first few years functioning more as an apprenticeship for General Staff officers than as a true educational institution.

Goethals was a member of the War College during its first year. Under the leadership of its president and directors—Bliss, Wagner, and Lieutenant Colonel William W. Wotherspoon, respectively—nine officers were detailed as students, and five officers, including Goethals, were detailed as War College staff, with another two detailed for administrative duties.⁵¹ That he was detailed to serve on the War College staff rather than for administration was likely due to his by-then excellent reputation and a prior working relationship with Bliss in the First Army Corps

⁵⁰ Tasker H. Bliss, "Memorandum Report for the Chief of Staff," January 15, 1904, AWC 84, Box 1, Entry 294, RG 165, NARA II, 2-8. Quotations from pages 3, 4, and 8, respectively.

⁵¹ General Orders No. 155, War Department, September 17, 1904, File AWC 275 and Chief of the Third Division, "Memorandum for all officers of the Third Division, General Staff," September 15, 1904, File AWC 276, Box 2, Entry 294, RG 165, NARA II.

during the War with Spain. Goethals's achievements earlier in his career had shaped his reputation for having an inquisitive mind. As an intellectual, Bliss would assuredly have recognized and appreciated this quality, and sought to use it to maximum advantage in the War College.

The first session of the War College proceeded very much according to Bliss's conception of how it should function. Its officers considered problems, most of which related to President Theodore Roosevelt's active Caribbean policies, including developing plans to prevent foreign intervention in Haiti and mobilizing expeditionary forces between 5,000 and 30,000 soldiers strong for operations in Santo Domingo, Venezuela, and Panama. Additionally, a series of fifteen lectures was established in which officers from the General Staff and the War College addressed the War College on current events or their areas of technical specialty within the Army. The ongoing Russo-Japanese War was the topic of seven of these lectures, delivered by officers recently returned from assignments as attachés or observers with the belligerent armies.⁵² For his part, Goethals served as a member of the Strategy Board, was the chairman of the committee considering problems related to the defense of the Philippines and military operations in the Pacific, and was a member of a special committee planning joint army-navy maneuvers scheduled for 1905. Demonstrating the non-academic nature of the War College, students and staff alike were declared to be graduates of the inaugural War College class of 1905.⁵³

⁵² Samuel Reber, "Memorandum of the Work of the Army War College for the Session Ending May 31, 1905," File AWC 488, Box 2, Entry 294, RG 165, NARA II; Ball, 92-96.

⁵³ Tasker H. Bliss, "Memorandum," September 26, 1904, File AWC 290, Box 2, Entry 294, RG 165, NARA II; J.D. Leitch to George W. Goethals, April 28, 1911, Box 12, George W. Goethals Papers, LC.

Because the construction of its building at Washington Barracks had not yet been completed, officers assigned to the War College between 1903 and 1907 crammed into whatever office space they could improvise in a home the army rented from a well-known Washington socialite. The four-story brick townhouse at 22 Jackson Place sat off of the northwest corner of Lafayette Square, mere yards down the road from the White House and its more sprawling, dourly Victorian neighbor the State, War, and Navy building, where the rest of the War Department and General Staff were situated. Although those who secured workspace in one of the townhouse's rooms whose tall, slender windows gave excellent views of the park outside may have been content, the officers of the War College—especially the unlucky four who were forced to work in the attic—found that the pleasant home made for an uncomfortably cramped workspace.⁵⁴

For Goethals, the work environment was especially uncomfortable because it exacerbated deeply-held insecurities about his lack of combat experience. The reformers who organized the General Staff Corps, of which the U.S. Army War College was a part, were careful to select only those officers who represented the cream of the crop for its first cohort of officers. As General William H. Carter recalled in later years, “The type and character of officers detailed in the General Staff . . . was of the highest, and were, I am sure, unexcelled in any other army.”⁵⁵ Nearly three-quarters of officers assigned to the first General Staff were officers from line branches whose only opportunities to stand out as junior officers were in combat with in the

⁵⁴ Files AWC 506, AWC 694, AWC 197, AWC 502, and AWC 858, Box 1, Entry 294, RG 165, NARA II are the lease documents for 22 Jackson Place. Cramped conditions are reported in Tasker H. Bliss to Secretary of the General Staff, February 2, 1905, File AWC 395, Box 1, Entry 294, RG 165, NARA II. The building still stands today, but the address is now 736 Jackson Place.

⁵⁵ U.S. Congress, Senate, William H. Carter, *Creation of the American General Staff*, 68th Cong., 1st sess., 1924, S.Doc 119 (Washington, DC: Government Printing Office, 1924), 55.

West during the Indian Wars, in Cuba or the Philippines during the War with Spain and the subsequent Philippine Insurrection, or in China during the Boxer Rebellion in 1900. Many of Goethals's colleagues within the War College had distinguished combat records.⁵⁶ Like most officers of his generation, Goethals maintained a heroic conception of the ideal officer, heavily influenced by their collective memory and idolization of the Civil War generation. Surrounded daily by combat veterans and undoubtedly subject to their stories, reminiscences, and yarns, Goethals found his lack of combat experience to be utterly discomfiting, even embarrassing. He even went so far as to write in his own individual service report in 1903 shortly after reporting for duty with the General Staff that he "had participated in no battles, engagements, or actions" in a section in which he was supposed to describe his areas of expertise and special qualification.⁵⁷

Goethals's insecurity turned out to be unfounded. If any of his colleagues or superiors thought any less of him because of he had not seen combat, they were quickly won over by his engineering expertise and his dedicated and energetic work ethic. Wagner found Goethals to be "well informed on all military subjects, and especially in regard to Military Engineering."⁵⁸ Wotherspoon, who would briefly serve as Chief of Staff in 1914, reported in 1905 that Goethals

⁵⁶ 30 of the 42 company and field grade officers detailed to the first General Staff came from the line, in addition to all of its general officers – see "Report of the War College Board," March 9, 1903, printed in Carter, *Creation of a General Staff*, 52-54. The first General Staff included a Medal of Honor Recipient from wars with the Native Americans in Brigadier General William H. Carter, and many officers who had been cited for bravery in more recent conflicts, including Major General Adna Chaffee, Captain John J. Pershing, Captain Peyton C. March, and Captain Joseph T. Dickman, among others. A listing of all officers on the first General Staff may be found in "Report of the Secretary of War," *Annual Reports of the War Department*, 1903, insert facing page 68.

⁵⁷ "Individual Service Report of Major Geo. W. Goethals," July 1, 1903, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁵⁸ "Efficiency Report of Major George W. Goethals," June 30, 1903, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

“had shown marked ability in all the work entrusted to him.”⁵⁹ In private correspondence, Brigadier General James Franklin Bell, another soon-to-be Chief of Staff, included Goethals in a list of a select group of individuals “who, by application and industry, have acquired such special qualifications that their services are always in demand, because those who want them really need their assistance and talent.”⁶⁰ By 1905, Goethals had more than proven himself and was rewarded by being designated to serve as the junior director of the Army War College, with Wotherspoon as senior director, for its 1905-1906 session.⁶¹

Goethals moved on to other duties in 1906, but had he remained, he would have seen the War College continue to fall short of its educational mandate. Although Bliss departed for an assignment in the Philippines in the summer of 1905, the character of the U.S. Army War College did not immediately change. A limited number of “faculty” worked with a similarly limited number of students to produce immediately usable plans, form committees to study more complex military problems, and attend lectures of contemporary interest and importance. The class of 1906 created plans for launching an expeditionary force for an intervention in Cuba later that year. Subsequently, Wotherspoon was temporarily relieved from duty at the War College to help lead the Cuban Expeditionary Force as its chief of staff. It fell to the class of 1907 to develop the plans to bring that expeditionary force home.⁶²

In 1907, Wotherspoon returned to the U.S. Army War College as its president. He did much to change the institution. With notable assistance from Chief of Staff of the Army J.

⁵⁹ “Efficiency Report of Major George W. Goethals,” June 30, 1905, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁶⁰ James F. Bell to Adna R. Chaffee, March 25, 1904, File # 2145, Box 252, RG 393, NARA I.

⁶¹ Ball, *Of Responsible Command*, 98.

⁶² Pappas, *Prudens Futuri*, 48-54.

Franklin Bell, the War College implemented tougher admissions standards, ended the practice of placing faculty and students on the same level, brought in instructors from Ft. Leavenworth to rehabilitate its courses on applied tactics and strategy, and began the practice of conducting theoretical study of military problems associated with Civil War campaigns and applying the fruits of their study on staff rides to selected battlefields. By the 1910-11 academic year, the institution had clearly oriented itself more towards individual officer development than towards collective experiential learning as a useful but ancillary byproduct of the process of producing actual staff plans and papers.⁶³

At the same time, however, it continued to fall short of its original mandate. After 1911, the most significant improvements made at the War College were a gradual increase in class size and a simultaneously gradual improvement and standardization of admissions standards. While Wotherspoon's curriculum was a significant improvement, it represented a ratification of the applicatory method of officer education that was at the foundation of the Leavenworth schools rather than an acceptance of theoretical education.⁶⁴

Although the U.S. Army War College, like the Leavenworth schools, made considerable strides in the decade leading up to the First World War, the army's institutional culture remained decidedly anti-intellectual. Despite the considerable efforts of forward-thinking reformers, the army's institutional culture was unmoved in the late-nineteenth and early-twentieth centuries. It

⁶³ Pappas, *Prudens Futuri*, 54-68; and Ball, *Of Responsible Command*, 105-108.

⁶⁴ Moreover, Wotherspoon's model was designed to replicate the program in place at Fort Leavenworth's staff college because he could not convince his superiors to make graduation from the staff college a binding requirement for admission to the War College. Overlapping so much of the ground covered at the level of military education that Elihu Root had imagined would precede it, the U.S. Army War College cannot be said to have sat atop a rationalized and tiered educational system as it was originally intended. See Pappas, *Prudens Futuri*, 71-82 and Ball, *Of Responsible Command*, 106-119. On the program at Ft. Leavenworth, see Nenninger, *The Leavenworth Schools and the Old Army*, 55-78.

continued to reject the notion that a robust, standardized, and institutionalized education system should play a significant role in officers' careers. Although the army remained well-connected with American society, its attitude toward education remained stagnant, stubbornly and persistently wedded to antiquated philosophies and practices. Structural reforms like the introduction of the Leavenworth schools and the U.S. Army War College failed to influence officers to change their minds about the role of education in the military profession. That would be delayed until a younger generation of officers internalized the harsh experiences and lessons of World War I. In the meantime, the generation of officers who—like Tasker H. Bliss and George W. Goethals—entered the army between 1870 and 1890 and led the transition from the old army to the new remained committed to tradition.

Formal training and education shaped Goethals's exceptionally successful career only to a very slight extent. He had, for the most part, learned his trade outside the classroom, and he was relieved when his duties in 1906 took him away from duty with the War College and onto a board convened by Secretary of War William H. Taft to study the state of the army's coastal defenses. As with many of those from his generation of officers who were affiliated with the U.S. Army War College in its formative years, Goethals's latest experience with military education turned out not to be very educational in nature. For Goethals, it actually proved to be a somewhat stressful source of feelings of inadequacy that reinforced negative opinions of the War College itself.

Like many of his peers, Goethals experienced military education during a time when systems of military education were either stagnant or still under development, reinforcing a view that formal education had no significant place in the military. Despite his later experiences with

the realities of modern warfare, Goethals clung to this view for the rest of his life. Three years after his retirement from the U.S. Army, he still argued that “the best man . . . learns in the only school that is worth anything—experience.”⁶⁵ Goethals assumed his success under a system that rejected formal training and education validated the system itself. He went into retirement and even to the grave clinging to an antiquated conception of the role of education within the military profession.

As officers like Goethals found professional success and rose through the ranks, they attributed their accomplishments to the perceived merits of their antiquated system. The U.S. Army’s institutional culture was therefore trapped in a self-generating and self-reinforcing cycle. Officers who succeeded in spite of a deficient educational system wrongly interpreted that their success was partially due to that system. As they advanced through the ranks and assumed positions of considerable power and authority, they—like Tasker H. Bliss—took steps to perpetuate an antiquated and deficient system, or—like Goethals—advocated strongly on its behalf, crippling the efforts of military reformers.

Armies typically reflect the societies they serve. But in its views on the utility and best practices of education, the U.S. Army lagged behind American society in the late-nineteenth and early-twentieth centuries. As their civilian contemporaries adjusted educational theories and practices, and established new, specialized institutions of higher and postgraduate education according to a changing conception of professionalism, many army officers remained steadfastly anti-intellectual, implicitly endorsing an outdated conception of professionalism based on personal identification and self-study.

⁶⁵ Crowther, “Don’t Fear to Attempt a Thing Just Because it Looks Big,” 16.

This situation was partly by choice. The U.S. Army consciously idolized the Civil War generation and resisted most attempts to alter the methods and systems that produced it. It smacks of irony, then, to consider that some of the luminaries most closely associated with late-nineteenth century proposals for military reform—including Emory Upton, William T. Sherman, and John M. Schofield—had been Civil War generals. Despite attempts at reform, cultural predilections that had become ingrained in the very fabric of the institution over the course of an entire century proved too difficult to break. The army and its officer corps rejected suggestions that it needed to modernize its educational systems and practices.

But this was also partly the result of circumstance. The U.S. Army could not completely adopt a conception of professionalism based on specialized training and education, and an educational system appropriate for that conception, throughout much of the late-nineteenth century because of its small size and its disposition on the frontier. The American frontier was both a place and a process that heavily influenced the army's institutional practices and thought on officer development. The U.S. Army simply could not completely adopt the educational philosophies and methods proposed by civil and military reformers until well after its mission and disposition were no longer so heavily intertwined with and influenced by the realities and perceptions of the American frontier.

CHAPTER 2

*The School of Experience:
The Frontier and its Impact on the U.S. Army*

In 1922, the journalist Samuel Crowther interviewed George W. Goethals. Success in Panama had made Goethals somewhat of a celebrity, and enterprising reporters like Crowther would, from time to time, seek interviews with the famed engineer to produce articles that would appeal to an interested national audience. Hoping to explore the challenges associated with building the Panama Canal, Crowther may have been a little frustrated when the retired major general observed, “The hardest task I ever had . . . was a bridge that I built over the Spokane River . . . for I never had built a bridge, and I did not know much about bridge building.”¹

Goethals’s experience as a young lieutenant in 1882 was not uncommon. It reflected the state of officer development in the United States Army during the late-nineteenth century. The army was not an institution that actively developed its leaders. Rather, it was an institution that could identify the need to build a bridge and send an officer utterly lacking expertise and experience to build it, either completely unaware of the officer’s lack of qualifications or confident that the officer would eventually figure it out. Although the army trusted that officers would learn and develop through their individual experiences, it did very little to control or standardize officers’ careers in order to ensure some level of parity in the type and quality of experiences from which its officers were expected to learn. The process by which the army

¹ Samuel Crowther, “Don’t Fear to Attempt a Thing Just Because it Looks Big,” *American Magazine*, January 1922, 93.

assigned officers to different duties throughout their careers was unregulated and highly dependent upon the perceptions and attitudes of the individuals who wrote the orders. Beyond this, officers' careers were shaped only to a small degree by formal, standardized training. Such an unsystematic means of officer development was a product of the army's frontier mission, structure, and disposition.²

Nineteenth-century Americans perceived their western frontier in terms of both place and process. As a place, they considered it to be land which they were entitled to possess. Many also saw it an outlet for a national population that increased by at least 25 percent each decade of the century.³ Perhaps more importantly, many Americans believed that the expansion to the Pacific Ocean was a divinely-ordained process that strengthened the nation by spreading democracy and Christianity, improving civic-mindedness, and encouraging a rugged sense of individualism and self-reliance.⁴ Spurred by a complex variety of motivations, Americans worked individually and collectively throughout the nineteenth century to acquire and control, both physically and demographically, the American west. George W. Goethals saw that goal realized during his lifetime. In 1870, approximately two million Americans lived west of the

² The career patterns of nineteenth century officers are well developed in Edward M. Coffman, *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898* (New York: Oxford University Press, 1986), 42-103 and 215-286.

³ Throughout the nineteenth century, the population of the United States increased by a third in each decade prior to the Civil War, and by a quarter each decade after it. See Walter Nugent, *Habits of Empire: A History of American Expansion* (New York: Vintage Books, 2009), 234.

⁴ Frederick Jackson Turner, who rhapsodized that the frontier had accomplished just that as he declared it to be "closed" in 1893, provided one of the more famed articulations of this view—see Frederick Jackson Turner, "The Significance of the Frontier in American History," in *The Frontier in American History* (New York: Henry Holt and Company, 1920), 1-38. But this view reflects what one historian equates to a "continuous narrative" that had been articulated well before by Thomas Jefferson in his "empire of liberty" speech. See Nugent, *Habits of Empire*, xiii.

Missouri River. By 1900, that number had increased to 10.4 million, and Americans generally considered their frontier to be a thing of the past.⁵

Far from a relic of recent history, however, the frontier experience maintained its overwhelming influence upon the United States Army even into the early-twentieth century. The frontier was an all-consuming and deeply habit-forming place and process that indelibly shaped its institutional culture. The army had been central to the national experience of the frontier as the federal government's "most visible agent" of expansion.⁶ With American expansion over vast territory, the relatively small United States Army had to economize its forces, dispersing small units among hundreds of small and relatively autonomous forts and outposts. Its disposition forced the army to demand maximum output from its junior officers. It simply could not afford to develop and institute robust systems of training and education that took junior officers away from their units for any significant period of time. Instead, the army dispensed with a limited amount of formal training and education at the outset of officers' careers and expected that its officers would learn their craft through experience while seeing to their operational responsibilities.

Over time, however, concepts of officer development grounded in experiential learning born of necessity morphed into a cultural preference based less upon need than upon institutionalized habit. Successive generations of officers developed largely without formal training. Those who succeeded under such a system combined natural talents with exceptional

⁵ Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: Norton, 2011), 458. On perceptions of the frontier being "closed," see Bruce Cumings, *Dominion from Sea to Sea: Pacific Ascendancy and American Power* (New Haven, CT: Yale University Press, 2009), 35-38.

⁶ Robert K. Wooster, *The American Military Frontiers: The United States Army in the West, 1783-1900*, (Albuquerque, NM: University of New Mexico Press, 2009), xii.

abilities to learn and apply lessons derived from their and others' experiences, and were fortunate to be placed in assignments which provided challenges and opportunities that allowed them to learn, grow, and display their talents. Later in their careers, successful officers came to believe they owed their success to the unsystematic model of experiential learning to which they were accustomed. As they assumed positions of institutional leadership, these officers extolled the virtues of experiential learning and attempted to further institutionalize it. Consequently, the army's experiential model of officer development transitioned from an operational necessity to a cultural norm that continued to shape the institution itself well after most Americans accurately perceived that their western frontier had ceased to exist.⁷

Fresh out of the Engineer School of Application at Willets Point, New York, Goethals reported for duty on the staff of the Department of the Columbia in November 1882, eager to play a small role in the U.S. Army's expansive and complex frontier mission.⁸ Between the American Revolution and 1891, as American expansion sparked conflict with those who had long before claimed the land as their own, the U.S. Army waged dozens of campaigns against Native Americans from the Atlantic to the Pacific.⁹ But fighting did not define the army's

⁷ This chapter examines George W. Goethals's experiences in Washington Territory, as well as on the Ohio and Tennessee Rivers. While neither the Ohio nor the Tennessee Rivers were located on the frontier, river improvement and canal construction were certainly missions of the frontier army, in that they were means of facilitating communications and trade throughout an expanding nation. It is in that light that I categorize them as part of Goethals's experiences with the frontier army and use them as examples of the theory and practice of experiential officer development within the frontier army.

⁸ George W. Goethals, "Annual Report for the fiscal year ending June 30, 1883," October 1, 1883, File 3570, Box 42, Entry 52, RG 77, NARA I, 1.

⁹ For a general summary of U.S. Army campaigns against Native Americans, see Robert M. Utley and Wilcomb E. Washburn, *Indian Wars*, Mariner Books edition (Boston, MA: Mariner Books, 2002), chapters IV-XI. For a study more focused upon campaigns after the Civil War, see Robert M. Utley, *Frontier Regulars: The United States Army and the Indian, 1866-1891* (Lincoln, NE: Bison Books, 1973), chapters 7-20.

frontier mission. In fact, most soldiers spent far more of their careers on the army's myriad other tasks on the frontier and supporting American expansion. The army was regularly called upon to protect railroads, assist settlers traveling overland, deliver federal mail, conduct explorations and geographical surveys, and build the roads and canals that facilitated trade and communication throughout the expanding United States. Still, its principal role on the frontier was to serve as a constabulary force, policing the frontier, and sometimes directing their efforts as much against rogue settlers antagonizing Indians as they did against the Native Americans themselves.¹⁰

The U.S. Army's size did not match its expansive mission. At the conclusion of the Civil War, the army was over 1,000,000 soldiers strong. Only four years later, however, just under 37,000 soldiers remained in the ranks. Those soldiers were widely dispersed among 255 posts scattered throughout the western frontier and the Atlantic and Gulf coasts. And while the army continued to trim its ranks—it fluctuated between a high of 28,565 and a low of 24,140 soldiers from the day George W. Goethals entered West Point in 1876 until the eve of war in 1898—it was not able to shed a proportional number of its posts. While the army succeeded in closing some posts and consolidating some of its units at larger installations in the late 1880s, it remained a dispersed army forced into a heavy reliance on small-unit operations. In 1889, the army's 27,759 soldiers garrisoned just under 140 posts, the largest of which housed only 700 soldiers. Dispersed as it was, the U.S. Army's ability to systematically educate and train its ranks was severely limited.¹¹

¹⁰ A thorough analysis of the breadth of the U.S. Army's frontier mission can be found in Michael L. Tate, *The Frontier Army and the Settlement of the West* (Norman, OK: University of Oklahoma Press, 1999). See also Robert Wooster, *The American Military Frontiers: The United States Army in the West, 1783-1900* (Albuquerque, NM: University of New Mexico Press, 2009), especially chapters 6-7 and 10-12.

¹¹ Russell F. Weigley, *History of the United States Army*, Enlarged edition (Bloomington, IN: Indiana University Press, 1984), 267 and 598; Coffman, *The Old Army*, 215-216 and 282-283; Harry P. Ball, *Of Responsible Command: A History of the U.S. Army War College* (Carlisle Barracks, PA: Alumni Association of the U.S. Army

This disposition made the U.S. Army's passive approach to officer development both natural and necessary. As long as the army's frontier mission and disposition remained unchanged, more robust systems of training and education were neither feasible nor advisable. Mature systems of military education and officer development could not take hold in an environment in which junior officers were decisively engaged in the day-to-day operations of an army that functioned largely at the small-unit and junior-officer level. Junior officers frequently commanded units at small frontier outposts, unable to put aside the steady pace of their many and varied duties. Perhaps understandably, the army preferred to maintain those who performed exceptionally well and demonstrated potential in their duties. Rather than relieve them for further schooling and development, these junior officers were assigned to more immediate mission requirements by superior officers who were equally beleaguered by the breadth of their mission and the comparative paucity of their resources. The army could do little else but hope that the experiences officers gained in the course of the execution of their duties would teach them all they needed to know to succeed at higher ranks.¹²

Goethals's first such experiences were with the Department of the Columbia, which encompassed all of Oregon, Washington Territory, and the district of Alaska, as well as most of Idaho Territory. Since August 1881, Brigadier General Nelson A. Miles commanded the

War College, 1983), 7; and Jason Patrick Clark, "The Many Faces of Reform: Military Progressivism in the U.S. Army, 1866-1916" (PhD diss., Duke University, 2009), 61-62.

¹² It is worth noting too that the old army promoted at a glacial rates, and officers could be lieutenants and captains for decades. On life for junior officers in the late-nineteenth century, see Coffman, *The Old Army*, 215-286. Commanding Generals William T. Sherman and John Schofield saw the need to insert more classroom education into officers' careers and experimented with limited programs of reform, most notably Schofield's lyceum program. But their efforts depended upon a broad willingness to change routines and habits that had become ingrained in the army's institutional culture. Such willingness proved to be largely absent; dulling the effect of Sherman's and Schofield's efforts. See Coffman, *The Old Army*, 271-278; Donald B. Connelly, *John M. Schofield and the Politics of Generalship* (Chapel Hill, NC: University of North Carolina Press, 2006), 301-322; and Clark, "The Many Faces of Reform," 160-161.

department. Famous for his campaigns in the Indian Wars, Miles would become the Commanding General of the army by the end of the century.¹³ Goethals was fortunate to be assigned to a functioning frontier department, gaining uncommon exposure to life with line units and officers outside the Corps of Engineers. In 1883, only ten out of the 103 officers of all ranks in the Corps of Engineers performed duties in commands that included tactical units and soldiers of the line.¹⁴ At the same time, this undoubtedly proved to be a challenging assignment for a young lieutenant with no experience outside of West Point and the Engineer School of Application. As the only engineer officer assigned to the command, he was by default the senior engineer in the department, and Miles expected him to be the resident expert on all engineering matters. Goethals had only a somewhat limited base of theoretical knowledge to rely upon, and had no mentor to develop him.

Additionally, the young lieutenant was not entirely lucky to be assigned to serve on the staff of the ever petulant and irascible Nelson Miles. “Always fearful of conspiracies,” his biographer astutely notes, “Miles divided the world into two clearly distinguishable factions: those wise enough to agree with him and those mean-spirited enough to allow their jealousies to affect their judgment.”¹⁵ Surviving service under a commander with an infamously quick temper and legendary ability to bear grudges would be a tall order for any officer. For a new lieutenant

¹³ Robert Wooster, *Nelson A. Miles & the Twilight of the Frontier Army* (Lincoln, NE: University of Nebraska Press, 1993), 133. For general information about the Department of the Columbia, see Walter R. Griffin, “George W. Goethals, Explorer of the Pacific Northwest, 1882-1884,” *The Pacific Northwest Quarterly* 62, no. 4 (October 1971): 130-133 and Wooster, *Nelson A. Miles and the Twilight of the Frontier Army*, chapter 8.

¹⁴ For strength and disposition of Corps of Engineers officers, see U.S. Department of War, *Report of the Secretary of War*, 48th Cong., 1st sess., 1883, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1883), 3-4.

¹⁵ Wooster, *Nelson A. Miles & the Twilight of the Frontier Army*, 269.

finding his way in the army on his first assignment without the benefit of a mentor, it would prove to be an impossible task.

Things started well enough. Miles, who was on leave in Boston and Washington for the first six months of Goethals's assignment to Vancouver Barracks, had identified regional development to support the expansion of railroads and settlements at the top of his department's priorities.¹⁶ A considerable amount of land within the Department of the Columbia had not yet been adequately explored and mapped. As the department's engineer, Goethals spent much of his time exploring and mapping, particularly in the northern reaches of the Washington and Idaho Territories. The bulk of his assignment to Vancouver Barracks was spent in the field conducting reconnaissance missions and exploration parties, as well as for laying out wagon roads, railroads, and telegraph lines.¹⁷

With the same work ethic he demonstrated at West Point, Goethals was completely dedicated to his work. His energetic efforts drew the notice of all who observed him, even at the highest levels. Notably, Miles ordered Goethals to reconnoiter and plan the route for part of General Sherman's tour of the Pacific Northwest in the summer of 1883. Goethals deeply impressed Sherman, who reported to Secretary of War Robert T. Lincoln that Lieutenant Goethals was "a most intelligent young Engineer officer." Continuing, Sherman noted that Goethals had conducted a reconnaissance of the party's route prior to its arrival, and had "submitted to me . . . his report with sketches, which I found most valuable and accurate, so that

¹⁶ Wooster, *Nelson A. Miles & the Twilight of the Frontier Army*, 134-135.

¹⁷ See George W. Goethals to Chief of Engineers, May 24, 1883, File 2172, Box 41, Entry 52, RG 77, NARA I; George W. Goethals to Chief of Engineers, May 31, 1883, File 2176, Box 41, Entry 52, RG 77, NARA I; George W. Goethals to Chief of Engineers, May 15, 1883, File 2181, Box 41, Entry 52, RG 77, NARA I; George W. Goethals, "Annual Report for the fiscal year ending June 30, 1883," October 1, 1883, File 3570, Box 42, NARA I; and George W. Goethals to Chief of Engineers, April 1, 1884, File 1450, Box 44, Entry 52, RG 77, NARA I.

I resolved to adhere strictly to his advice though it differed somewhat from my own preference based on the best information at Washington.”¹⁸ Sherman was so impressed that he told Miles that Goethals was “one of the most promising men in the Army,” and forwarded the maps Goethals prepared to Lincoln so they could be copied and used in the various War Department offices in Washington.¹⁹ Miles expressed his own confidence in Goethals by ordering him to escort General Sherman’s party for two weeks in August 1883, before diverting him to assist a cavalry detachment attempting to locate a pass through the Cascade Mountains.²⁰

While most of Goethals’s duties at Vancouver Barracks involved reconnaissance and mapmaking, he also gained limited experience in civil and military engineering. He selected sites and planned for the construction of new buildings on post, planned a new post cemetery, and constructed roads within the department.²¹ In October 1883, the Spokane River washed out the only bridge that could be used to sustain Fort Spokane, home of the 2nd Infantry Regiment. Miles hurried Goethals to the site to consult with the regimental commander and build a new bridge as quickly as possible. Goethals later described the construction of this small bridge as “the hardest task I ever had,” in an interview eight years after he completed the construction of the Panama Canal. Relatively unschooled and completely inexperienced in building bridges

¹⁸ William T. Sherman to Robert T. Lincoln, August 30, 1883, Reel 47, William T. Sherman Papers, Library of Congress, Washington, DC. I am indebted to J.P. Clark for sharing this source.

¹⁹ Nelson A. Miles to George W. Goethals, March 11, 1908, Container 7, George Washington Goethals Papers, LC; William T. Sherman to Robert T. Lincoln, August 30, 1883, Reel 47, William T. Sherman Papers, Library of Congress, Washington, DC.

²⁰ See Griffin, “George W. Goethals, Explorer of the Pacific Northwest, 1882-1884,” 133-139 for an excellent account of this expedition.

²¹ George W. Goethals to Chief of Engineers, May 15, 1883, File 2181, Box 41, Entry 52, RG 77, NARA I; George W. Goethals, “Annual Report for the fiscal year ending June 30, 1883,” October 1, 1883, File 3570, Box 43, Entry 52, RG 77, National Archives and Record Administration I, Washington, DC, 20-21; George W. Goethals to Chief of Engineers, April 1, 1884, File 1450, Box 44, Entry 52, RG 77, NARA I; George W. Goethals to Chief of Engineers, July 1, 1884, File 2482, Box 45, Entry 52, RG 77, NARA I.

more intricate than a simple pontoon bridge, and in the unfortunate position of still being the most knowledgeable officer present, Goethals set to work. He learned how to build a bridge on the job. Goethals would recall in 1922 that “it might not have been hard for a bridge engineer,” as a bridge engineer “would have known exactly what to do.” Goethals did not. “I had to find out as we went along,” he explained years later. In order to complete the work, he “had to read books all night and give orders all day.” Despite these difficulties, Goethals succeeded. “We built the bridge,” he boasted, “and on time.”²²

Goethals entered his second year of duty at Vancouver Barracks glowing with satisfaction from his work and the praise it brought him, unaware that he was soon to experience a perhaps inevitable fall from Nelson Miles’s grace. Since assuming command of the Department of the Columbia, Miles had developed a keen interest in Alaska, unsuccessfully badgering both Secretary of War Lincoln and Congress to appropriate funds for him to organize an expedition to explore its interior. Miles eventually took matters into his own hands. Inventing the justification of “frequent reports of disturbances of the peace between the whites and Indians in Alaska,” he dispatched a seven-man expedition up the Yukon River led by his aide-de-camp, Lieutenant Frederick Schwatka. Although they revealed little that was not already known about the region, Schwatka’s subsequent reports reanimated public interest in Alaska and encouraged Miles to dispatch additional expeditions.²³

Possibly because of his impressive performance reconnoitering for Sherman’s tour, Miles approached Goethals in early 1884 about leading one such Alaskan expedition, a small three-

²² Crowther, “Don’t Fear to Attempt a Thing Just Because it Looks Big,” 93. See also Griffin, “George W. Goethals, Explorer of the Pacific Northwest, 1882-1884,” 139.

²³ Wooster, *Nelson A. Miles & the Twilight of the Frontier Army*, 135-136 (quotation from page 136); and George W. Goethals to Chief of Engineers, May 31, 1883, File 2182, Box 41, Entry 52, RG 77, NARA I.

man party. Goethals declined the assignment. Having somehow found the time to begin a courtship and become engaged to Effie Rodman, the daughter of a prosperous whaler from New Bedford, Massachusetts and the visiting sister of one of a fellow lieutenant at Vancouver Barracks, Goethals had a wedding on his mind. Lucky to have found and successfully wooed an eligible young lady in a remote and barren social setting, Goethals was eager to marry and had no interest in interrupting those plans. His refusal enraged Miles. Always fearful of conspiracies and quick to assume ill-intent, it did not take much for Nelson Miles to banish someone from his trusted inner circle. After this incident, Goethals was most definitely on the outside. Miles hastily sent a letter to the Adjutant General requesting Goethals's relief. The request was promptly forwarded to the Chief of Engineers for consideration, who decided to transfer Goethals to an engineering district in Cincinnati, under the command of Lieutenant Colonel William E. Merrill. The Adjutant General issued the necessary orders, and Goethals departed Vancouver Barracks in September, 1884.²⁴

The assignment at Vancouver Barracks provided Goethals with the first practical experiences of his career. He learned much about working with troops of the line, reconnaissance, and mapmaking—all skills that would prove useful later in his career during the War with Spain. At the same time, while serving on Miles's staff, Goethals was an inexperienced officer in the unenviable position of being the sole expert on all things related to engineering in the Department of the Columbia. While he proved on more than one occasion to

²⁴ This incident is outlined in Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper & Brothers, 1930), 56-58. Although the accompanying letters do not survive in the archives, the Office of the Chief of Engineers recorded receiving a letter from the Adjutant General in March 1884, noting that "Commanding General wants Carter in place of Goethals," and "Comdg Genl [sic] Columbia wants Carter in place of G- as Engr. Officer," on pages 73 and 144 in Volume 6, Entry 48, RG 77, NARA I. The recommendation by the Chief of Engineers to transfer Goethals to Cincinnati is found in John Newton to Adjutant General, August 8, 1884, File 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I. On Miles's personality, see Wooster, *Nelson A. Miles & the Twilight of the Frontier Army*, 269.

be capable of learning on the job and performing his duties well, he suffered from the absence of a more experienced engineer officer to serve as his mentor. By 1884, Goethals had been an engineer for four years. In that time, he had gained no practical experience in constructing and maintaining coastal fortifications or planning and directing river and harbor improvements, missions to which the Corps of Engineers assigned the majority of its officers when Goethals had first reported to Vancouver Barracks.²⁵

In all likelihood, Goethals was blissfully unaware of the significance of these deficiencies. The army's habit of entrusting young officers to develop themselves was problematic because those officers understandably had little awareness of what they did not know. But Goethals soon found an excellent mentor who was willing and able to mitigate the shortcomings in his early professional development. By a sheer stroke of luck—angering Miles to so great an extent that the general requested his relief at the precise moment a duty position for an engineer lieutenant was opening in Cincinnati—Goethals fell under the tutelage of a titan in the field. This not only forced the young lieutenant to grapple with his lack of experience, but it also took innovative measures to remedy those inadequacies.

Early in his new assignment with the U.S. Army Corps of Engineers First Cincinnati District, Goethals conducted the preliminary investigation for a potential river improvement project near New Albany Harbor, Indiana. He dutifully examined the river and its commercial traffic and spoke at length with local landowners. In his report, Goethals wrote, “When the river is high enough to cover the bottom lands, it is stated that the force of the current sweeps over

²⁵ *Report of the Secretary of War*, 48th Cong., 1st sess., 1883, vol. II, 3-4. River and harbor improvements were far and away the highest priority for the Corps of Engineers at the time. 55 officers out of 103 within the Corps of Engineers were assigned to duties related to such works.

these lands from the mouth of Falling Run to Middle Creek, and it is anticipated that in time the soil will be entirely cut away, and the channel will then run in this direction instead of crossing into the Kentucky shore, as it does now.”²⁶ As Merrill, chief of the First Cincinnati District, prepared to forward a copy to the Chief of Engineers in Washington, D.C., he drafted a letter to be included with Goethals’s report. “It has been suggested,” he began, “that there is a probability of the river changing its channel, and making a cut-off through Middle Creek.” Dismissing the notion, Merrill wrote, “I cannot see the slightest likelihood of such a change, as the route by way of Middle Creek is as long as the present channel, and there is therefore every inducement for the river to continue through the present open door rather than to batter down the side wall to make a new channel, neither shorter nor straighter than that in which it now flows.” His inexperienced subordinate had much to learn about rivers and river improvements.²⁷

Goethals found that the First Cincinnati District was an excellent place to learn. Its responsibilities included river improvements along the Ohio River and several of its tributaries—including the Monongahela River in Pennsylvania and West Virginia, the Allegheny River in Pennsylvania, and the Muskingum River in Ohio. Projects on the Ohio River demanded the vast majority of the district’s time and resources, to such an extent that the Chief of Engineers created the Second Cincinnati District in 1880 to take responsibility for several tributaries of the Ohio and relieve some of Merrill’s burden. The engineers in Cincinnati continued a half-century-long effort that had begun in 1824. At normal water stages, navigation was treacherous and

²⁶ Goethals to Lieut. Col. W. E. Merrill, October 11, 1884, quoted in U.S. Department of War, *Report of the Secretary of War*, 49th Cong., 1st sess., 1885, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1885), 1829-1830.

²⁷ Merrill to Brig. Gen. John Newton, October 14, 1884, quoted in *Report of the Secretary of War*, 49th Cong., 1st sess., vol. II, 1885, 1829-1830.

problematic at many points along the river. At lower stages, large swaths of the river were impassable.²⁸

Prior to the Civil War, the focus was on maintaining a channel in the river at least thirty inches deep, which would allow easy passage for most types of commonly-used, shallow-draft steamers. Engineers busied themselves with dredging channels in some sections of the river and constructing wing dams along river embankments in other parts, attempting to increase the depth of the river by concentrating its flow and restricting its width. They also spent much time and effort removing snags in the river caused by the buildup of rocks, trees, and other debris after storms and floods. Their work allowed commerce to flow relatively freely, except during winter months when ice flows threatened commercial shipping, especially on the uppermost reaches of the river and its northern tributaries.²⁹

After the Civil War, the Corps of Engineers became more heavily engaged on the Ohio River. In addition to managing improvement efforts, army engineers received orders to operate and maintain the Louisville and Portland Canal in Kentucky after Congress purchased it from private owners. Additionally, new technology and shipping techniques were rendering old approaches to river improvements obsolete. By 1870, the heyday of shallow-draft steamboats had passed, quickly being replaced by tugboats pushing or pulling several interconnected barges at a time. The new barge-tugboat system was ideally suited for easily transporting bulk goods and commodities by river, but the tugs and barges carried a deeper draft. River commerce now

²⁸ Leland R. Johnson, *The Ohio River Division, U.S. Army Corps of Engineers: The History of a Central Command*, (Cincinnati, OH: U.S. Army Corps of Engineers Ohio River Division, 1992), 18-21; and Leland R. Johnson, *The Davis Island Lock and Dam, 1870-1922* (Pittsburgh, PA: U.S. Army Engineer District – Pittsburgh, 1985), 5-8.

²⁹ Johnson, *The Ohio River Division*, 21-26; and Johnson, *The Davis Island Lock and Dam*, 8-12.

needed a consistent channel depth of six feet—more than the dredging and wing dams upon which army engineers had previously relied could provide.³⁰

In June 1870, Merrill took charge of what eventually became the First Cincinnati District. He had graduated at the top of West Point's class of 1859 and saw service in the Civil War shortly thereafter. After the war, Merrill was assigned to the Mississippi River Commission, where he soon gained a reputation as a leading expert on the construction of large railroad bridges over inland waterways, and as a soldier with an aptitude for solving complex problems in nontraditional ways. That aptitude and the need to deepen the channel along the upper Ohio River to six feet inspired his designs for the Davis Island Lock and Dam. This was the most radical and significant engineering project on the Ohio River in the late-nineteenth century, and the endeavor was entering its final year of construction when Goethals reported for duty.³¹

The Davis Island Lock and Dam was necessary because Pittsburgh was a hostage of climate and geography. Although its position at the confluence of the Allegheny and Monongahela to form the Ohio River imbued it with vast commercial potential and attracted industrialists to the area, the water levels around Pittsburgh dropped sharply during dry weather, often to a depth of mere inches, bringing all shipping and river trade to a standstill. Such dry spells usually lasted for several months, causing seasonal economic downturns that extended downriver to Cincinnati, Louisville, and other burgeoning towns where industries and communities depended upon coal shipments from Pittsburgh.³²

³⁰ Johnson, *The Ohio River Division*, 26-27; and Johnson, *The Davis Island Lock and Dam*, 12.

³¹ Johnson, *The Davis Island Lock and Dam*, 17-18; and *Report of the Secretary of War*, 49th Cong., 1st sess., 1885, vol. II, 1784-1785.

³² Johnson, *The Davis Island Lock and Dam*, 2.

The situation in 1871 was particularly extreme. The Ohio River became prohibitively shallow in May, and did not rise again until the following winter. Coal and goods earmarked for points downriver lingered idly in Pittsburgh's once bustling warehouses. Moreover, there was no longer a navigable water route to ship the coal mined from the Monongahela River Basin that fueled Pittsburgh's factories and plants to the industrial district on the northern side of the city. The coal had to be transported from the landings on the Monongahela in convoys of mule-drawn wagons through the heart of downtown Pittsburgh, causing traffic jams and significant damage to city streets not designed to bear such a heavy weight. Reacting to what had become an intolerable situation, Pittsburgh's industrial and business leaders, with the active support of businesses and communities down the Ohio River Valley, petitioned the Corps of Engineers to develop a permanently navigable harbor on the Ohio River at Pittsburgh.³³

Merrill had already been considering ways to canalize the Ohio in order to increase its channel depth to six feet. He had come to believe that a system of locks and dams was the appropriate solution. When the petition to develop a harbor at Pittsburgh reached his desk, Merrill proposed to build an entire system of locks and dams along the Ohio River, beginning with a first set five miles downriver from Pittsburgh, near Davis Island. His plan, however, drew strong objections from Pittsburgh's coal shippers.³⁴

Utterly confused as to why coal shippers would oppose a measure that would ostensibly make shipping easier, Merrill accompanied a coal barge on a trip downriver to investigate what they found objectionable. He learned that locks are especially problematic to towboats guiding large numbers of barges. A boat with several barges connected by a complex system of chains

³³ Johnson, *The Ohio River Division*, 26-27; and Johnson, *The Davis Island Lock and Dam*, 2.

³⁴ Johnson, *The Davis Island Lock and Dam*, 21; and Johnson, *The Ohio River Division*, 26.

and cables would have to pause in front of a lock, “break tow” to get all barges through, and pause again on the far side of a lock to reassemble their barges. As the coal fleets could only move downriver during higher water stages that usually lasted for just three days, forcing the fleet to break tow and pass through a lock one at a time would mean that only one-third of Pittsburgh’s coal fleet could be used during any given high water stage.³⁵

Merrill determined that in order to meet the needs of all parties concerned, he would have to develop a unique lock-and-dam system with two defining characteristics. First, the locks needed to have larger dimensions than any others that existed at the time in order to allow solitary ships and smaller tow-and-barge systems through at any time. Second, the locks would be complemented by novel, not-yet-designed movable dams that could be raised in order to build a navigable harbor upriver from the dam at low water stages, and lowered to allow large coal shipments to pass through without “breaking tow” during high water stages. Nothing of the sort had ever been attempted in the United States, so Merrill searched abroad for inspiration, triggering an unprecedented exchange of hydraulic technology between the United States and Europe.³⁶

Pouring over European models, Chanoine dams then in use on the Seine River caught Merrill’s attention. In the Chanoine design, French engineers employed a series of rectangular wooden or metal panels, known as “wickets,” placed side by side. In the lowered position, the wickets lie parallel with the river bottom, resting flat on top of a dam foundation with metal supports and mechanical apparatuses that, when activated, raise the wickets upward at steep angle to reach the raised position. In the raised position, the force of the water pushing

³⁵ Johnson, *The Davis Island Lock and Dam*, 21-22.

³⁶ Johnson, *The Davis Island Lock and Dam*, 2-3 and 22.

downriver against the face of the wickets locks the supports into place in the dam foundation, thus forming an effective dam. Merrill planned a system in which a Chanoine dam would connect on one side of the river with a lock, which he designed to be 110 feet wide and 600 feet long.³⁷

Initially, construction was limited to one lock and dam at Davis Island. Merrill believed that a system of similar structures would prove to be the most effective solution to the problem of creating a consistent six-foot channel in the Ohio River. At the same time, he understood that his concept for the Davis Island Lock and Dam was quite radical and needed to be proven before it could be replicated. Seven years after construction began and only months before it would be completed, Merrill wrote that the purpose of the Davis Island project was not only to improve the harbor at Pittsburgh, but also, and more importantly, “to demonstrate the only way of radically improving the navigation of the Ohio River.” Merrill “hoped and expected” that his work would be “so successful as to lead to a demand for others like it,” but thought it “best not to press the matter until the pioneer dam . . . fully demonstrated its usefulness.”³⁸

Merrill managed many other projects in addition to the Davis Island Lock and Dam, and certainly could not handle his entire mission alone. Like other engineer district chiefs, his staff included civilian assistants and one engineer lieutenant. His lieutenants came to look up to him as an almost fatherly figure as he demonstrated genuine interest in their development as engineers and officers.³⁹ Merrill’s approach to officer development was based on an implicit recognition that lieutenants at that time did not follow a standardized career path and had unique

³⁷ Johnson, *The Davis Island Lock and Dam*, 3, 108, and 133; and Johnson, *The Ohio River Division*, 28.

³⁸ *Report of the Secretary of War*, 49th Cong., 1st sess., 1885, vol. II, 1799.

³⁹ Johnson, *Davis Island Lock and Dam*, 17.

and distinct bases of knowledge built upon unique and distinct prior experiences. Accordingly, he tailored his approach to each officer's level of experience.

Prior to Goethals's arrival, Lieutenant Frederick A. Mahan was Merrill's assistant. Mahan had worked under Merrill on the Ohio since 1872. He was also the son of Dennis Hart Mahan, who had served as the chair of West Point's Department of Civil and Military Engineering from 1832 until his death in 1871 and had written the texts still used in the academy's engineering classes. He arrived with an uncommon breadth of theoretical knowledge and practical experience. Lieutenant Mahan's vast knowledge led Merrill to develop Mahan by challenging him with incrementally increasing levels of responsibility. Merrill first had Mahan assist him in studying foreign concepts of movable dams, and then brought Mahan into the planning process for the Davis Island project. As the plans continued to be developed, Merrill placed his talented subordinate in charge of several smaller dam construction and channel improvement projects elsewhere along the Ohio River. With Mahan succeeding in every mission assigned to him, Merrill decided that he was ready for a major project.⁴⁰

In 1875, Merrill convinced the Chief of Engineers to extend Mahan's assignment at Cincinnati so that he could assign the lieutenant as the engineer directly in charge of construction at Davis Island. From 1878 to 1884, Mahan oversaw construction at Davis Island, responsible for not only the execution of Merrill's plans, but also the hiring and management of a civilian staff and labor force. Merrill saw to the rest of his district, loosely supervised Mahan, and

⁴⁰ Johnson, *Davis Island Lock and Dam*, 34-45.

maintained personal control of higher-level organizational systems and logistics that supported the Davis Island project.⁴¹

In 1884, after twelve years of service in the same assignment, Mahan earned a promotion to captain and transferred out of the First Cincinnati District, replaced in September of that year by Goethals after he made the long journey from Vancouver Barracks. Merrill learned of his new subordinate's background and knew that he did not have the requisite knowledge or experience to manage the Davis Island construction site. Accordingly, he made arrangements for one of his civilian assistants to take charge of the work. He had other plans to remedy his new lieutenant's lack of experience in inland river engineering.

Wanting to make a good first impression, Goethals reported to Merrill in an immaculately clean dress uniform. Merrill looked him over and curtly informed Goethals that if he wished to continue to wear that uniform, he could remain in the office for clerical duties; but if he wanted to learn how to be an engineer, he would thereafter report in clothes more suitable for hard work in the field. Merrill was as much a product of the school of experience as Goethals would become, and was an avid proponent of the benefits of experiential learning. Accordingly, he created a controlled and calculated program of practical instruction for Goethals.⁴²

Frequently wearing overalls on duty, Goethals became a student in Merrill's improvised academy of river improvements. Some of his education involved conducting the preliminary examinations of potential new projects within the division, from which he could learn how to discern which projects were necessary and feasible. Most of his training took place within and

⁴¹ Johnson, *Davis Island Lock and Dam*, 45 and 56-59.

⁴² Johnson, *Davis Island Lock and Dam*, 87-88; and Bishop and Bishop, *Goethals: Genius of the Panama Canal*, 58-60.

among civilian work crews. He started at the very bottom and worked his way up as he mastered the various tasks on each crew, serving first as a rodman on hydrographic surveys, then as the chief of a surveying party, then as the foreman of a concrete team, and finally as the chief of construction for a small project. Goethals's assignments took him not only through the various aspects of the Davis Island Lock and Dam project as it neared completion, but also to various other construction, repair, and dredging projects along the Ohio and some of its tributaries from Pennsylvania to Kentucky.⁴³

Merrill and his engineers finally completed the Davis Island Lock and Dam in the late summer of 1885, and subjected it to two months of tests before it was finally opened for public use in early October. The Ohio River Commission and Pittsburgh Chamber of Commerce planned a grand opening and dedication ceremony for the occasion, and asked Merrill for a list of officers who contributed to the effort, so that they could invite those officers to the ceremony. Merrill included Goethals on the list, but Goethals was unable to attend, having been ordered to West Point in August 1885 to serve as an instructor in the Department of Civil and Military Engineering.⁴⁴

In 1889, after four years of drilling cadets in daily classroom recitations of civil engineering lessons, Goethals received orders to return river duty in Cincinnati. This time, he was assigned to the sleepy Second Cincinnati District, which had been created to manage routine work on several tributaries to the Ohio River while Merrill's division focused almost exclusively

⁴³ Johnson, *The Davis Island Lock and Dam*, 88; Bishop and Bishop, *Goethals: Genius of the Panama Canal*, 58-61; *Report of the Secretary of War*, 49th Cong., 1st sess., 1885, vol. II, 1785-1833.

⁴⁴ Johnson, *The Davis Island Lock and Dam*, 91-92; Bishop and Bishop, 61; and "Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1886," page 6, USMA.

on the Ohio itself.⁴⁵ He did not have time to settle in before he received new orders. Another engineer lieutenant, Graham D. Fitch, had received orders to transfer from Milwaukee to the Nashville District in order to assist Lieutenant Colonel John W. Barlow's efforts to improve the Tennessee and Cumberland Rivers. Prior to arriving in Nashville, however, Lieutenant Fitch grew so ill that his ability to continue serving in the army was in doubt. The Chief of Engineers ordered him to Washington to be evaluated by a medical board. Viewing the projects in the Nashville District as critically important, the Chief of Engineers then searched for a lieutenant to fill the vacancy in Nashville. Because he had just arrived and did not have time to become an essential part of any work in Cincinnati, Goethals received orders to report to Barlow in Nashville.⁴⁶ This was an important stroke of good fortune for Goethals. Work on the Tennessee River would challenge Goethals more than anything in his career to date and provided opportunities that proved to be important stepping stones to the Panama Canal.

Inhabitants of the Tennessee River Valley developed a strong interest in the commercial potential of their river when steamboats began plying the Mississippi and Ohio Rivers after the steamboat *Enterprise* made the first journey on that route in 1815. But there were significant hazards impeding navigation of the Tennessee, particularly in its middle section between Chattanooga and Waterloo. The sharp bends below Chattanooga, known in the nineteenth century as "the Suck," were particularly dangerous even for experienced hands. The real

⁴⁵ Major H.M. Adams to Redfield Proctor, August 14, 1889, pg 564, Volume 10, Entry 73, RG 77, NARA I.

⁴⁶ Captain Thomas Turtle to Redfield Proctor, September 4, 1889, pg 649, Volume 10, Entry 73, RG 77, NARA I; and John C. Kelton to Surgeon General, September 28, 1889 and Special Orders No. 238, A.G.O., October 12, 1889, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

problem, though, lay nearly two hundred miles downriver from Chattanooga, at northern Alabama's Muscle Shoals.⁴⁷

The Muscle Shoals region contained four separate hazards. Moving downriver from east to west, a boat would first encounter an area of wide shallows at the Elk River Shoals just after passing Brown's Ferry. After negotiating the shallows, the boat would next come upon Big Muscle Shoals, a fifteen-mile stretch of rapids and cascades in which the river fell a total of eighty-five feet. The channel here was narrow where it existed at all. Big Muscle Shoals had formed because of the presence of flinty, non-eroding rocks deposited on top of and among the limestone and sandstone that is generally prevalent throughout the entire riverbed of the Tennessee. With the river unable to cut a channel through these unyielding rocks, this area became a wide, shallow basin full of cascades, reefs, and river islands. It was so wide, in fact, that a fifty-foot rise in the river at Chattanooga would only produce a five-foot rise at Big Muscle Shoals. Three miles downriver from Big Muscle Shoals lay Little Muscle Shoals. This was a four-mile-long, slightly-less-extreme version of its larger cousin. The town of Florence, Alabama lay one mile further downriver, just above Colbert and Bee Tree Shoals, an eight-mile stretch of shallows and shoals made up of sand, broken gravel, and rocks in which the river fell another twenty feet in elevation.⁴⁸

⁴⁷ Davidson, *The Tennessee, Volume One, The Old River*, 230-231; U.S. War Department, *Letter from the Secretary of War, Transmitting Report of the Surveys on the Tennessee River, Made in Compliance with the Act of March 2, 1867*, 40th Cong., 2nd sess., 1868, House Executive Document 271, 4-7; and "The Mussel Shoals Canal," *Harper's Weekly*, October 18, 1890. Nineteenth century sources are inconsistent in their spelling of the area, usually choosing between "Mussel Shoals" and "Muscle Shoals." The latter appears relatively consistently in government documents and in sources from the twentieth century. I have chosen to use "Muscle Shoals" in the text, and have changed "Mussel Shoals" to "Muscle Shoals" in some quotations for the sake of consistency. Original spelling will be maintained in the footnotes where appropriate, such as in titles of articles.

⁴⁸ U.S. War Department, *Letter from the Secretary of War, Transmitting the Information Required by a Resolution of the House of Representatives of the 16th January Last, in Relation to an Examination of the Muscle Shoals in Tennessee River, with a View to Removing the Obstructions to the Navigation Thereof and the Construction of a*

While Colbert and Bee Tree Shoals could not be ignored, Little Muscle Shoals, Big Muscle Shoals, and Elk River Shoals were more significant problems. Together, they constituted thirty-seven miles of nearly continuous hazards, with Big Muscle Shoals and Elk River Shoals being an absolute obstruction to navigation of the river, except during periods of extremely high water. According to engineers who surveyed the area in 1867, there was “no channel at low water in this part of the river,” and “in many places a person can walk across the river without wetting his feet.” They reported that “the lightest flatboat cannot descend the shoals without being assisted in many places on rollers.”⁴⁹

Muscle Shoals, situated roughly at the midpoint of the river, effectively divided the upper and lower Tennessee into two separate rivers for trade and commerce. A major trade imbalance developed between them. Steamboats could ply the waters between Paducah, Kentucky and Florence, Alabama with relative ease, but communities upriver from Florence could only ship goods downriver during the two or three months out of the year when conditions were good enough to allow flatboats to traverse the shoals. Otherwise, these communities had to rely on small keelboats. Business owners in Knoxville tried to entice steamers to run the gauntlet at high water stages in the 1820s and 1830s, but the journey was more risky than profitable. On average, only one steamer made the attempt per year.⁵⁰

The only viable solution to problems posed by the Muscle Shoals hazards appeared to be a lateral canal around the lengthy belt of obstacles. The first attempt to build a canal was

Canal Around the Same, 20th Cong., 1st sess., 1828, H.Doc 284, 5-9; *Letter from the Secretary of War*, 40th Cong., 2nd sess., 1868, 13-19 and 25; and Davidson, *The Tennessee, Volume One, The Old River*, 284-286.

⁴⁹ *Letter from the Secretary of War*, 40th Cong., 2nd sess., 1868, 25-26; and Davidson, *The Tennessee, Volume One, The Old River*, 284.

⁵⁰ Davidson, *The Tennessee, Volume One, The Old River*, 231-245.

managed by the state of Alabama. Its plans were ambitious, and proved to be far too expensive. Frustrated engineers were forced to scale back their plans, building a canal at Big Muscle Shoals just over fourteen miles long, sixty feet wide, and six feet deep, with seventeen locks to mitigate the descent of the river. Although the canal's design and construction were sound, the decision to limit all improvement efforts to Big Muscle Shoals doomed the effort to insignificance and oblivion. The canal opened in 1836 and was nearly useless, unreachable on either end except at during periods of peak water levels because its engineers had taken no measures to facilitate navigation through the Elk River Shoals above the canal or Little Muscle Shoals below the canal. The canal fell into disuse and disrepair after 1838.⁵¹

Advocacy for river improvement projects at Muscle Shoals increased significantly after the Civil War. Opening the river for commercial navigation from its head to its mouth was viewed widely as a way to stimulate the region's economy and hasten its recovery from the war.⁵² The Muscle Shoals area remained impassable for large vessels, and although communities on the upper Tennessee built their own steamboats for local trade, they remained unable to ship goods downriver to Paducah and beyond. This frustrated the rapidly developing commercial-industrial sector in Chattanooga, where businesses saw a viable river route as both a means of transportation for their goods and a means of checking the rising power and prices of the railroads. In 1871, responding to advocates for renewed Tennessee River improvements, the Corps of Engineers established a new district under Major Walter McFarland at Chattanooga.

⁵¹ "Tennessee River Improvements," *Harper's Weekly*, April 27, 1895; Davidson, 286-289; and Leland R. Johnson, *Engineers on the Twin Rivers: A History of the U.S. Army Engineers Nashville District, 1769-1978* (Nashville, TN: U.S. Army Engineer District – Nashville, 1978), 52-59.

⁵² *Letter from the Secretary of War*, 40th Cong., 2nd sess., 1868, 4.

The district was charged with ensuring open navigation of the full river for at least nine months per year.⁵³

McFarland devoted the bulk of his time to studying the problem and developing plans for a new system of improvements in the Muscle Shoals region. He developed a concept centered on restoring and expanding the first canal at Big Muscle Shoals, and addressing the problems at Elk River Shoals and Little Muscle Shoals in order to facilitate access to the main canal. At Elk River Shoals, McFarland intended to build a short, two-lock canal and blast a channel through a reef that separated the foot of that canal from the head of Big Muscle Shoals. There, he planned to expand, widen, and strengthen the old canal; consolidate its seventeen-lock system into nine locks; dam the creeks and ravines that emptied into the canal; and carry the canal over the mouth of Shoal Creek by constructing an aqueduct ninety feet long and sixty feet wide. At Little Muscle Shoals, McFarland believed that the channel could be deepened and the rapid current managed through dredging and the construction of wing dams along the embankments of the river. Ready to proceed, the renewed work at Muscle Shoals hit its first delay when the building that doubled as McFarland's house and headquarters, where the only copies of the canal plans were kept, burned to the ground on January 13, 1874.⁵⁴

Work finally began in 1875 under contracted labor, but soon encountered more difficulties and delays. Problems with contractors, disease in the laborers' camps, and a dearth of appropriations caused significant delays. In 1876, McFarland was reassigned to duty along

⁵³ Donald Davidson, *The Tennessee, Volume Two, The New River: Civil War to TVA*, Southern Classics Series edition (Nashville, TN: J.S. Sanders & Company, 1992), 156-166; Johnson, *Engineers on the Twin Rivers*, 124; *Letter from the Secretary of War*, 40th Cong., 2nd sess., 1868, 2-3.

⁵⁴ Davidson, *The Tennessee, Volume Two, The New River*, 167; Johnson, *Engineers on the Twin Rivers*, 124; and U.S. Department of War, *Report of the Secretary of War*, 51st Cong., 2nd sess., 1890, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1890), 217.

the Canadian border and replaced by Major William R. King, who led the project for a decade, making important enhancements and corrections to the effort. Despite King's efforts, construction at Muscle Shoals fell behind schedule. Funding was a perennial problem that caused engineers to cut back on their labor force, further slowing the effort. Also, work paused when the notorious Jesse James gang robbed the district's paymaster while he made his way from a bank in Florence to the engineer camp at Big Muscle Shoals on March 11, 1881. Enraged engineers and laborers formed a posse and pursued the robbers until losing their trail on the banks of the Cumberland River, effectively putting off any canal work whatsoever until they returned from their pursuit. With delays varying in cause and duration, the work dragged on.⁵⁵

Lieutenant Colonel Barlow assumed control of the district in 1886, just as the Corps of Engineers expanded the district's scope of responsibility to include improvements on the Cumberland River as well as the Tennessee River.⁵⁶ Drawn to the most recent addition to the district's enlarged mission, Barlow devoted more of his time and energy to the Cumberland than to the Tennessee. He envisioned improving navigation on the Cumberland by constructing a system of thirty locks and dams similar to Merrill's brainchild on the Ohio. As work began in 1888 a short distance upriver from Nashville on the first lock and dam in the system, Barlow moved his district headquarters from Chattanooga to Nashville. When citizens of Chattanooga held a mass meeting to protest the move, Barlow insisted that the work on Muscle Shoals was almost complete, and that he was therefore needed more in Nashville—where the Cumberland

⁵⁵ Johnson, *Engineers on the Twin Rivers*, 126-132. Interestingly, the Muscle Shoals robbery contributed to the downfall of both the gang and Jesse James himself. Not long after the robbery, gang member William Ryan was apprehended in Nashville using money stolen from the Muscle Shoals engineers. Officials recovered the money and returned to Florence. Frank and Jesse James had been hiding in Nashville at the time, living under aliases. Fearing discovery, they were forced to uproot and move to Missouri, where Jesse James was assassinated in 1882.

⁵⁶ Johnson, *Engineers on the Twin Rivers*, 141-145.

project was in its infancy and required more attention. George Goethals reported for duty to Barlow at the Nashville District headquarters in October 1889.⁵⁷

Barlow's reports leave little evidence indicating how he employed or interacted with Goethals. In Goethals's efficiency report for 1890, Barlow demonstrated a favorable opinion of his lieutenant, describing him as "energetic, industrious, prompt, & efficient in performance of duty," and "a true gentleman, an accomplished engineer, and a thorough army officer." But this report also hints at a lack of familiarity with his subordinate, as some of the remaining comments were copied verbatim from the individual report that Goethals had to produce summarizing his professional reading and study outside of the normal scope of his duties.⁵⁸ More generally, Barlow's reports on the district's operations leave little evidence that he had any military or civilian subordinates at all. Presumably, then, Barlow was either extraordinarily active, taking a direct and hands-on approach to managing work on the Tennessee and Cumberland Rivers and delegating little to his subordinates—or he was unhesitant to assume full credit for everything that happened in the district without acknowledging those in local control of the division's many projects.⁵⁹

Barlow attempted to shoulder an impossibly heavy load on his own. As the pace of construction on the Cumberland increased, he began to lose control and awareness of work on

⁵⁷ *Report of the Secretary of War*, 51st Cong., 2nd sess., 1890, vol. II, 216, 222, and 2136-2148; and Johnson, *Engineers on the Twin Rivers*, 145-147.

⁵⁸ See John W. Barlow, "Efficiency Report of 1st Lieut. Geo. W. Goethals," May 11, 1890 and George W. Goethals, "Officer's Individual Report," May 24, 1890, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I. Although Goethals's report postdates Barlow's, the fact that most of the extracurricular study happened prior to Goethals's assignment to Barlow's command makes it almost certain that Barlow had a draft or advance copy of Goethals's report at the time he wrote his own. The quotation is from Barlow's report.

⁵⁹ See *Report of the Secretary of War*, 51st Cong., 2nd sess., 1890, vol. II, 216-224, and 2111-2161. Aside from a mandatory entry of officers assigned to the district on page 216, subordinates only figure in Barlow's description of a Congressionally-mandated survey of the lower Cumberland River on pp 2153-2160, and it is distinctly possible that they are only included because he had to append their reports to his.

the Muscle Shoals. Describing progress made on the canals at Muscle and Elk River Shoals between July 1, 1889 and June 30, 1890, Barlow reported that “the eleven locks were completed and are in working order.” Later, in the appendix attached to this report, Barlow indicated that as of June 30, none of the nine locks at Big Muscle Shoals, nor either of the two locks at Elk River Shoals were operable because all of the locks were still missing the machinery needed to operate their gates and valves. Furthermore, tests of the locks had revealed major structural problems in the canal. He revealed some of these setbacks to a local newspaper in January 1890, which reported that “a system of hydraulic engines will have to be put in at each lock, to facilitate their working as they are under to[o] high a pressure to be worked readily by hand.”⁶⁰

While Barlow’s reports about Muscle Shoals to his superiors were inconsistent, the information he gave to the communities affected by the project was misleading at best. As early as the summer of 1889, the people of Florence, Alabama anticipated the imminent opening of the canal. This community viewed itself as a rising commercial center and looked to the opening of the canal as the key to its future power and prosperity. The issues of the *Florence Herald* reveal much about the town’s relationship with Barlow and his answers to the town’s inquiries about the canal. In June 1889 it reported on a pending grand opening ceremony. In August, an article proclaimed, “It is confidently assured that the Tennessee River will be opened for through navigation on September 1,” and that “only a little finishing up remains to be done.” The following spring, the editors were “reliably informed that work on the canal is nearing

⁶⁰ *Report of the Secretary of War*, 51st Cong., 2nd sess., 1890, vol. II, 217 and 2118-2120 and 2122; and “On a Trip of Inspection,” *Florence Herald*, January 11, 1890.

completion.” And in May 1890, they “learned that the Muscle Shoals canal would be ready to open in June, if no mishap occurred.”⁶¹

By 1890, work at Muscle Shoals had been in progress for fifteen years, and the communities along the Tennessee River, particularly those around and upriver from the shoals, were growing restless. In June, one member of Florence’s Chamber of Commerce complained to his congressman that “Col. Barlow told me 18 mos [months] ago that he thought the canal would be opened July 1, 1889, but for some reason the work has dragged along from year to year in the most unreasonable manner.”⁶² An enterprising reporter from the *Chattanooga Times* pressed Lieutenant Colonel Barlow on the matter in March. The resulting non-answer was reported in the *Florence Herald* shortly thereafter: “He said in effect that if the water didn’t go any higher and if the masonry stood the present test and if it didn’t take too long to make the repairs now necessary, it was probable that in the course of four weeks he might be able to say something.”⁶³

Florence had grown quite tired of Barlow’s equivocations. The *Herald* fired a broadside at Barlow in its issue July 9, 1890 issue. The editors lamented that work on the canal had “dragged its slow length for more than a generation . . . a formal opening has been promised year after year, the patience of those most vitally interested has been exemplary, and still we have no more than promises.” Demanding a resolution to the problem, they declared that “the time has gone by, however, for promises to be satisfactory” because “the growing interests along the

⁶¹ See “The Grand Opening,” *Florence Herald*, June 26, 1889; “Florence,” *Florence Herald*, August 7, 1889; “Completion of the Mussel Shoals Canal,” *Florence Herald*, August 7, 1889; “Mussel Shoals Canal,” *Florence Herald*, April 19, 1890; and “Mussel Shoals Canal,” *Florence Herald*, May 10, 1890, respectively.

⁶² W.O. Skelton to Joseph Wheeler, June 30, 1890, Box 62, Joseph Wheeler Family Papers 1809-1943, ADAH.

⁶³ “The Mussel Shoals,” *Florence Herald*, March 15, 1890.

Tennessee have, within the last few years, grown too great and strong to be fed on such airy meat.”⁶⁴

The community’s frustration matched that of Brigadier General Thomas Casey, then serving as the army’s Chief of Engineers. Since the fall of 1889, he had been steadily increasing pressure on Barlow to explain the delays and articulate an appropriate plan of action so “a final presentation of the matter can be made, and the commercial interests of that section of the country know for a certainty what it can depend upon in the future.”⁶⁵ Tired of the delays, concerned about opening the river before anticipated decisions in the fall regarding a potential increase in railroad fares, Casey considered drastic options to resolve the problem.

Hearing rumors of his possible relief, Barlow wrote to Alabama’s powerful Joseph Wheeler, an ex-Confederate general and sitting congressman from northern Alabama, asking if the rumors were true. “If such a project is on foot,” he complained, “it must have originated, I think, from the pressure brought to bear on the Washington authorities to have the canal opened at an early day.” With a note of indignance, he wrote, “To relieve me just now would to my mind imply censure and I don’t think I deserve it” because “it would be like depriving an officer of command near the close of the battle, on the eve of victory or defeat.”⁶⁶ Seeking to save his position, Barlow turned to his lieutenant. Several days after writing to Wheeler, Barlow wrote to General Casey, “I have the honor to report that 1st Lieut. Geo. W. Goethals, Corps of Engineers, has been assigned—subject to the approval of the Chief of Engineers—to the local charge of the

⁶⁴ “Mussel Shoals Canal,” *Florence Herald*, July 9, 1890.

⁶⁵ Major H.M. Adams to J.W. Barlow, November 11, 1889, pg 136, Volume 11, Entry 73, RG 77, NARA I. See also Major H.M. Adams to J.W. Barlow, November 30, 1889, pg 21, Volume 12, Entry 73, RG 77, NARA I.

⁶⁶ J.W. Barlow to Joseph Wheeler, July 2, 1890, Box 62, Joseph Wheeler Family Papers 1809-1943, ADAH.

work of improving the Tennessee River, between Decatur, Ala. and Waterloo, Ala.” Continuing, he explained that “the necessity for his services in local charge of this work” had become “more urgent than the temporary duty to which he was assigned at Nashville, Tenn.”⁶⁷

Willing to wait and see how this new arrangement would work out, Casey agreed to the request and allowed Barlow to continue his duties at Nashville. At the time, Goethals was already in the area leading a survey of Little Muscle Shoals. Barlow ordered him to finish the survey, then “establish an office, and take station temporarily at Florence” in order to complete and open the Muscle Shoals Canal in time to allow passage through the canal prior to a scheduled hearing on railroad rates in Chattanooga that fall. Goethals complied and assumed local control of the Muscle Shoals Canal on August 11, 1890.⁶⁸

He soon discovered that the canal had a number of major structural problems. Sections of the canal walls and embankments failed to retain water when the canal was filled to maximum capacity. The problem was most extreme below the highest lock in the system, where water passed freely through the embankment and threatened the structural integrity of the canal’s retaining walls. The necessary repair work had been underway for some time prior to his arrival in Florence, but Goethals found that it was not being carried on with a sense of urgency. He

⁶⁷ J.W. Barlow to Chief of Engineers, July 10, 1890, File 4531, Box 27, Entry 96, RG 77, NARA I.

⁶⁸ Quotation from “Orders,” July 10, 1890, File 4531, Box 27, Entry 96, RG 77, NARA I. See also George W. Goethals to Chief of Engineers, August 12, 1890, File 4924, Box 31, Entry 96, RG 77, National Archives and Records Administration I, Washington DC; Johnson, *Engineers on the Twin Rivers*, 134; Bishop and Bishop, 63; and “Opened in the Fall,” *Florence Herald*, September 6, 1890, which is the first mention of Goethals in the *Herald*, and which identifies Goethals as “of this city.”

organized two shifts for twenty-four hour operations on the canal and took personal charge of the night shift to complete the repairs.⁶⁹

By October, the repairs were mostly complete, and tests validated the structural integrity of the canal. Having learned from Barlow's mistakes the importance of fostering open and cordial relations with the interested public, Goethals invited several journalists and residents of Florence to tour the canal, and observe preparations to open it for navigation. To much local acclaim, Goethals and his crew of engineers and laborers filled the entire length of the canal system from the Elk River Shoals to Big Muscle Shoals on November 8, and opened the system for commercial navigation on November 10, 1890. The same day, the steamer *R.T. Cole* crossed the canal with a shipment of grain bound for Chattanooga. It arrived before the hearing on railroad rates, to the delight of business interests along the middle Tennessee River.⁷⁰

The army rewarded Goethals for his efforts. He took and passed the examination for promotion to captain, although he would have to wait until January 1892 to be promoted.⁷¹ More importantly, the Chief of Engineers gave Goethals command of his own district. On March 18, 1891, the Corps of Engineers created an independent engineering district at Florence, responsible for maintaining and operating the Muscle Shoals Canal, and for managing all improvements on the Tennessee River between Chattanooga and Colbert Shoals.

⁶⁹ *Report of the Secretary of War*, 51st Cong., 2nd sess., 1890, vol. II, 217 and 2122; U.S. Department of War, *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1891), 2305-2310.

⁷⁰ "The Mussel Shoals Canal," *Harper's Weekly*, October 18, 1890; "Pushing the Work," *Florence Herald*, October 15, 1890; "A Day's Outing," *Florence Herald*, October 18, 1890; "Through Mussel Shoals," *Florence Herald*, October 29, 1890; "Unobstructed Navigation," *Florence Herald*, November 12, 1890; J.W. Barlow to Chief of Engineers, November 11, 1890 and November 18, 1890, File 6370, Box 43, Entry 96, RG 77, NARA I; Johnson, *Engineers on the Twin Rivers*, 134; and Davidson, *The Tennessee, Vol Two, The New River*, 168.

⁷¹ Board of Promotion to Adjutant General, February 26, 1891, File 1443, Box 59, Entry 96, RG 77, NARA I; and "Oath of Office," January 22, 1892, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

Acknowledging his successful completion of the Muscle Shoals Canal, the Chief of Engineers placed Goethals in charge of the district.⁷²

This was Goethals's first independent command. When he first arrived in Florence to assume local control over work on the Muscle Shoals in August 1890, he was still a subordinate of Barlow's and a part of the Nashville District. Having always been subordinate to a nearby commander, Goethals's previous duties had been almost entirely within the realm of technical engineering problems. Now he faced significantly more complex problems of organizational leadership—including force structure, administration, logistics, and advocacy. The experience taught him much in all of these areas, providing practical instruction on similar problems he would face later in his career in Panama and in Washington during World War I. In this way, Goethals's duties in Florence closely aligned with the army's preferred experiential method of officer development.⁷³

By placing Goethals in charge of the Florence District, the Chief of Engineers took a significant risk. Although he had graduated from West Point and accepted his commission nearly eleven years before, and although he had already demonstrated proven abilities and potential for continued success, Goethals was still a lieutenant with a relatively limited base of experience. Of forty-nine Corps of Engineers districts dedicated to river and harbor improvements in 1891, only sixteen were commanded by officers below the rank of major. And only two of these, including the newly-created Florence district, were commanded by

⁷² *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, vol. II, 286; and Thomas S. Casey to Redfield Proctor, March 5, 1891, J.W. Barlow to Chief of Engineers, March 18, 1891, and George W. Goethals to Chief of Engineers, March 18, 1891, File 1634, Box 60, Entry 96, RG 77, NARA I.

⁷³ *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, House Executive Document 1, Part 2, vol. II, 278; and Bishop and Bishop, *Goethals: Genius of the Panama Canal*, 63.

lieutenants. By giving a district to Goethals, Casey not only demonstrated confidence in his abilities, but also presented him with opportunities that almost none of his peers shared. Even in 1892, after Goethals had been promoted to captain, and after the Corps of Engineers had consolidated some of its districts, only fifteen out of forty-five districts dedicated to river and harbor improvements were commanded by officers below the rank of major.⁷⁴

The challenges of the Florence District presented plenty of opportunities for Goethals to learn and grow, both as an engineer and as an organizational leader. The district managed four major project clusters. Close to Chattanooga, from the area known as “the Suck” downriver to Guntersville, Alabama, the district worked to clear natural obstructions from the river and improve the channel by blasting and dredging its shallows. At Elk River and Muscle Shoals, engineers and laborers under Goethals busily operated, improved, and maintained the canal system. At Lower Muscle Shoals, Goethals’s crews investigated and recommended a canal route, but never received funding for such a project and limited their efforts to channel improvement by blasting and dredging the riverbed, and constructing wing dams along the river embankments. Farther downriver, Goethals and his engineers drafted and implemented plans for a canal through Colbert Shoals and Bee Tree Shoals.⁷⁵

Simultaneously managing multiple projects across more than 250 miles of river provided an excellent practical lesson in organizational leadership. Barlow’s negative example

⁷⁴ *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, House Executive Document 1, Part 2, vol. II, ii-viii; and U.S. Department of War, *Report of the Secretary of War*, 52nd Cong., 2nd sess., 1892, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1892), ii-vii.

⁷⁵ *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, House Executive Document 1, Part 2, vol. II, 286 and 2303-2311; *Report of the Secretary of War*, 52nd Cong., 2nd sess., 1892, vol. II, 274-275 and 1945-1950; U.S. Department of War, *Report of the Secretary of War*, 53rd Cong., 2nd sess., 1893, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1893), 308-309 and 2420-2433; and U.S. Department of War, *Report of the Secretary of War*, 53rd Cong., 3rd sess., 1894, House Executive Document 1, Part 2, vol. II (Washington, DC: Government Printing Office, 1894), 282-284 and 1821-1831.

demonstrated to Goethals in 1889 and 1890 that a district engineer could not become personally involved in all of the minute details of one project without losing sight of the others. An effective leader must be able to identify the critical points that require personal involvement and attention, and be willing to delegate direct responsibility for other points—with clear guidance and general supervision—to trusted subordinates. When Goethals first arrived in Florence in August 1890, he was extremely involved in minute details, going so far as to oversee the night shift personally. This was entirely appropriate at the time because the project was at a point of crisis and he had been sent specifically to see the Muscle Shoals Canal through to a rapid completion. But he could not sustain that approach as a district engineer.

Like Major King at Muscle Shoals from 1876-86, Goethals subdivided his district. He organized his divisions around each of the district's four project clusters and placed one of his civilian assistants in charge of each division, effectively making one subordinate in charge of each of his principal lines of effort. Such an organizational structure allowed Goethals to manage the entire district more effectively and gave him the flexibility to focus his personal attention on points of friction as they arose. Such was the case when plans were drafted for the Riverton Lock in the canal around Colbert and Bee Tree Shoals in 1892, and when there were significant problems with contractors at that canal in 1893 and 1894.⁷⁶

This approach also sparked one of the more meaningful professional and personal relationships in Goethals's life. Sydney B. Williamson was a civilian engineer who had joined the Florence District at the behest of his brother, another engineer who served as Goethals's

⁷⁶ *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, vol. II, 2306-2310; *Report of the Secretary of War*, 52nd Cong., 2nd sess., 1892, vol. II, 1950-1957; *Report of the Secretary of War*, 53rd Cong., 2nd sess., 1893, vol. II, 2426-2427; *Report of the Secretary of War*, 53rd Cong., 3rd sess., 1894, vol. II, 1826-1831; and Sydney B. Williamson, *Untitled Manuscript*, January 16, 1934, Sydney B. Williamson Papers, 28-30.

division chief responsible for improvements between Elk River Shoals and Chattanooga in 1891. Williamson proved his worth on a survey upriver, and Goethals brought him into the district headquarters to help create plans for the canal at Colbert and Bee Tree Shoals. On the job, Williamson was never happier than when his supervisors allowed him to “do the work in my own way except as to the regulations and general policies of the Engineer Department.” He thoroughly enjoyed working for and with Goethals. In turn, Goethals developed great faith in Williamson, entrusting him with the district’s most difficult technical problems. Thus began one of Goethals’s few lifelong friendships and closest professional relationship. He brought Williamson in as a trusted deputy in every major engineering assignment he held in the future.⁷⁷

Managing the Florence District also exposed Goethals to problems of logistics and personnel administration that he had not previously experienced. Goethals led a permanent workforce of approximately seventy people dedicated to operating and maintaining the canals at Elk River Shoals and Muscle Shoals. The workforce fluctuated periodically when certain projects demanded hired labor rather than contracted labor. Goethals was not only responsible for planning and executing the projects within his district, but also for paying salaries; acquiring and maintaining tools, boats, machines, and a small railroad; feeding, housing, and looking after the health of the workforce; and projecting and managing an annual budget. Although proficiency in administration and logistics is an essential element of high command, most army officers in the nineteenth century received no training in these areas. Those who became proficient administrators and logisticians learned through practical experience. Administering

⁷⁷ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Sydney B. Williamson Papers, 27-36. The quote is on pp. 35-36 of the manuscript. For further evidence of the burgeoning friendship, see “Little Jots and Dots,” *Florence Herald*, June 21, 1894, which indicates that Williamson, his wife, and his sister-in-law lived with Goethals in the summer of 1894 while the rest of the Goethals family made their annual summer trek to Massachusetts.

and supplying the Florence District was the sole foundational experience that taught Goethals concepts, techniques, and procedures that he would employ against much larger administrative and logistical problems in Panama and during World War I.⁷⁸

Lastly, this independent command provided Goethals with an invaluable opportunity to refine his technical knowledge and his project management abilities to levels that ultimately shifted the boundaries of what was then considered possible. Although managing the daily maintenance and operation of the canals and channel improvement projects occupied much of the district's time and resources, the most significant project planned and implemented in the Florence District between 1891 and 1894 was the canal around Colbert and Bee Tree Shoals—the last notable hazards for river navigation in northern Alabama. The Colbert and Bee Tree Shoals constituted a nearly continuous eight-mile long, low-water hazard that was the natural next project for the district after the Muscle Shoals canal opened. Anticipating this, Goethals ordered surveys of the area to be completed in August and September 1890, and developed a plan for a seven-foot-deep and eight-mile-long canal.⁷⁹

The canal required a system of locks at its lower end, near Riverton, Alabama, to mitigate the twenty-foot fall in the river from the head of the Colbert Shoals to the foot of the Bee Tree Shoals. Common wisdom at the time called for a flight of two locks. Goethals believed it could be accomplished through single lock with an unprecedented 25-foot lift. In consultation with

⁷⁸ The administrative and logistical overhead of the Florence District are outlined in *Report of the Secretary of War*, 52nd Cong., 2nd sess., 1892, vol. II, 1951 and 1956-1958; *Report of the Secretary of War*, 53rd Cong., 2nd sess., 1893, vol. II, 2428-2421 and 2433-2435; *Report of the Secretary of War*, 53rd Cong., 3rd sess., 1894, vol. II, 1827 and 1831-1833; see also George W. Goethals to Chief of Engineers, April 16, 1891, File 2514, Box 67, Entry 96, RG 77, NARA I. Goethals was never trained in administration or logistics, and would have no further experience in administrative or logistical matters prior to his appointment as Chairman and Chief Engineer of the Isthmian Canal Commission.

⁷⁹ *Report of the Secretary of War*, 52nd Cong., 1st sess., 1891, vol. II, 2310-2311.

Sydney B. Williamson, Goethals developed a plan and pitched it to his superiors in Washington. His audience remained skeptical that such a lock could be built, with nearly double the lift of the highest locks then existing in the United States. In 1892, a centralized board of more conservatively-minded officers forced the plan to be changed to two locks separated by a mile-long pool, with respective lifts of twelve and thirteen feet. Undeterred, Goethals continued to advocate for his plan for a single lock. By 1893, he had successfully convinced the Chief of Engineers. Construction began at the lock site that summer.⁸⁰

The effort did not go smoothly, but it ultimately succeeded. Excavation of the lock site was extremely troublesome because it was mired in quicksand that seemed to have a knack for breaking equipment used against it. Construction fell further behind when the contractor hired to build the lock walked off the job. Finally, Goethals placed Williamson in charge of construction. Together, their efforts to design and build the Riverton Lock at the foot of the canal around Colbert and Bee Tree Shoals established a precedent for the mega-locks they designed and built twenty years later in Panama.⁸¹

Goethals did not stay in Florence long enough to see the completion of the canal and its innovative high-lift lock. By opening the Muscle Shoals Canal, successfully managing an independent district for more than three years, then designing and doggedly advocating for the 25-foot Riverton Lock, Goethals had caught the attention of the Chief of Engineers, Brigadier

⁸⁰ *Report of the Secretary of War*, 52nd Cong., 2nd sess., 1892, vol. II, 1950; *Report of the Secretary of War*, 53rd Cong., 2nd sess., 1893, vol. II, 2426-2427; and Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Sydney B. Williamson Papers, 28-29.

⁸¹ *Report of the Secretary of War*, 53rd Cong., 3rd sess., 1894, vol. II, 1826; U.S. Department of War, *Report of the Secretary of War*, 54th Cong., 1st sess., 1895, House Executive Document 2, vol. II (Washington, DC: Government Printing Office, 1895), 2294; George W. Goethals to Thomas L. Casey, June 24, 1893, File 2657/23, Box 41, Entry 98, RG 77, NARA I; Johnson, *Engineers on the Twin Rivers*, 138; and Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Sydney B. Williamson Papers, 29-30. The quotation is on page 30 of Williamson's manuscript.

General Thomas L. Casey. When an officer on his staff in Washington died unexpectedly in September 1894, Casey selected Goethals to fill the vacancy. In early October 1894, Goethals received orders that the Nashville District would reabsorb his district, and that he was to report to Washington immediately for duty on Casey's small staff of three engineer officers.⁸²

Thus closed an important chapter in George W. Goethals's career. His assignments with the Department of the Columbia and the First Cincinnati District from 1882-1885, and then with both the Nashville District and the Florence District from 1889-1894 were the most significant developmental experiences he had in the army. While West Point imbued Goethals with a sense of purpose and a deep identification with the U.S. Army, and the Engineer School of Application improved his abilities as an engineer, Goethals learned how to be an innovative engineer and an effective officer through practical experience in during these assignments. Collectively, they provided enough opportunities to allow Goethals to make a name for himself within the Corps of Engineers and the army more generally, and provided him with the skills he later used to great effect in Panama and during the First World War.

Significantly, however, the army had taken no active measures to ensure Goethals's assignments afforded him with such opportunities. His assignments were determined not by a discerning individual who recognized what experiences Goethals needed to develop properly. Instead, they were determined by the confluence of his own talent, personal connections, and

⁸² Thomas L. Casey to Daniel S. Lamont, September 27, 1894, File 7329, Box 32, Entry 103, RG 77, NARA I; Thomas L. Casey to Joseph Wheeler, October 4, 1894, File 8453/4, Box 160, Entry 103, RG 77, National Archives and Records Administration I, Washington DC; and *Report of the Secretary of War*, 54th Cong., 1st sess., 1895, vol. II, 3-4, 310, and 2277. At the time, of 118 officers in the Corps of Engineers, only four were detailed to the Office of the Chief of Engineers, including the Chief of Engineers. The Corps of Engineers maintained an office in Florence to oversee the region's canals – that office reported first to the Nashville District as of October 4, 1894, and subsequently to a reinstated Chattanooga District. "Goes to Washington" and "May Not Go," *Florence Herald*, October 4, 1894; and "No Change," *Florence Herald*, October 11, 1894.

chance: his crucially important assignment under Merrill on the Ohio was contingent upon him angering Miles by refusing an Alaskan expedition at the exact moment that Merrill's long-serving deputy was promoted and transferred, creating a vacancy in Cincinnati. Consider also that Goethals was given an independent command—with all its fruitful experiences—because he had managed to succeed in a difficult situation into which he was put because poor Lieutenant Graham Fitch fell gravely ill and needed to be replaced in Nashville. Goethals was very lucky to receive the opportunities he did. Because of his talents, he consistently rose to the occasion. In doing so, important people noticed, and began to open doors hiding other particularly valuable experiences that were not open to the vast majority of his peers.

Goethals did not consider that the effectiveness of his own experiential development was exceptional and highly contingent. As he continued to excel within the U.S. Army, he believed that his success was the result of the experiential model of officer development that shaped his early career, and his faith in that model grew stronger. Later in his career, even after the establishment of the U.S. Army War College and the improvement of the Leavenworth schools, he continued to advocate for the experiential model, going so far as to replicate for others his own early experiential development. In 1908, the Corps of Engineers began sending its newly commissioned officers to the field to gain practical experience prior to attending the Engineer School of Application. Reporting to the Chief of Engineers on his first group of three student officers, Goethals described a curriculum that mirrored his experience on the Ohio, having “started them in as chainmen and rodman on preliminary surveys” and then “worked them up.”⁸³ Writing from Panama in 1910 to his oldest son, then an engineer lieutenant who would soon be

⁸³ George W. Goethals to Brigadier General Marshall, April 19, 1909, Container 8, George W. Goethals Papers, LC.

assigned to the Canal Zone, Goethals outlined his plan for his son's professional development in a manner similarly reminiscent of Merrill's methods, beginning with railroad management. "I don't know how long it will take you to master the method employed in operating a railroad," he wrote, "but I shouldn't imagine that it will require much of your time, after which you can go under Mr. Williamson on lock work, starting in as a foreman & working your way up as far as opportunity will permit."⁸⁴

Finding success despite an unstandardized and highly contingent system of development that relied upon loosely-controlled notions of experiential development, Goethals became conditioned to believe that such a system necessarily breeds success. He came to place great value in learning by experience, which he described in 1922 as "the only school that is worth anything."⁸⁵ This was not a unique thought; it reflected the views of many of those officers who entered the army between 1870 and 1890 and went on to become its senior leaders in the early-twentieth century. Such views reinforced older and increasingly outdated attitudes about professionalism and officer development that continued to affect the U.S. Army. As a result, the army developed and reinforced an institutional culture within its officer corps that was generally conditioned to reject the value of formal training and education, and to resist reforms meant to forge a legitimate place for education within the institution.

⁸⁴ George W. Goethals to "Toodles" [George R. Goethals], February 27, 1910, Container 3, George W. Goethals Papers, LC. Contrary to some contemporary and later critics who described him as a cold and distant person, Goethals appears to have had a very warm and loving relationship with his sons. In all of his correspondence with his eldest son, George R. Goethals, he only refers to his son by nicknames, which include "Toodles," "Dodo," "Dodie," and "old man."

⁸⁵ Crowther, "Don't Fear to Attempt a Thing Just Because it Looks Big," 16.

Similarly, the army's disposition also sharply limited the extent to which its units could train and prepare for war. Spread out among a network of small outposts and at peace more often than it was at war, the army rarely had the opportunity to mass units of any appreciable size in the same place and at the same time. Most immediately, this meant that soldiers usually did not have the opportunity to participate in large-scale maneuvers against a peer or superior opposing force, or operate in cooperation with other branches of the army—infantry, cavalry, artillery, engineers, etc. There were, however, more significant consequences at the institutional level. The army was never able to test its systems for mobilizing and sustaining a large force in a time of war, nor provide the vast majority of its officers with any exposure to or experience in commanding and coordinating the operations of large bodies of troops. As one historian has rightly noted, the late-nineteenth-century U.S. Army “appeared a place where officers learned all about commanding fifty dragoons on the western plains but nothing about anything else.”⁸⁶

Consequently, the reduction or elimination of its frontier mission was a necessary condition for reform in the U.S. Army. It was no mere coincidence that the most significant elements of military reform in the late-nineteenth century occurred in concert with the “closing” of the frontier. When a reluctant Congress allowed the army to begin closing its smaller outposts and consolidating larger units onto larger bases, a few leaders began experimenting with training maneuvers on scales not seen since the Civil War. At the same time, a few energetic and reform-minded officers began to remold the Leavenworth schools, laying the groundwork for Ft. Leavenworth's rise as one of the nerve centers of military education in the twentieth century.⁸⁷

⁸⁶ Weigley, *History of the United States Army*, 265.

⁸⁷ See James L. Abrahamson, *America Arms for a New Century: The Making of a Great Military Power* (New York: Free Press, 1981); Timothy K. Nenninger, *The Leavenworth Schools and the Old Army* (Westport, CT: Greenwood

But it was also no coincidence that even the most significant elements of military reform in the late-nineteenth century were fragmented, ill-coordinated, and unable to effect lasting institutional change. Experimentation with large-scale tactical maneuvers was a fairly limited practice in the late-nineteenth century. And despite notable efforts by Arthur Wagner and Eben Swift, the Leavenworth Schools would not fully mature until the second decade of the twentieth century.⁸⁸ While the U.S. Census Bureau declared the American frontier to be “closed” in 1890 and the last of the army’s campaigns against Native Americans concluded in 1891, the effect of the frontier upon the army was more lasting. It had defined the army’s identity for more than a century. Multiple generations of officers shaped, ratified, and internalized the methods and systems the army had adopted because of its disposition and mission on the frontier, making such methods and systems institutionalized habits that had become part of the very fabric of the army. With the frontier inextricably woven into its identity and its institutional culture, the U.S. Army was reluctant to accept the fact that although born of necessity, changing conditions and the passage of time had rendered many of its systems and processes unnecessary and arcane.

The frontier affected the United States Army well after it ceased to exist in the American West. The army’s institutional culture, defined by its frontier requirements and experiences, failed to adapt as conditions outside the institution changed. But perhaps this is unsurprising. Any human institution is subject to human nature, and humans are creatures of habit. Furthermore, such habits are made even stronger within institutions that promote and select their leaders from within. The army’s institutional culture failed to keep pace with external conditions

Press, 1978), 21-50; and T.R. Brereton, *Educating the U.S. Army: Arthur L. Wagner and Reform, 1875-1905* (Lincoln, NE: University of Nebraska Press, 2000), 13-66.

⁸⁸ Nenninger, *The Leavenworth Schools and the Old Army*, 68-107.

because its leaders were not only accustomed to the habits of the frontier army, but embraced such habits as best practices. They interpreted their individual successes within the army to be validation of the methods and systems of development they experienced as junior officers. In a self-generating cycle, leaders who believed they owed their successes to old habits preserved arcane habits that were no longer justifiable in the absence of the conditions that spawned them, sharply limiting the effect of an ambitious program of reform undertaken in the wake of the War with Spain.

CHAPTER 3

Reform and Resistance:

The Divorce of Institutional Structures and Institutional Culture in the U.S. Army

February 18, 1907 began ordinarily enough for George W. Goethals. He arrived at his office near the White House at the usual time, but the day quickly took a more interesting turn. Late in the morning, he received a message from Secretary of War William Howard Taft asking him to come in for a meeting. Goethals dropped what he was doing and went straight to see Taft, who proceeded to quiz Goethals on his background and his previous experiences in the army. This seemed unusual to Goethals. The conversation revolved around matters that they had discussed at great length on their many tours of inspection of fortifications throughout the country. Finally, Taft intimated that President Theodore Roosevelt had accepted the resignation of John Stevens. He and the Chief of Engineers had met with the president and recommended that he appoint Goethals as Chairman and Chief Engineer of the Isthmian Canal Commission. “He could not assure me I would be selected,” Goethals recalled eight years later, “but I probably would be summoned to the White House that evening and should be prepared for such a call,” and that “in the meantime nothing was to be said concerning the matter to anyone.” The call finally reached Goethals at his DuPont Circle home shortly before ten o’clock that evening.¹

¹ Quotations from George W. Goethals, “The Building of the Panama Canal: Success of Government Methods,” *Scribner’s Magazine* LVII, No. 3 (March, 1915): 265. See also William Loeb, Jr. to George W. Goethals, February 18, 1907, Box 5, George W. Goethals Papers, Manuscript Division, Library of Congress. “Individual Service Report of Geo. W. Goethals, Major, Corps of Engineers,” September 18, 1906, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I lists Goethals’s address as 1903 S St., NW, Washington, DC. The home still stands today at the same address.

Thirteen eventful years had passed since Goethals had served as a canal engineer in Alabama. For the United States Army, the period of time from 1894 through 1907 partially resolved an institutional identity crisis brought on by the closure of the western frontier. For Goethals, critical assignments in Washington and Newport, Rhode Island set the final conditions for him to lead the construction of the Panama Canal. Goethals's experiences in these years are significant not only for explaining how the assignment in Panama fell to him, but also for shedding light on how and to what extent the army changed in the last decade of the nineteenth century and the first decade of the twentieth.

Although the U.S. Army insulated itself from new trends in education and training emerging within other professions and American society more broadly, it was not isolated from society. Try as it might to control its own environment, external influences heavily shaped the army. One such influence was the closing of the frontier. Despite the lasting influence the frontier held upon the army's institutional culture, a drastic change to the context within which the army had existed for more than a century necessarily meant that the army had to change. For most of its existence, the purpose of the army had been to defend the coasts and police the frontier. Now that there was no frontier to police, the very purpose of the army was an open question.

Progressivism influenced the way the army addressed that question. A diverse reform movement, "Progressivism" refers to the collective body of public and private responses to social, economic, and political problems related to urbanization, industrialization, and

modernization in the late-nineteenth and early-twentieth centuries.² Buoyed by advancements in science, technology, managerial systems and theories, and a rapid exchange of ideas among American and European activists grappling with the similar issues, American society adopted what one historian has described as a new “interventionism.” Individual and collective intervention represented a reformist impulse that pervaded the United States during the Progressive Era. People and organizations intervened on an unprecedented scale to reform urban social conditions, business regulation, business management, government institutions, and government oversight. The reformist impulse so electrified society that even reactionaries were moved to channel it toward agendas of social control like the promotion of eugenics and the “Americanization” of immigrants.³

As the army grappled with the completion of westward continental expansion and all of its implications, Progressivism and its reformist impulse were in the air. Paralleling trends in civil society, military reform stalled in the absence of a systemic shock. Just as Jacob Riis’s widely-publicized photographs of the urban poor in New York lent significant momentum to municipal and social reformers in the 1890s, the War with Spain in 1898 gave military reformers an opportunity to implement their ideas. But that shock ultimately was not severe enough. In the end, army reform was visionary in scope and intent, but faulty in execution. Like progressive activists striving for reform in social, political, and commercial spheres, military reformers

² This description of Progressivism is derived primarily from pluralist interpretations advanced in Daniel T. Rodgers, “In Search of Progressivism.” *Reviews in American History* 10, no. 4 (December 1982), 113-132; John Whiteclay Chambers II, *The Tyranny of Change: America in the Progressive Era, 1890-1920*, second edition (New Brunswick, NJ: Rutgers University Press, 2000); and Maureen A. Flanagan, *America Reformed: Progressives and Progressivisms, 1890s-1920s* (New York: Oxford University Press, 2007).

³ See. Chambers, *The Tyranny of Change*, ch. 5. Chambers provides an excellent definition of his concept of “new interventionism” on pp. 136-137. On the impact of a Trans-Atlantic exchange of ideas, see Daniel T. Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge, MA: Belknap Press, 2000).

assumed that structural change within the institution would affect a more general and thorough institutional transformation. By focusing only on institutional structures, reformers unintentionally created a schism between those structures and the army's institutional culture. The chasm that separated the two blunted the effect of reform and prevented reformers from achieving their goals in the early-twentieth century.

After departing Alabama in 1894, George W. Goethals embarked upon a new phase in his career. The next thirteen years exposed him to the larger issues facing the Corps of Engineers and the army—issues on a level that made much of his previous work and concerns seem trivial and parochial. By consistently challenging him to think beyond immediate priorities and the relatively local problems of one major project, Goethals's assignments between 1894 and 1907 broke new ground. They placed him squarely in the intersection of the external conditions forcing change within the army, the parts of the army implementing change, and the army's increasingly outdated institutional culture.

As a reward for his service at Florence, Goethals reported for duty in the office of the Chief of Engineers in October 1894. That office was the central administrative authority for the U.S. Army Corps of Engineers. It programmed and managed Congressional appropriations totaling nearly \$35 million, and coordinated the efforts of 118 officers throughout the country engaged in the construction and improvement of coastal fortifications, river and harbor improvements, various bridging and aqueduct projects, and the construction and renovation of

public buildings. It was also the higher headquarters for the army's only engineer battalion and the Engineer School of Application.⁴

Aside from a handful of civilian clerks, only four engineer officers directly assisted the Chief of Engineers. Their duties varied widely. Some work was completely administrative, involving the disbursement of funds, production of orders, and the printing of manuals. Other duties were more technical in nature. As needed, these officers sat on engineering boards and commissions, reviewed plans and contracts, and advised Congressional committees. Frequently, they served as a brain trust for the Chief of Engineers, weighing in informally on special projects and questions of general policy.⁵ These officers were so exceptionally busy that Brigadier General William P. Craighill, who replaced Thomas L. Casey as the Chief of Engineers in May 1895, successfully lobbied the Secretary of War to authorize an additional engineer officer to be assigned to his office staff in 1895.⁶

In the fall of 1894, Goethals was the most junior officer assigned to that office. As such, many of Goethals's duties during his assignment with the Chief of Engineers were menial administrative tasks.⁷ But he also weighed in occasionally on important policy matters and

⁴ U.S. Department of War, *Report of the Secretary of War*, 54th Cong., 1st sess., 1895, House Executive Document 2, vol. II, (Washington, DC: Government Printing Office, 1895), 1-22.

⁵ *Report of the Secretary of War*, 54th Cong., 1st sess., 1895, vol. II, 3; William J. Sewell to Daniel S. Lamont, File 10828/7, Box 233; Untitled Memorandum, File 11572/4, Box 248; "Memorandum," December 3, 1895, File 13340, Box 283; George W. Goethals to Major Charles Allen, File 15632/37 Box 337; and George W. Goethals to W.P. Craighill, January 28, 1897, File 19019/15, Box 431; all in Entry 103, RG 77, NARA I.

⁶ U.S. Department of War, *Report of the Secretary of War*, 54th Cong., 2nd sess., 1896, House Executive Document 2, vol. II, (Washington, DC: Government Printing Office, 1896), 4.

⁷ George W. Goethals to Major Charles Allen, September 12, 1896, File 15632/337, Box 337; "Memorandum," December 3, 1895, File 13340, Box 283; and Untitled Memorandum, File 15632/337, Box 337, all in Entry 103, RG 77, NARA I. See also "Individual Service Report of Geo. W. Goethals, Captain, Corps of Engineers, for the fiscal year ended June 30, 1896," July 11, 1896, File # 3644-ACP-1880, Box 667, Entry 297, RG 94; Untitled memorandum, File 11572/4, Box 248, Entry 103, RG 77; and A. Mackenzie to Inspector General, July 25, 1898, File 27681, Box 580, Entry 103, RG 77; all in NARA I.

served on a few more significant civil-military boards. On the strength of his record in Alabama, the Chief of Engineers assigned Goethals to provide technical advice to a Senate select committee considering the possibility of constructing an interoceanic canal in Nicaragua. In 1897, a new Chief of Engineers ordered Goethals to confer with the U.S. Civil Service Commission to ensure that civilians hired by the Corps of Engineers adhered to rules and regulations established by the commission. Finally, in April 1898, the Chief of Engineers selected Goethals to represent the Corps of Engineers on a board convened by the Secretary of War to designate articles that would be prohibited for export as the nation mobilized for war with Spain.⁸

Each of these duties gave Goethals invaluable exposure to the nature and mechanisms of the relationship between the army and civil government—a rare opportunity given to very few junior officers in the late-nineteenth-century army. Despite this, Goethals was dissatisfied with his assignment in Washington. He never enjoyed the nature of the work there. Like most officers of the nineteenth century, Goethals subscribed to a vision of leadership based on a romantic perception of Civil War officers marching calmly into danger at the front of their units, an image that was frequently at odds with the managerial style that emerged in an increasingly industrialized society and economy. Goethals and many of his contemporaries were reluctant to believe that the army required talented officers in an office or a headquarters coordinating myriad logistical and administrative requirements as much as it required talented officers in the

⁸ William J. Sewell to Daniel S. Lamont, January 24, 1896, File 10828, Box 233, Entry 103, RG 77, NARA I; “Individual Service Report of Geo. W. Goethals, Capt. Corps of Engineers, for the fiscal year ended June 30, 1897,” File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I; and John M. Wilson to Secretary of War, April 28, 1898, File 216151, Box 557, Entry 103, RG 77, NARA I.

field inspiring their troops.⁹ Thus, when others later mentioned his own name as a candidate to become the Chief of Engineers as a reward for his work in Panama, Goethals could reply in complete honesty, “I am not an applicant, nor do I care of the position, the work not being to my liking,” and that “these views are not new, for I held them during my service as Assistant to the Chief, and have not changed my mind.”¹⁰

In the fall of 1897, Brigadier General James Wilson knew his most junior assistant was getting restless. The Chief of Engineers then arranged for Goethals to relieve the instructor of Practical Military Engineering at West Point when that officer’s assignment expired the following summer. The Secretary of War agreed, and Goethals prepared to depart for West Point in several months’ time.¹¹ This transfer did not happen on schedule. It was interrupted by events in Cuba.

Tensions between Spain and the United States had been rising since the outbreak of the Cuban Insurrection in 1895. While the American public generated vocal and occasionally material support for the Cubans, the American government’s official position was neutral. At the same time, the successive Cleveland and McKinley administrations pressured Spain to pacify Cuba and grant it political autonomy. Sensing that the point of victory was near, Cuban revolutionaries rejected autonomy, opting instead to fight to win independence. Violence continued. The ineffective and heavy-handed Spanish response prompted increasing support among the American public for the Cuban revolutionaries. Tensions escalated into a full-blown

⁹ This can be seen in Goethals’s description of Major General John R. Brooke preparing for battle during the War with Spain in 1898. Transcription of George W. Goethals to “My Darling” [Effie R. Goethals], August 14, 1898, Thomas Goethals Private Collection, Vineyard Haven, MA.

¹⁰ George W. Goethals to William M. Black, December 19, 1912, Box 17, George W. Goethals Papers, LC.

¹¹ John M. Wilson to Secretary of War, File 22967, Box 492, Entry 103, RG 77, NARA I.

crisis in a single week in early February 1898. First, American newspapers widely published a stolen letter, which had been written by the Spanish ambassador to the United States, that insulted President McKinley. Then, the *U.S.S. Maine* mysteriously exploded while in Havana's harbor. As the American public clamored for war and Spanish officials convinced themselves that a war abroad was the only way to avoid political upheaval at home, policymakers on both sides lost the ability to pursue effective diplomacy. On April 25, 1898, the United States declared war against Spain, and its army began to mobilize for war.¹²

The army expanded rapidly through a congressional authorization to increase the strength of the regular army, a presidential call for volunteers, and broad popular enthusiasm. Units mustered so quickly that the headquarters staffs to command and control them were organized haphazardly as they attempted to catch up. Commanders called for officers with whom they were personally acquainted as they realized certain specialties and skill sets were missing from their staffs. In early May, Brigadier General Wilson received a request for a corps engineer from the recently designated commander of the First Army Corps, Major General John R. Brooke. He specifically requested Goethals for the post, if it was "agreeable to the Chief of Engineers." Wilson needed no convincing, endorsing the request with a notation that the position of chief engineer for a corps was "a position for which [Goethals] is thoroughly qualified by his high character, soldierly ability, and scientific attainments."¹³ On May 20, 1898, Goethals received

¹² Donald F. Trask, *The War with Spain in 1898* (Lincoln, NE: Bison Books, 1981), 1-59.

¹³ John R. Brooke to Adjutant General, May 1, 1898, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

orders to report to General Brooke at Chickamauga National Military Park, Georgia for duty. The assignment came with a temporary promotion to lieutenant colonel of volunteers.¹⁴

Goethals's assignment to the First Army Corps demonstrates that wartime exigencies heightened the degree to which personal connections influenced officers' assignments. Individual commanders held more sway over a given officer's assignment than any centralized authority in Washington. Since 1894, Goethals had developed a reputation that put him in high demand. Shortly after General Brooke secured Goethals's assignment with Brooke's corps, the newly-designated chief engineer of all armies in the field requested that Goethals be assigned as his assistant and sent to accompany the Fifth Army Corps on its campaign in Cuba.¹⁵ In June, the Chief of Engineers nominated Goethals to serve as a lieutenant colonel in the first of three regiments to be raised in a brigade of volunteer engineers that Congress had authorized in the middle of May.¹⁶ Ultimately, the final decision was left up to Brooke and Goethals.

Goethals learned of the competing requests shortly after reporting to Brooke at Chickamauga on May 30. In a passive refusal of Ludlow's request, the Adjutant General replied that while Goethals was assigned to the First Army Corps, a transfer to Ludlow's staff was possible only if Brooke agreed and wrote the orders. Predictably, Brooke was unwilling to let him go.¹⁷ The Chief of Engineers left the transfer to the volunteer engineer regiment up to Goethals himself. He was torn, commenting to his son that "Genl. Brooke doesn't want me to go

¹⁴ Adjutant General's Office Special Orders No. 118, May 20, 1898, and Oath of Office, May 26 1898, both in File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I; and John M. Wilson to R.A. Alger, June 1, 1898, File 26640, Box 562, Entry 103, RG 77, NARA I.

¹⁵ General Ludlow, "Memorandum for General Corbin," May 23, 1898, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

¹⁶ John M. Wilson to R.A. Alger, May 14, 1898 and June 1, 1898, File 26640, Box 562, Entry 103, RG 77, NARA I.

¹⁷ H.C. Corbin to General Ludlow, May 24, 1898, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I

and I don't reckon what to do." Ultimately, he acceded to pressure from Brooke and declined the appointment in favor of maintaining his position as Chief Engineer of the First Army Corps.¹⁸

Goethals may have regretted that decision almost immediately after arriving at his assigned campsite a short distance downhill from a slit trench that was used as a latrine. "During the heavy rains," he testified after the war, "our sink [latrine] was flooded out, and naturally the drainage was toward the tents."¹⁹ Such amateurish and unsanitary mistakes characterized the army's mobilization for the War with Spain. Poorly sited mobilization camps became pestilent breeding grounds of disease. The First and Sixth Army Corps mobilized at Chickamauga Park, which became one of the more notorious mobilization centers of the war as scandalous reports, some accurate and some exaggerated, filled the pages of widely-read newspapers that were then approaching the heyday of muckraking journalism.²⁰

To Goethals, experiences at Chickamauga underscored the importance of preventive health measures and strict enforcement of sanitation regulations. To his family, Goethals reported only, "It is awfully dirty out here."²¹ He was more candid to postwar investigators, recalling that rides through the woods revealed "evidences of the men having defecated all

¹⁸ General Orders No. 22, HQ, First Army Corps and Department of the Gulf, Camp George H. Thomas, May 30, 1898, Volume 1, Entry 33, RG 395, NARA I; John M. Wilson cablegram to George W. Goethals, June 9, 1898, and George W. Goethals cablegram to John M. Wilson, June 9, 1898, File 26945, Box 564, Entry 103, RG 77, NARA I. Quotation from George W. Goethals to "Toodles" [George R. Goethals], June 1, 1898, Box 3, George W. Goethals Papers, LC.

¹⁹ *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, Senate Document No. 221, vol. 6 (Washington: Government Printing Office, 1900), 2683.

²⁰ An excellent overview of sanitation and related supply problems at mobilization centers during the Spanish-American War can be found in Graham A. Cosmas, *An Army for Empire: The United States Army in the Spanish-American War* (College Station, TX: Texas A&M University Press, 1994), 266-278.

²¹ George W. Goethals to "Dodo" [George R. Goethals], June 10, 1898, George W. Goethals Papers, LC.

through the woods without reference to sinks” and that his “attention was particularly called to our own headquarters, which were not in a very good condition as far as policing was concerned.”²² Goethals further testified that many commanders at the camp selected bivouac sites in unhealthy locations because they deemed healthier locations to be more useful as training and drilling grounds. Such sites became dangerously overcrowded as inexperienced leaders failed to comprehend the relationship between dispersion and sanitation. Units frequently encamped in and among their own filth, or upon ground that was too rocky to permit the excavation of sufficiently deep latrines. Beyond this, Goethals’s testimony suggested that officials had made a fundamental error in selecting Chickamauga Park as a mobilization site for two entire corps, as the sole uncontaminated water supply that was available to provide water to the camp could not support both corps if they were fully manned.²³

Goethals found the mobilization at Chickamauga somewhat mundane. He spent much of the month of June working to improve the water supply. He conducted the necessary surveys and ran a line to a supplemental source at a nearby spring, but General Brooke ordered work on the water supply to be stopped when he heard a rumor that 15,000 of his soldiers were to be diverted to the Fifth Army Corps at Tampa, Florida.²⁴ With newfound downtime, Goethals visited nearby Chattanooga and hiked Lookout Mountain. Seeking to make more appropriate use of his time, he began visiting the camps of the various volunteer regiments at Chickamauga and instructing their officers on how to conduct reconnaissance. He continued his improvised

²² *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, 1900, vol. 6, 2683.

²³ *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, 1900, vol. 6, 2683-2686.

²⁴ George W. Goethals to “Toodles” [George R. Goethals], June 17, 1898, Box 3, George W. Goethals Papers, Manuscript Division, Library of Congress; and *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, 1900, vol. 6, 2684.

training program throughout late June and July.²⁵ Seeing that his reliable assistant from Florence, Sydney B. Williamson, had been commissioned as a captain in the 3rd Regiment of Volunteer Engineers, which also mobilized at Chickamauga, Goethals persuaded Brooke to assign Williamson as his assistant. Otherwise, he watched the war unfold in newspapers, followed the Santiago campaign with great interest, and waited for First Army Corps to receive orders.²⁶

Confusion, disorganization, and muddle characterized the American war effort, particularly at higher levels of command. Goethals and the rest of the First Army Corps staff learned that they were to plan and lead the invasion of Puerto Rico not from a War Department directive, but from the newspapers.²⁷ Fortunately, Brooke had acted upon rumors suggesting such a possibility, and had set Goethals to procuring maps and information concerning Puerto Rico. Goethals sent a request for both maps and information to the Chief of Engineers on June 29, who promptly forwarded the request to the War Department's Bureau of Military Information. Receiving no positive response, Goethals telegraphed the Bureau of Military Information directly on July 8, and shortly thereafter "received by return mail a copy of a map of Puerto Rico, but no information whatever concerning that island."²⁸ The corps continued to prepare blindly until the War Department confirmed in the middle of the month that Brooke

²⁵ George W. Goethals to "Toodles" [George R. Goethals], June 21, 1898, George W. Goethals Papers, Manuscript Division, Library of Congress; and *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, 1900, vol. 6, 2687.

²⁶ George W. Goethals to "Toodles" [George R. Goethals], July 3, 1898, George W. Goethals Papers, LC; Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 28; Special Orders No. 37, Headquarters, 1st Army Corps, Arroyo, Puerto Rico, August 11, 1898, Volume 1, Entry 34, RG 395, NARA I.

²⁷ George W. Goethals to "Toodles" [George R. Goethals], July 3, 1898 and July 12, 1898, George W. Goethals Papers, Manuscript Division.

²⁸ George W. Goethals to John M. Wilson, July 18, 1898, File 26289, Box 563, Entry 103, RG 77, National Archives and Records Administration I.

would lead a detachment of approximately 5,000 men from the corps in the Puerto Rico Campaign.²⁹

Following the surrender of the defending Spanish forces to General William R. Shafter's forces at Santiago de Cuba on July 17, Secretary of War Alger ordered General Nelson Miles to assume command of a previously-planned expedition to Puerto Rico. Because Shafter's soldiers were too affected by disease to participate in the campaign, the War Department selected a conglomeration of units from the First and Fourth Army Corps, encamped at Chickamauga and near the ports of Charleston and Tampa, to join Miles and nearly three thousand soldiers who had never debarked from their troop transports in Guantanamo Bay. These orders cobbled together a force of approximately 17,000 men in total. Although the War Department had directed Miles to land at Cape Fajardo in the northeast and make a quick strike to the west to capture San Juan, Miles elected to change course after sailing out of Guantanamo Bay. Suspecting that the Spanish expected him to land as close to San Juan as possible, Miles chose instead to land on Puerto Rico's southern coast.³⁰

As Miles sailed from Cuba, the War Department coordinated to move the remainder of his invasion force to their ports of embarkation and transport them to Puerto Rico. The portion of First Army Corps selected to participate in the campaign departed Chickamauga Park on July 23, 1898 to await transportation at Newport News, Virginia. They were fortunate; cases of

²⁹ See George W. Goethals to "Toodles" [George R. Goethals], July 3, 1898, July 12, 1898, and July 22, 1898, Box 3, George W. Goethals Papers, Manuscript Division, Library of Congress. Goethals clearly regards Puerto Rico as only a possibility or mere "newspaper talk" in the earlier two letters. Only in the July 22 letter does he discuss Puerto Rico in certain terms that are also surprisingly specific and uncensored: "We are to go to Porto [sic] Rico and leave tomorrow at 2:30 P.M. for Newport News where we will be for a few days before going to our destination on board the *St. Louis*."

³⁰ Cosmas, *An Army for Empire*, 232-234 and Trask, *The War with Spain in 1898*, 336-356.

typhoid fever in the unsanitary Camp Thomas climbed dramatically beginning in late July, and doubled by the middle of August.³¹ But Goethals was unaware of his comparatively favorable luck. When he boarded the *U.S.S. St. Louis* at Newport News on July 28, he noted that “the bedding was foul, very bad; ventilation, none at all, and the meals were simply abominable.”³²

Although a significant portion of the Puerto Rico invasion force, the Brooke’s corps had a woefully inadequate understanding of Puerto Rico. The War Department had failed to send anything more than one map of Puerto Rico in response to Goethals’s requests in July. General Brooke, however, noticed that a small detachment of Puerto Ricans who were to serve as scouts and guides for General Miles had also embarked on *U.S.S. St. Louis*. Brooke sent his engineer to interview them. Goethals spent most of the voyage collecting from them “all the information concerning the island, roads, etc., needed by the Commanding General for intelligent operations.”³³ Rumors, newspaper accounts, a map sent by an apparently indifferent War Department clerk, and hurried interviews with a group of expatriates of unknown quality were all that Brooke, Goethals, and the rest of the staff had to inform their actions. Many disastrous campaigns have begun with a similar lack of intelligence and preparation.

Landings commenced on Puerto Rico’s southwest coast at Guánica on the morning of July 25, 1898. After a minor skirmish, American soldiers established a secure beachhead. That beachhead was expanded on July 26, and at the same time Miles landed a division at Ponce, near the center of the island’s southern coast. More reinforcements landed on July 31 at both Ponce

³¹ Cosmas, 272. Approximately 2,200 soldiers at Camp Thomas were ill with typhoid fever on June 25, 1898. That number climbed to approximately 4,400 by August 15.

³² *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, 1900, vol. 6, 2688

³³ George W. Goethals to John M. Wilson, April 13, 1901, File 39037, Box 915, Entry 103, RG 77, NARA I.

and Guánica. The outnumbered Spanish troops, recently abandoned by Puerto Rican militiamen who deserted for their homes or defected outright to the American side, began to retreat inland after a few small-unit actions. When the *St. Louis* and accompanying transports steamed into Ponce on July 31, Miles directed Brooke to collect his forces and prepare to land forty miles to the east, near a village named Arroyo.³⁴

Goethals splashed ashore with the lead elements of the First Army Corps on August 2, 1898, meeting no opposition. During the time that it took Brooke to disembark all of his men, Goethals's duties ranged widely. In the nineteenth century, the engineer on a headquarters staff was a genuinely multi-purpose officer, responsible for a wide range of duties including intelligence, reconnaissance, relaying messages for the commander, preparation of defensive positions, and the establishment or improvement of lines of communication. For the first two days, Brooke placed Goethals in command of the perimeter of outposts securing the beachhead.³⁵ As the disembarkation reached its final stages, Goethals, along with Williamson, received orders to return to the beach. For two days, he was "charged with building a wharf to facilitate landing supplies—the rough surf was preventing landing supplies on the beach itself." The dock was a relatively simple project and took little time to complete.³⁶

³⁴ Cosmas, *An Army for Empire*, 234-236; Trask, *The War with Spain in 1898*, 357-362; Robert Wooster, *Nelson A. Miles & the Twilight of the Frontier Army* (Lincoln, NE: University of Nebraska Press, 1993), 225-229; *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, 56th Congress, 1st Session, 1900, vol. 6, 2688.

³⁵ George W. Goethals to John M. Wilson, April 13, 1901, File 39037, Box 915, Entry 103, RG 77, NARA I; George W. Goethals to "Toodles" [George R. Goethals], August 28, 1898, Box 3, George W. Goethals Papers, LC.

³⁶ George W. Goethals to John M. Wilson, April 13, 1901, File 39037, Box 915, Entry 103, RG 77, NARA I. Also noted in Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 34.

By August 5, all of Brooke's soldiers had landed and supplies were starting to move ashore in bulk. Expanding the base of operations, one First Army Corps regiment had seized the nearby town of Guayama after a brief skirmish. Although now poised to support a general offensive, Brooke still required more intelligence about the position and disposition of the Spanish.³⁷ With the dock complete, Brooke ordered Goethals to conduct reconnaissance to prepare for the pending offensive. Taking along his trusted friend Williamson, Goethals executed several thorough reconnaissance missions, finding that the Spanish had "occupied the heights three or four miles inland from the town that commanded the highway leading to San Juan." It was risky work on both ends of these missions. Williamson later recalled that "the most dangerous feature of the reconnaissance was getting back through our own outpost composed of green volunteer troops that were liable to shoot first and investigate afterwards."³⁸

Meanwhile, Miles had completed his plan for the conquest of Puerto Rico. He envisioned four assaulting columns converging on San Juan. In the west, two columns starting from Guánica and Ponce would move from south to north, converging at the town of Arecibo on Puerto Rico's northwest coast, and then moving east against San Juan. In the center of the island, one column would move northeast from Ponce against the main Spanish defensive position at Aibonito, a village in high ground on the southern end of a mountain range that bisects the interior of the island from east to west. There, 1,300 Spaniards blocked the main highway leading to San Juan. The First Army Corps constituted the fourth assaulting column, under orders to support the attack against Aibonito by moving against Cayey from Arroyo and

³⁷ Cosmas, *An Army for Empire*, 234; and Wooster, *Nelson A. Miles and the Twilight of the Frontier Army*, 228.

³⁸ Both quotations from Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 34.

Guyama, then cutting across the highway behind Aibonito, isolating its defenders. After Aibonito fell, Miles intended the two columns to move north along the highway against San Juan.³⁹

The offensive began on August 9, 1898. The Spanish were ill-prepared to mount an effective defense. Because the Puerto Rican militia had gone home or defected, the Spanish mustered only 8,000 defenders, less than half the strength of the American forces under Miles. Furthermore, despite their comparatively small force, the Spanish attempted to defend too many points at once. Consequently, they failed to mass enough combat power at any point to effectively defend against any of the four assaulting columns.⁴⁰

The First Army Corps watched idly as the three columns to its west opened the offensive, with the westernmost units making the most rapid progress. A reconnaissance in force on August 8 by the 4th Ohio Volunteer Infantry Regiment ended with a skirmish that indicated Spanish forces were entrenched in the high ground near Cayey.⁴¹ Brooke spent the next few days planning his attack. He hoped to delay the attack until his corps could be reinforced by an additional regiment of volunteers, but opted to take earlier action when he learned that Wilson's column was making unexpectedly rapid progress toward Aibonito.⁴²

³⁹ Cosmas, *An Army for Empire*, 236; Trask, *The War with Spain in 1898*, 362-363.

⁴⁰ Cosmas, *An Army for Empire*, 236-237.

⁴¹ Trask, *The War with Spain in 1898*, 362-363.

⁴² Transcription of George W. Goethals to "My Darling" [Effie R. Goethals], August 14, 1898, Thomas Goethals Private Collection, Vineyard Haven, MA. I am deeply indebted to Mr. Goethals, the grandson of George W. Goethals, for a most pleasant and interesting meeting in December 2012, during which time he showed me a transcribed copy of the original letter. This is the only surviving letter between Goethals and his wife, who burned her letters from him later in life out of a deeply valued sense of privacy. According to Mr. Goethals, she saved this one letter because she believed it to have historical value.

On the evening of August 11, Brooke issued orders for an advance on to Cayey shortly before dawn the following morning. But inexperienced leaders of the volunteer regiments failed to coordinate their movements properly, and his corps began its movement two hours behind schedule. Brooke sent Goethals and Williamson ahead to conduct a final reconnaissance of the Spanish line, then relied on them to post the lead battalion of skirmishers. With this task accomplished, and with anxiety mounting as his first taste of combat drew near, Goethals returned to his commander, who was positioning a battery of light artillery that he intended to use to open the battle. Brooke directed Goethals and the rest of his staff to observe the artillery and adjust it as needed. In the early evening, the moment of battle had arrived in the early evening as soldiers unlimbered the last artillery piece was and hauled it into position. But the moment passed as quickly as it came. Just then, recalled Goethals two days later, “a messenger came galloping up and shouted that he had an important dispatch.” After reading the message, according to Goethals, Brooke “abused the messenger for not caring more for his horse and telling him never to ride so hard again, after which he told us there would be no fight as peace had been declared.”⁴³

Goethals felt cheated out of a genuine experience of war. “Five minutes more,” he lamented, “and the first shot would have been fired and then there could have been no stopping until after the Spaniards had been driven away . . . thus ends the war, I expect, and I haven’t been under Spanish fire at all, I’m sorry to say, for the outpost firing doesn’t count for anything as there were only a few shots fired on us.”⁴⁴ While it seems inconsistent with a rational sense of

⁴³ Transcription of George W. Goethals to “My Darling” [Effie R. Goethals], August 14, 1898, Thomas Goethals Private Collection, Vineyard Haven, MA.

⁴⁴ Transcription of George W. Goethals to “My Darling” [Effie R. Goethals], August 14, 1898, Thomas Goethals Private Collection, Vineyard Haven, MA.

self-preservation, Goethals's sentiments were genuine. His generation of officers had been educated at West Point and reared as junior officers by Civil War veterans in a time when veterans and society alike were in the midst of constructing an idealized and romanticized memory of the Civil War.⁴⁵ Heavily influenced by that war, Goethals—like his peers—held a Victorian sense of war and military service. Describing Brooke preparing for battle, he wrote to his wife in terms reminiscent of the earliest phases of the earlier war: “The General was just magnificent; he was in khaki uniform, in the front, and had no fear for anyone but his staff.”⁴⁶

Goethals's interpretation of the aborted battle is telling. Like most officers of his generation, he perceived the ideal officer to be an unconcerned veteran in the thick of the action, fearlessly directing a seemingly small task rather than commanding his forces from an area that was more suitable for seeing, understanding, and effectively responding to what was happening to and around his unit.⁴⁷ Furthermore, in Goethals's view, a failure to experience battle cheapened his wartime service. This would be a constant source of insecurity as his career progressed. Collectively, these perceptions frame his generation's mindset. That mindset, in turn, came to define the incongruity between the army's institutional culture and its structures as it adapted to meet the managerial and logistical requirements of modern industrialized warfare.

But for time being, Goethals stewed in Puerto Rico with no war to fight and with very little to do. He passed time by touring the island and collecting Spanish stamps and other relics of the war to send back home to his sons. He was not enamored with the inhabitants, whom he

⁴⁵ See David W. Blight, *Race and Reunion: The Civil War in American Memory* (Cambridge, MA: Belknap Press, 2001), 140-170 and 255-299.

⁴⁶ Transcription of George W. Goethals to “My Darling” [Effie R. Goethals], August 14, 1898, Thomas Goethals Private Collection, Vineyard Haven, MA.

⁴⁷ J.P. Clark, *Preparing for War: The Emergence of the Modern U.S. Army* (Cambridge, MA: Harvard University Press, 2017), 175-176.

viewed in racialized terms, observing to his oldest son that “the little boys and girls about here run around naked until they are about 7 or 8 years old—nearly all the men and women go barefooted.” Continuing, he explained, “They are awfully dirty too, and I don’t think there are any full blooded whites.”⁴⁸ When Miles returned to the United States, Brooke assumed command of the occupation of Puerto Rico, and brought Goethals with him to serve on his staff in this new capacity. There remained, however, little for Goethals to do. Always uncomfortable with idleness, Goethals wrote home, “Genl. Brooke wants me to stay here with him, but I don’t care to unless I have something to do and to keep busy.”⁴⁹ By the middle of September, he was miserable. “I want to get back very much,” he wrote to his family, “I have no work to do, [and] everything is so filthy and dirty that I just cannot stand it here for any length of time.”⁵⁰

Goethals did not have to wait any significant length of time. In the second week of September, Wilson, still serving as Chief of Engineers, began setting conditions to move his former subordinate to the Department of Practical Military Engineering at West Point, as originally arranged prior to the war.⁵¹ Brooke opposed losing his engineer, forcefully but unsuccessfully protesting the transfer.⁵² Goethals relinquished his responsibilities in Puerto Rico

⁴⁸ George W. Goethals to “Toodles” [George R. Goethals], August 22, 1898, and August 28, 1898, Box 3, George W. Goethals Papers, LC. The quotation is from the August 22 letter.

⁴⁹ George W. Goethals to “Toodles” [George R. Goethals], August 28, 1898, Box 3, George W. Goethals Papers, LC.

⁵⁰ George W. Goethals to “Toodles” [George R. Goethals], September 15, 1898, Box 3, George W. Goethals Papers, LC.

⁵¹ John M. Wilson to Secretary of War, September 9, 1898, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁵² John R. Brooke telegram to Adjutant General, October 10, 1898 and October 18, 1898, and Henry C. Corbin telegram to John R. Brooke, October 19, 1898, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

on October 20, 1898, and was soon on his way back home once again to move his family to the United States Military Academy.⁵³

The Department of Practical Military Engineering was an important part of cadets' military training at West Point. This department ran exercises that taught cadets how to design and dig field fortifications and entrenchments, conduct reconnaissance, execute topographical surveys, construct pontoon and simple trestle bridges, operate signaling and communications equipment, and employ siege materials. Because cadets conducted such training outdoors, it was generally scheduled between the months of April and October.⁵⁴

As the head of the Department of Practical Military Engineering, Goethals had several other duties that kept him busy throughout the year. Having reverted back to his regular army rank of captain, he was the commander of Company E of the army's sole engineer regiment. This company provided a daily guard for the garrison, maintained the artillery batteries and their emplacements at West Point, and supported field training for the cadets. In addition, Goethals served directly under the superintendent's command as the post engineer. In this capacity, he increased West Point's water supply by adding more pipelines and purification systems to handle water from additional local sources, and also supervised the renovation of the building that housed the academy's library.⁵⁵

⁵³ U.S. Department of War, "Report of the Chief of Engineers," Part 1, *Annual Reports of the War Department*, 57th Cong., 1st sess., 1901, House Executive Document 2 (Washington, DC: Government Printing Office, 1901), 58.

⁵⁴ Lance Betros, *Carved from Granite: West Point Since 1902* (College Station, TX: Texas A&M University Press, 2012), 214; U.S. Department of War, *Annual Reports of the War Department*, 56th Cong., 1st sess., 1899, House Executive Document 2, vol. I, Part 1 (Washington, DC: Government Printing Office, 1899), 675; U.S. Department of War, *Annual Reports of the War Department*, 56th Cong., 2nd sess., 1900, House Executive Document 2, vol. I, Part 1 (Washington, DC: Government Printing Office, 1900), 290.

⁵⁵ *Annual Reports of the War Department*, 56th Cong., 1st sess., 1899, vol. I, 675-677; *Annual Reports of the War Department*, 56th Cong., 2nd sess., 1900, vol. I, 290-291.

Goethals did not linger in New York. General Wilson ordered him to appear before an examination board scheduled to convene in New York City in December 1899. The board examined Goethals on December 6 and recommended him for promotion to major, a promotion which took effect on March 6, 1900.⁵⁶ Because the Department of Practical Military Engineering was a captain's position, Wilson recommended that new Secretary of War Elihu Root approve orders to transfer Goethals to the engineer district based at Newport, Rhode Island, responsible for the maintenance and improvement of fortifications, rivers, and harbors in Rhode Island and southeastern Massachusetts.⁵⁷

Wilson's decision to send Goethals to Newport sprang from a stubborn adherence to outdated forms of officer development. General Leonard Wood, a future Chief of Staff of the United States Army who then commanded the forces still occupying Cuba, had requested Goethals's services on his own staff. He explained to Wilson, "I want a moderately young man, active and thoroughly tactful" to employ in a situation that "is difficult and requires great judgment and tact." Continuing, he wrote, "I should prefer above all others Major George W. Goethals if he is available." He then explained that his "next choice would be Captain David DuBois Gaillard, then Captain H.F. Hodges, Captain J.J. Morrow, and Captain McKinstry." Wilson replied, "Of the names you sent me, I have selected Capt. Hodges; he has had every class of duty nearly, river work, harbor work, fortification work, canal work, and was Lt. Col. of one of the Volunteer Engineer regiments during the Spanish war."⁵⁸

⁵⁶ John M. Wilson to Elihu Root, October 4, 1899, File 32857, Box 722, Entry 103, RG 77, NARA I; "Examination for Promotion," December 6, 1899, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁵⁷ John M. Wilson to Elihu Root, May 10, 1900, File 35155, Box 837, Entry 103, RG 77, NARA I.

⁵⁸ Leonard Wood to John M. Wilson, April 1, 1901 and John M. Wilson to Leonard Wood, April 7, 1901, File 32481/9, Box 715A, Entry 103, RG 77, NARA I.

Wilson's actions demonstrate that the army's experiential model of officer development could have some merits if exercised by perceptive leaders with effective oversight of the assignments process. The general saw a shortcoming in Goethals's base of developmental experience, and deliberately acted to correct it. Leaders like Wilson, however, were not particularly common. Such active institutional-level measures to mitigate developmental deficiencies were not common, as Goethals's career shows. Now in the third decade of his career, this was the first time that the Corps of Engineers ordered Goethals to a duty assignment because it offered specific experiences in an area of engineering to which he had not yet been exposed. Despite the army's lingering reliance upon the experiential system of officer development, it rarely did anything to ensure its officers were exposed to the right experiences.

Goethals began his duty in Newport on August 31, 1900.⁵⁹ His new engineering district was large and multifaceted, responsible for both fortifications and improvements of rivers and harbors throughout Rhode Island and southeastern Massachusetts. As district engineer, Goethals managed simultaneous efforts to establish or deepen anchorages and create more navigable channels in and around harbors in Martha's Vineyard, Nantucket, Cape Cod, Woods Hole, and Rhode Island's Narragansett Bay, as well as dredging river channels in the Taunton River in Massachusetts. In addition to this, routine work in the district included removing unfortunate vessels that routinely wrecked or sank and obstructed navigation in channels frequently used by fishermen and commercial shipping, especially near Buzzards Bay, Nantucket, Martha's Vineyard, and Block Island. Contractors did most of the work. While Goethals and his supporting staff—including the ever-present Sydney B. Williamson—monitored progress and

⁵⁹ George W. Goethals to John M. Wilson, August 31, 1900, File 36555, Box 839, Entry 103, RG 77, NARA I.

disbursed funds for the contracted projects, they directed most of their effort to the coastal fortifications near Newport, Rhode Island and New Bedford, Massachusetts.⁶⁰

But in the end, Goethals's time in Newport was not significant for the opportunity it afforded him to gain experience in the construction and maintenance of coastal fortifications. Beyond late-nineteenth-century technological improvements that allowed for the use of electricity, and "disappearing" guns that could be raised to fire and lowered behind cover to load, there was nothing cutting-edge about the U.S. Army's coastal defense programs. They were always engaged in a losing battle with time and technology. Systems of coastal defense planned before and after the Civil War were based on unrealistic appraisals of available resources and funds. Congress rarely funded fortifications programs to the extent called for by planners, and construction could progress only at the rate that available labor and resources allowed. Plans took decades to complete, while naval technology continued to make progress. Upon completion, many new forts were already obsolete, having been designed to face decades-old naval threats that existed when the fortification systems were planned. Although considered to be one of the most important missions for the Corps of Engineers in the late-nineteenth century, an assignment in coastal fortifications was inherently backward-looking.⁶¹

⁶⁰ On river and harbor improvement projects in the district, see U.S. Department of War, "Report of the Chief of Engineers," Part 1, *Annual Reports of the War Department*, 57th Cong., 2nd sess., 1902, House Executive Document 2, vol. II (Washington, DC: Government Printing Office, 1902), 108-124 and 889-919. For Goethals's staff, see George W. Goethals to John M. Wilson, December 6, 1900, File 36791/5, Box 845, Entry 103, RG 77, NARA I. For Sydney B. Williamson's time in Newport, see Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 35-38.

⁶¹ For example, the Endicott Board (1886) had based its entire concept of defense around rifled artillery powerful enough to pierce up to twenty inches of armor on a warship at a range of 1,500 – 2,000 yards. At the time Goethals reported for duty at Newport, the leading navies of the world already possessed ships armed with heavy cannon that were effective at ranges exceeding 3,000 yards, and were only a few years away from beginning work on a new class of battleship that would boast heavy guns that could accurately engage targets up to 16,400 yards distant. See Robert S. Browning, III., *Two if by Sea: The Development of American Coastal Defense Policy* (Westport, CT: Greenwood Press, 1983), 73-75 and 150-167; David A. Clary, *Fortress America: The Corps of Engineers, Hampton Roads, and United States Coastal Defense* (Charlottesville, VA: University of Virginia Press, 1990), 45-47 and 124-

Despite this, the Newport assignment allowed Goethals to improve his already strong reputation as an energetic officer and a talented engineer. The army and navy planned to hold joint maneuvers near Newport in late September 1900, just one month after Goethals arrived in the city. The navy intended to exercise its North Atlantic Squadron and test tactics for penetrating coastal defenses in order to raid a port. At the same time, the army wanted to test its defenses at the mouth of Narragansett Bay and was particularly interested in testing its use of the searchlight as a defensive weapon.⁶² Goethals observed the exercise and sent a lengthy report to the Chief of Engineers. The vast majority of this report focused on possible uses of searchlights, strongly recommending that fortifications be equipped with multiple lights. “That there cannot be too many search lights was very evident,” he reported.⁶³ He emphasized the diverse roles they could play in the defense. In addition to searching for ships approaching a minefield, Goethals experimented with a more active role for the searchlights. He used one to blind the pilot of the torpedo boat *Stiletto*, causing the unfortunate sailor to lose his bearings and run the ship into a nearby wharf. According to Goethals, this action led naval officers to “assert that an additional light would have been as good as another battery.”⁶⁴

General Wilson received Goethals’s report enthusiastically, circulating it widely within the Corps of Engineers.⁶⁵ The recommendations created a complicated problem. Existing power

130; and Brian M. Linn, *The Echo of Battle: The Army's Way of War* (Cambridge, MA: Harvard University Press, 2007), 22-26 and 32-36.

⁶² H.C. Hasbrouck to Adjutant General, Department of the East, August 14, 1900, File 36467 and “Proposed Operations in Newport Harbor,” File 36467/1, Box 837, Entry 103, RG 77, NARA I.

⁶³ George W. Goethals to John M. Wilson, October 1, 1900, File 36467/14, Box 837, Entry 103, RG 77, NARA I, 5. The section on searchlights is on pages 3-7.

⁶⁴ George W. Goethals to John M. Wilson, October 1, 1900, File 36467/14, Box 837, Entry 103, RG 77, NARA I, 4-5.

⁶⁵ John M. Wilson to George W. Goethals, October 8, 1900, and John M. Wilson to H.M. Robert, October 8, 1900, File 36467/14, Box 837, Entry 103, RG 77, NARA I.

demands of forts' artillery emplacements—whose range-finding equipment, auxiliary ammunition hoists, and disappearing gun carriages were usually electrically powered—and of the buildings within the garrisons themselves consumed all of the generating capacity of the forts' simple power plants. Engineers had originally designed those plants to provide intermittent power only to artillery emplacements when they were actively in use. Existing power generation systems were insufficient to support multiple high-power searchlights at the forts.

To address the problem, Wilson created a board of engineers that included Goethals and two other officers. This put Goethals and his colleagues in an awkward position. While expected and able to innovate, their innovations were taking place within an increasingly obsolete mission. Together, the three officers created a larger central power station that became the new standard for coastal fortifications.⁶⁶ As the board's leader, Goethals wrote and presented a paper entitled "Electricity in Permanent Seacoast Defenses" to the American Institute of Electrical Engineers in May 1902. The paper was well received within both the engineering community and the larger coastal defense community, and was reprinted in the *Journal of the United States Artillery* in 1903.⁶⁷ This improved Goethals's already excellent reputation at exactly the right time. In the spring of 1903, President Theodore Roosevelt and Secretary of War Elihu Root ordered Major General Samuel B. M. Young to convene a board to select forty-two officers to be detailed to the army's first General Staff. On the strength of his well-known

⁶⁶ George W. Goethals, "Electricity in Permanent Seacoast Defenses," *Transactions of the American Institute of Electrical Engineers* 19 (October 1902): 665-683.

⁶⁷ U.S. Department of War, "Report of the Chief of Engineers," Part 1, *Annual Reports of the War Department*, 57th Cong., 2nd sess., 1902, House Executive Document 2, vol. II (Washington, DC: Government Printing Office, 1902), 18; George W. Goethals, "Electricity in Permanent Seacoast Defenses," *Transactions of the American Institute of Electrical Engineers* 19 (October 1902): 665-683; and George W. Goethals, "Electricity in Permanent Seacoast Defenses," *Journal of the United States Artillery* XIX (1903): 47-65.

innovations in an inherently backward-looking mission in Newport, Goethals made the cut. The U.S. Army, or at least parts of it, apparently did not interpret the establishment of its General Staff as a complete departure from past norms and practices.⁶⁸

Power and authority within the army had long been split between the Commanding General and the autonomous and influential chiefs of supply and administrative bureaus, such as the Adjutant General, Quartermaster General, Chief of Ordnance, Judge Advocate General, and Chief of Engineers. The relative power of the Commanding General waxed and waned according to the personalities of successive Commanding Generals and Secretaries of War. On two occasions in the nineteenth century, the relationship of the individuals holding those two offices were so poor that the Commanding General went so far as to remove his headquarters from Washington, D.C.⁶⁹

The bureau chiefs were more constant presences and more consistent forces to be reckoned with. Generally less hierarchical than their colleagues of the line branches—over whom the Commanding General reigned supreme—the bureau chiefs were more comfortable with a broadly consultative approach to managing the military and jealously guarded their respective spheres of expertise, influence, and authority. The bureau system was mired with inefficiency because the scopes of responsibility of the several bureaus frequently overlapped. For example, when Goethals worked on the problem of power generation in coastal fortifications, different aspects of his work fell under the purview of five different bureaus: the

⁶⁸ U.S. Congress, Senate, William H. Carter, *Creation of the American General Staff*, 68th Cong., 1st sess., 1924, S.Doc 119 (Washington, DC: Government Printing Office, 1924), 54-55; and U.S. Department of War, "Report of the Secretary of War," *Annual Reports of the War Department*, 58th Cong., 1st sess., 1903, House Executive Document 2 (Washington, DC: Government Printing Office, 1903), 3-4.

⁶⁹ Otto Nelson, Jr., *National Security and the General Staff* (Washington, DC: Infantry Journal Press, 1946), 14-22; Beaver, 21-26.

Corps of Engineers for construction and power generation, the Quartermaster Department for lighting the buildings of the forts' garrisons, the Signal Corps for power requirements of communications equipment, the Ordnance Department for power requirements of the ammunition hoists, and the Artillery Bureau for power requirements of the gun emplacements, range-finding equipment, and battery commanders' stations.⁷⁰

In the three decades after the Civil War, the United States Army approached a critical turning point. Previously, except in times of war, the regular army's mission was to serve as a constabulary throughout the western frontier and as a coastal defense force. By the end of Reconstruction, it was clear that the day was rapidly approaching when there would be no frontier to police. Forced to reconsider the proper role of the army, many officers came to believe that the proper role of an army at peace was to prepare for war. Reflecting the trends of a society whose conception of professionalism was evolving, officers began to debate the future of their profession in newly organized professional associations and journals. Many looked to European nations as potential threats and future adversaries and determined that the army was structurally and doctrinally ill-prepared for modern warfare.⁷¹ A faction, led by Civil War hero and William T. Sherman protégé Emory Upton, pushed for a centralized system of command and

⁷⁰ Daniel R. Beaver, *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885-1920* (Kent, OH: Kent State University Press, 2006), 13-15; James E. Hewes, Jr., *From Root to McNamara, Army Organization and Administration, 1900-1963* (Washington, DC: U.S. Army Center of Military History, 1975), 5-9.

⁷¹ Edward M. Coffman, *The Old Army: A Portrait of the American Army in Peacetime, 1784-1898* (New York: Oxford University Press, 1986), 215-286; Timothy K. Nenninger, *The Leavenworth Schools and the Old Army* (Westport, CT: Greenwood Press, 1978), 3-7 and 21-31; Russell F. Weigley, *History of the United States Army*, Enlarged edition (Bloomington, IN: Indiana University Press, 1984), 273-281; James L. Abrahamson, *America Arms for a New Century: The Making of a Great Military Power* (New York: Free Press, 1981), 19-62.

administration headed by a chief of staff and a general staff corps, modeled after Upton's understanding of the Prussian military's system.⁷²

Upton and those of his followers who carried the argument forward after his death in 1881 failed in their endeavors to alter the existing system of command and administration. Their ideas did not gain enough traction because they exceeded the parameters of what was considered possible and acceptable at the time. Although American society increasingly accepted the consolidation of professional authority in other professions such as medicine and law, it had not shaken off its long-held distrust of centralized military authority. Furthermore, nothing had occurred to shake confidence in the bureau system. For much of the late-nineteenth century, officers and political leaders alike basked in the afterglow of the Union victory in the Civil War, seeing little reason to modify systems that they believed had led to success. Compounding this, Upton's ideas met a cold reception from congressmen who viewed traditional army structures, systems, and processes as significant sources of patronage. Crisis is the mother of all motivators, and it took a severe one to shift the parameters of what was considered possible and acceptable.⁷³

That crisis came with the War with Spain in 1898. Goethals's experience of a problematic mobilization for war was all too common. Mobilization camps were ill-sited, ill-

⁷² Coffman, *The Old Army*, 271-274; Jörg Muth, *Command Culture: Officer Education in the U.S. Army and the German Armed Forces, 1901-1940, and the Consequences for World War II* (Denton, TX: University of North Texas Press, 2011), 23-25; Jason Patrick Clark, "The Many Faces of Reform: Military Progressivism in the U.S. Army, 1866-1916" (PhD diss., Duke University, 2009), 160; and Donald B. Connelly, *John M. Schofield & the Politics of Generalship* (Chapel Hill, NC: University of North Carolina Press, 2006), 14-60.

⁷³ Coffman, *The Old Army*, 273; Weigley, *History of the United States Army*, 276-281. On the link between successful innovation and the parameters of what is considered acceptable and possible, see Elting E. Morrison, *Men, Machines, and Modern Times* (Cambridge, MA: M.I.T. Press, 1966). On changing social attitudes toward professional authority, see Paul Starr, *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry* (New York: Basic Books, 1982), 79-144; Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870 - 1920* (New York: Oxford University Press, 2003), 128-129; and Wiebe, 113-127. The patronage dimension is covered excellently in Clark, *Preparing for War*, 118-119. That crisis is an essential ingredient to prompting reform and adaptation is suggested in Williamson Murray, *Military Adaptation in War, With Fear of Change* (New York: Cambridge University Press, 2011), 37-73.

supplied, and ill-supervised, leading to scandalously preventable epidemics of disease. The War Department selected ports of embarkation serviced by limited, sometimes solitary, and generally underdeveloped rail lines—leading to congestion and confusion at the ports and troops embarking without much-needed supplies. Much like the experience of Goethals’s First Army Corps, most units departing the United States found that the War Department could not supply them with even rudimentary information about their objectives or the disposition of Spanish forces, or with adequate maps. Furthermore, war plans were virtually non-existent and events in both the Caribbean and the Pacific theaters took on a strikingly improvisational air. In fact, the War Department instructed then-Captain Peyton C. March, who would later serve as Chief of Staff of the U.S. Army during World War I, to decide for himself to which theater of the war his light artillery battery would be deployed.⁷⁴

These real and significant blunders, as well as plenty of fabricated ones, came to light in almost real time in the age of muckraker journalism. Public opinion turned heavily against the War Department, leading President McKinley to appoint a commission led by Grenville Dodge—a railroad executive who had previously served in Congress and as a Civil War general—to investigate the conduct of the war. Although the Dodge Commission’s report balanced criticism of the War Department’s most blatant errors with praise for what it accomplished in managing the first substantial American overseas military expeditions, the public continued to demand accountability for the department’s mismanagement of the war

⁷⁴ Cosmas, *An Army for Empire*, 103-296; Trask, *The War with Spain in 1898*, 145-422; Weigley, *History of the United States Army*, 305-309; and Edward M. Coffman, *The Regulars: The American Army, 1898-1941* (Cambridge, MA: Belknap Press, 2004), 12-13.

effort. In the summer of 1899, McKinley acted, sacking Secretary of War Russell Alger and appointing Elihu Root, a corporate lawyer from New York, in his place.⁷⁵

That Root would implement the most significant institutional and organizational reforms in the army's history to that date came as a surprise. McKinley did not select Root to lead the War Department to affect substantial change in the army. Rather, McKinley believed Root's excellent reputation as a lawyer made him well qualified to run a War Department wading into unprecedented legal territory, charged with administering the military occupation and civil reconstruction of Cuba, the Philippines, Puerto Rico, and Guam in the wake of the War with Spain. But a close study of the report of the Dodge Commission and a closer association with the influential and reform-minded Adjutant General Henry C. Corbin and his assistant Lieutenant Colonel William H. Carter made Root a devoted convert to the cause of military reform. Significantly, Root recognized that the controversies surrounding the War with Spain and the possibilities suggested by various progressive reforms elsewhere in American society had shifted the parameters of what both the army and the American public considered possible and acceptable, and that conditions necessitated reform. Perhaps most importantly, his legal background and excellent relationships with the nation's political elite gave him the political acumen to manage the legislative effort to turn reformers' theories into policy.⁷⁶

The most important reforms of Root's tenure were the establishment of the Army War College, the overhauling of the militia system in the Dick Act of 1903, and the establishment of

⁷⁵ Clark, *Preparing for War*, 183-187; Beaver, *Modernizing the American War Department*, 29-30; Weigley, *History of the United States Army*, 309-312; Coffman, *The Regulars*, 26; and Cosmas, *An Army for Empire* 278-298 and 316-319.

⁷⁶ Weigley, *History of the United States Army*, 313-316; L. Michael Allsep, Jr., "New Forms for Dominance: How a Corporate Lawyer Created the American Military Establishment" (PhD diss., University of North Carolina, 2008) 197-227 and 242-243.

the General Staff Corps in the General Staff Act of 1903. The War College came first, as Root discerned that this would be not only the least controversial of the major reforms he had in mind, but also one that he could institute without seeking the approval of Congress. The Dick Act of January 1903 represented the first fundamental overhaul of the militia system since 1792. It imposed standardized tables of organization and equipment upon the National Guard, as well as established a formal training and support relationship between the regular army and the National Guard. The crowning achievement of Root's program of reforms came a few weeks later with the passage of the General Staff Act.⁷⁷

Early in his tenure, Root saw that modern warfare demanded a General Staff. In his mind, the most important lesson of the War with Spain was the need for an agency responsible for developing war plans and coordinating the complex array of activities and resources required to mobilize and deploy the army. His first attempt at the legislation in 1902 failed due to an excess of ambition. Through this bill, Root not only attempted to create a planning and coordinating agency in the form of the General Staff, but also directed the closing and consolidating of several of the powerful bureaus. At the same time that Commanding General Nelson A. Miles railed to a sympathetic Senate Military Affairs Committee filled with veteran volunteer officers of the Civil War that no general staff was necessary because the existing system had succeeded in defeating the Confederacy, the bureau chiefs—with the notable exception of Adjutant General Henry C. Corbin—closed ranks and argued that the proposal would deprive the army of the benefit of their technical expertise. Root remained committed to the cause and orchestrated an intensive lobbying campaign in support of a second attempt.

⁷⁷ Walter Millis, *Arms and Men: a Study in American Military History* (New Brunswick, NJ: Rutgers University Press, 1986), 179-180; Weigley, *History of the United States Army*, 320-322; and Clark, "The Many Faces of Reform," 136-137.

Securing the support of a critical mass of senior officers and political leaders, and dividing the opposition by backing away from his proposal to consolidate the bureaus, Root finally secured passage of the General Staff Act in February 1903, despite the continued vocal opposition of General Miles, who Root conveniently sent on an inspection tour to the Philippines when Congress considered the legislation.⁷⁸

In a nod to Miles, the act which abolished the office of the Commanding General, replaced it with the Chief of Staff, and established the General Staff took effect on August 15, 1903, exactly one week after Miles's retirement. In the meantime, Secretary Root directed the War College Board to prepare recommendations on how to select officers for detail to the General Staff. Although the War College had been formally established a year and a half previously, only its administrative board had been established so far, and Secretary Root had taken to using it as an informal staff until such time as he was able to formally establish the General Staff Corps. The board recommended that "the personnel of the General Staff Corps should be selected with great care and should comprise the most competent officers in the Army at large." Root was only too happy to accept this recommendation. He viewed the General Staff and a rationalized education system as a means of advancing talented officers through the ranks more quickly. With his excellent reputation, Goethals was widely considered to be among the best officers of his generation. With orders in hand to report for duty as part of the new General Staff Corps, George W. Goethals formally transferred charge of the Newport District to his successor on May 22, 1903 and moved his family to Washington.⁷⁹

⁷⁸ Nelson, *National Security and the General Staff*, 44-60; Hewes, *From Root to McNamara*, 6-12; Weigley, *History of the United States Army*, 319-320; Clark, "The Many Faces of Reform," 141-145.

⁷⁹ George W. Goethals to C.L. Gillespie, May 22, 1903, File 46996/1, Box 1122, Entry 103, RG 77, NARA I; and Carter, 50-54. The quotation is from "Report of the War College Board," March 9, 1903, quoted in Carter, *Creation*

As Goethals could heartily attest, establishing the General Staff did not end the bureau system. After the failed legislative effort in 1902, Root knew that he would have to accept some level of coexistence between the General Staff and the bureaus in order to secure support for the act within Congress and within the army. In fact, he came to believe that the coexistence would be a good thing, as it would enhance the General Staff's ability to plan for war by freeing it from the minutia of daily administration. The General Staff Act, as drafted by Root and his advisors, and approved by Congress, stipulated:

The duties of the General Staff Corps shall be to prepare plans for the national defense and for the mobilization of the military forces in time of war; to investigate and report upon all questions affecting the efficiency of the Army and its state of preparation for military operations; to render professional aid and assistance to the Secretary of War and to general officers and other superior commanders, and to act as their agents in informing and coordinating the action of all different officers who are subject, under the terms of this act, to the supervision of the Chief of Staff; and to perform such other military duties not otherwise assigned by law as may be from time to time prescribed by the President.⁸⁰

Root intended the General Staff to be a planning and coordinating agency, but the extent to which it could coordinate anything largely depended upon the extent to which the bureaus felt that they were "subject . . . to the supervision of the Chief of Staff." Events in the early years of the new organization proved that this was very much a function of the personalities occupying the key positions.⁸¹

Root relaxed his grip on the reins after formally establishing the General Staff. Perhaps he recognized that while he had the ability to change the U.S. Army's systems and organization, he could do little to reshape the culture of the officer corps. Beyond what was specifically

of the American General Staff, 53. On Root's intentions for the General Staff and the education system to serve as a springboard, see Clark, *Preparing for War*, 199-200.

⁸⁰ "Report of the Secretary of War," *Annual Reports of the War Department*, 1903, 4.

⁸¹ Hewes, *From Root to McNamara*, 10-50; Nelson, *National Security and the General Staff*, 73-273.

stipulated in the law, he would not dictate how the General Staff would organize, operate, or relate to the other agencies of the War Department. The officer corps had to figure out on its own how to integrate the new organization into the army. As William H. Carter later recalled, “the General Staff Corps was established and began to function officially, but without expectation of reaching its full usefulness in the immediate future,” and the early years of the General Staff took on a highly uncertain and improvisational character.⁸² Accordingly, Secretary Root reported to Congress in the summer of 1903 that Goethals and the other General Staff officers first assembled in Washington “were then organized as an experimental or provisional general staff, and directed to work out a permanent organization and distribution of duties for the General Staff Corps, a draft of new regulations, and a revision of old regulations made necessary by the new departure.” Illustrating the bureaucratic tightrope he had to walk, Root said that “this work was done upon full consultation with the chiefs of bureaus and taking the opinions of general officers commanding departments,” in order to encourage some investment from those quarters in the role and scope of the General Staff, “in order that they might become familiar with their work, and test by experiment the best methods of accomplishing it.”⁸³

The newly established General Staff organized into three divisions. The First Division considered problems and policy related to organization, doctrine, and training for the infantry, cavalry, and field artillery units; regulations; training maneuvers; and mobilization. The Second Division, also known as the Military Information Division, collected and developed intelligence on foreign armies, procuring and producing maps for potential theaters of war, and coordinating

⁸² Quotation from Carter, *Creation of the American General Staff*, 55. See also Weigley, *History of the United States Army*, 322-323.

⁸³ “Report of the Secretary of War,” *Annual Reports of the War Department*, 1903, 5.

the efforts of military attaches stationed abroad. The Third Division studied possible theaters of war and developed war plans, and also dealt with organization and doctrine for the army's technical branches, coast defense, and combined maneuvers with the Navy. Given his recent experience in coast defense, Goethals was assigned to the Third Division, where he was simultaneously a member of the section responsible for developing war plans and the section responsible for working on issues related to coast defense.⁸⁴

In short order, Goethals and the rest of the Third Division became an arm of the Army War College. From his first year in office as Secretary of War, Root had envisioned that the War College would be a dual-purposed institution. On the one hand, Root intended the War College to “direct the instruction and intellectual exercise of the Army, to acquire the information, devise the plans . . . and to advise the Commander in Chief upon all questions of plans, armament, transportation, mobilization, and military preparation and movement.” On the other hand, it would serve as a school in which officers would “receive instruction . . . in the science of war, including the duties of the staff, and in all matters pertaining to the application of military science to national defense.”⁸⁵ Development of the War College stalled in 1902 and early 1903 as its board functioned almost entirely as an informal staff for Secretary Root in the effort to secure passage of the General Staff Act. Afterwards, the War Department put more thought into the War College and its relationship to the General Staff, and eventually determined that because both organizations were at least partly intended to consider and develop war plans and mobilization systems, the War College would be an adjunct component of the General Staff.

⁸⁴ “Report of the Secretary of War,” *Annual Reports of the War Department*, 1903, insert facing page 68.

⁸⁵ U.S. Department of War, “Report of the Secretary of War,” *Annual Reports of the War Department*, 56th Cong., 1st sess., 1899, House Executive Document 2 (Washington, DC: Government Printing Office, 1899), 49 and 50.

Given the fact that its scope of responsibility included developing war plans, the Third Division was a natural selection to carry out the mission of the War College. By October 27, 1903, Goethals and his colleagues in the Third Division were assigned to the War College.⁸⁶

Illustrating the improvisational nature of the General Staff in its early years, Goethals's affiliation with the Army War College did not last long. By the winter of 1905-1906, a new coast defense board took up most of his time.⁸⁷ Due to his work in the Newport District, Goethals was the General Staff's coastal defense expert. Under the original plan of organization in 1903, he had been designated as the head of a section within the Third Division responsible for considering problems and questions related to permanent fortifications and submersible mines. Later, General Tasker H. Bliss assigned Goethals to deliver a lecture to the officers of the War College titled, "The Tactics of Coast Defense, with Special Reference to Submarine Defense."⁸⁸

In 1904, President Roosevelt halted appropriations for the construction and improvement of seacoast fortifications because it had finally become apparent that technological advances had rendered crucial aspects of the program recommended by the Endicott Board in 1885 obsolete. He ordered the new Secretary of War, William Howard Taft, to convene a board of general officers in early 1905 to come up with recommendations for changes to be made in order to address the implications of two decades of technological innovation. When Taft asked the

⁸⁶ Harry P. Ball, *Of Responsible Command: A History of the U.S. Army War College* (Carlisle Barracks, PA: The Alumni Association of the U.S. Army War College, 1983), 79-86. The operation of the Army War College and George W. Goethals's role within it are addressed in chapter 1 of this dissertation.

⁸⁷ "Efficiency Report of Major George W. Goethals," July 14, 1906, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁸⁸ "Report of the Secretary of War," *Annual Reports of the War Department*, 1903, insert facing page 68; Tasker H. Bliss, Memorandum No. 3, File # AWC 391, Box 2, Entry 292, RG 165, NARA II.

General Staff to provide him an officer to serve as the board's secretary and recorder, Goethals was the natural choice.⁸⁹

Working closely together on the National Coast Defense Board, informally known as the Taft Board, Goethals and Taft developed a warm bond. Generally prejudiced against the overweight, Goethals may have been surprised to find that he enjoyed the jocular Secretary of War's company so much. Later in life, he would tell his daughter-in-law that the famously rotund Taft "was the only clean fat man he had ever known."⁹⁰ The two shared a similar sense of humor and found common ground in jokes, often at the Navy's expense, while on tours of inspection of coastal fortifications in 1905 and 1906.⁹¹ For his part, Taft was quickly impressed by the knowledgeable and hardworking engineer, who in addition to his duties with the board wrote and presented a paper on fortifications for the International Congress of Engineers and publish it in *Transactions of the American Society of Engineers*.⁹²

Accurately gauging Goethals's abilities and potential, Taft began to see a role for Goethals in the nation's most significant ongoing engineering project. "I am convinced," he wrote to the Chief of Staff and the Chief of Engineers in the summer of 1905, "that Major

⁸⁹ Browning, *Two if by Sea*, 183; Clary, *Fortress America*, 150-151; "Individual Service Report of Geo. W. Goethals, Major, Corps of Engineers," September 18, 1906, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁹⁰ David McCullough, *The Path Between the Seas: The Creation of the Panama Canal, 1870-1914* (New York: Simon & Schuster, 1977), 510 and 647.

⁹¹ Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper & Brothers, 1930), 92-93. Goethals accompanied Taft on several tours of inspection of fortifications on both coasts and in Panama – see "Correspondence of the Board to Revise the Report of the Endicott Board, 1905-6," Volume 1, Entry 519, RG 165, NARA II, 26-100; and George W. Goethals to "Toodles" [George R. Goethals], October 22, 1905 and December 14, 1905, Box 3, LC.

⁹² "Individual Service Report of Geo. W. Goethals, Major, Corps of Engineers," September 18, 1906, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I; George W. Goethals, "Fortifications," *Transactions of the American Society of Engineers* LIV (March 1905): 57-76.

Goethals can be of great use in the construction of the Panama Canal . . . I desire that he be retired from the General Staff and be assigned to this work in any capacity that the [Isthmian Canal] Commission may designate.”⁹³ The commission did not request Goethals’s services. Only one year later, however, Taft pressed the case again. Writing to Roosevelt, Taft called attention to “Major Goethals, one of the ablest of our army engineers,” whom he wanted to send to Panama because the Chief Engineer of the Isthmian Canal Commission, John Stevens, “would find him so useful that they could work together, and that Goethals might be Stevens’ understudy, should he for any reason fail us.”⁹⁴ Still, the commission expressed no interest, and Goethals was not sent to Panama.

Only a few months later, however, the commission slid into crisis. For reasons he never fully disclosed, Stevens grew irritable and dissatisfied in Panama in the winter of 1906 and 1907. When Theodore Shonts resigned from his position as Chairman of the Isthmian Canal Commission on January 22, 1907, Stevens grew more despondent, appearing to crack under the strain of his duties.⁹⁵ On January 30, 1907, he sent a letter to Roosevelt. “I never sought this position,” he complained, “on the contrary, [I] declined it twice, and finally accepted it against my better judgment.” Continuing, he stated that “the idea of being constantly before the public, whether in a favorable or unfavorable light, is extremely distasteful to me . . . continually subject to attack by a lot of people, and they are not all in private life, that I would not wipe my boots on in the United States.” Stevens went on to complain that his salary was too low, that the job required too much time away from his family, and that he was rapidly losing interest in the work.

⁹³ W.H. Taft, “Memorandum for the Chief of Staff and for the Chief of Engineers,” June 30, 1905, File # 3644-ACP-1880, Box 667, Entry 297, RG 94, NARA I.

⁹⁴ W.H. Taft to T. Roosevelt, August 21, 1906, Reel 320, Series 4, William Howard Taft Papers, LC.

⁹⁵ McCullough, *The Path Between the Seas*, 503.

“The ‘honor’ which is continually being held up as an incentive for being connected with this work,” he declared, “appeals to me but slightly. To me, the canal is only a big ditch, and its great utility when completed, has never been so apparent to me, as it seems to be to others.” Coming to his conclusion after six meandering pages, Stevens stated unequivocally that he was “not anxious to continue in the service,” and that there were other “men as competent and far more willing to pick up and carry the burden” than he. “My desire,” he concluded, “is to take a rest, and then to re-enter railway service, for which I know I am best fitted by training and inclination.”⁹⁶

The letter took President Roosevelt completely by surprise. He had seen Stevens in Washington only one month earlier and had told the chief engineer to expect to be named chairman of the commission if Shonts stepped down.⁹⁷ After receiving the letter and digesting it, Roosevelt forwarded the letter to Secretary of War Taft, whose department was nominally responsible for overseeing all work on the isthmus. He enclosed a cover letter that simply stated, “There is of course no question that Stevens must get out at once,” and “if he should now alter his mind, as he has so frequently altered it in the past, and wish to stay, I should not consider it for a moment given the tone of his letter.” He then called Taft to a meeting at the White House on the morning of February 13 to discuss the matter further.⁹⁸

Roosevelt wanted a drastic change. The resignations of Shonts and Stevens constituted the end of the Isthmian Canal Commission. This marked not only the demise of the second

⁹⁶ John F. Stevens to Theodore Roosevelt, January 30, 1907, Reel 320, Series 4, William Howard Taft Papers, LC. Quotations are from pages 2, 3, 4, and 6, respectively.

⁹⁷ John F. Stevens to Theodore Roosevelt, January 30, 1907, Reel 320, Series 4, William Howard Taft Papers, LC, 1.

⁹⁸ Theodore Roosevelt to W.H. Taft, February 12, 1907, Reel 320, Series 4, William Howard Taft Papers, LC.

Isthmian Canal Commission, but also the sudden departure of the second chief engineer from the Panama Canal, both in as many years. Wanting to put the project in charge of people who could not quit unless they were fired or relieved, Roosevelt had decided to place a soldier in charge of the Panama Canal. The President relayed his decision to Taft and asked for his recommendation on whom to select to serve as both Chairman and Chief Engineer of the next Isthmian Canal Commission.⁹⁹

While Taft had already tried to assign Goethals to Panama for a year and a half, he asked to be excused to consult with Alexander Mackenzie, who by then had been promoted to Brigadier General and Chief of Engineers. Mackenzie held a high opinion of Goethals from their service together in the Chief of Engineer's office from 1894 to 1898, and their subsequent service together on the first General Staff in 1903. He echoed Taft's assessment that Goethals was the engineer officer most fit for the job. The two brought their recommendation to Roosevelt, and the matter was settled. George W. Goethals would be placed in charge of the construction of the Panama Canal.

Goethals left the General Staff and never looked back. He demonstrated in Panama that despite his four-year tour of duty with the General Staff, he was skeptical of the new systems and structures that Root had imposed. Although he had been an integral member of the division of the General Staff that was the foundation of the early Army War College, he wasted no time in undermining the principles of a tiered and rationalized system of officer education by pushing for new engineer lieutenants to undergo a practical course of instruction under his supervision before

⁹⁹ McCullough, *The Path Between the Seas*, 504-505.

attending the Engineer School of Application.¹⁰⁰ Furthermore, the preponderance of Goethals's correspondence with the War Department during the busiest construction years in the Canal Zone was directed around the General Staff rather than to or through the General Staff. From his appointment until the completion of the Panama Canal, Goethals was much more likely to seek assistance from a bureau chief or from the Secretary of War himself than from the Chief of Staff or a member of the General Staff.¹⁰¹ Even though he had helped to organize and implement the army's new structures, he never wavered in his embrace of the traditionalist mindset that doggedly continued to shape the army's institutional culture. On an individual level, Goethals embodied the schism between institutional structures and institutional culture that defined the United States Army in the wake of the Root reforms.

Goethals was not the only one whose experiences on the first General Staff failed to inspire confidence in the new organization. Few of the members of the first General Staff were eager to return to it. John J. Pershing, for example, was not at all enamored with the early General Staff despite being included in its first cohort of officers. Analyzing the army's troubled entrance into the First World War years later, and with a significant axe to grind, Pershing directed blame squarely at the General Staff. He found faults in its structure, arguing that even by 1917, it "had not yet been properly organized." More tellingly, he found that its

¹⁰⁰ George W. Goethals to Brigadier General Marshall, April 19, 1909, Container 8, George W. Goethals Papers, LC.

¹⁰¹ Containers 5-18, George W. Goethals Papers, LC contain Goethals's non-familial correspondence from his appointment in 1907 until the canal was nearing completion in 1913. In these containers, Goethals's correspondence with Chiefs of Staff or General Staff division chiefs is extremely sparing. He has a much livelier correspondence with Secretaries of War Taft, Stimson, and Garrison; successive Chiefs of Engineers; and the Chief of the Bureau of Insular Affairs, Clarence R. Edwards.

implementation was fundamentally flawed. In its first decades, according to Pershing, the General Staff “was too much the inarticulate instrument of the Chief of Staff, who often erroneously assumed the role of Commanding General of the Army.”¹⁰²

Looking beyond Pershing’s motives and biases, there remains an interesting indictment of the American General Staff in its earliest years. Reformers assumed that implementing the General Staff was the end of reform. But they stopped short of proving its efficacy to the army itself. Accordingly, its modes of organization and operation were not standardized, and took on an air of improvisation that officers who had already served for decades, and had become accustomed to traditional systems and methods of managing the army, found distasteful. As Pershing pointed out, even those who led the new General Staff looked to traditional offices of the past as their model.

Perhaps typically, then, Goethals’s experience of the General Staff was rooted firmly in old concepts. He earned his place on the new General Staff by excelling in the anachronism that was American coastal defense in the late-nineteenth century. Once on the General Staff, he served under Tasker H. Bliss in an Army War College that rejected its own educational mandate in favor of more traditional forms of experiential learning. Outside of the War College and the Third Division, Goethals once again returned his focus to increasingly obsolete coastal defense problems. With a gaze fixed firmly on a traditional and outdated mission despite his status as an original member of the new and ostensibly modern General Staff, Goethals earned much praise and the promotion of a lifetime to lead the effort at the Panama Canal.

¹⁰² John J. Pershing, *My Experiences in the World War*, vol. 1 (New York: Frederick A. Stokes Company, 1931), 17.

Above all, Goethals's experience demonstrates that Elihu Root's reforms created a schism between institutional structures and institutional culture within the United States Army. Although he directly experienced and recognized the shortcomings of the war effort in 1898 that constituted the major stimulus of reform, Goethals did not fully embrace the implications of those shortcomings. He was, in that regard, unexceptional among his generation, which remained decidedly traditional in its outlook. In the end, the promise of reform would remain unfulfilled until the army's institutional culture caught up with its new institutional structures. And that required the cumulative effect of years of gradual pressure from external forces and the severe shock of the army's involvement in the First World War.

CHAPTER 4
Making the Dirt Fly:
The Panama Canal, the Managerial Revolution, and the U.S. Army

On August 15, 1914, the greatest engineering triumph of the twentieth century opened with little fanfare or acknowledgement. Although a grand multinational parade of ships had been planned for the occasion, events in Europe overshadowed any ceremonies in Panama. As the Belgian garrison at Liège fell to the German army in the opening campaign of the First World War, the world hardly noticed that the *Ancon*, filled to capacity with the longest serving canal workers, successfully traversed the Panama Canal and opened it to commercial shipping. The *Ancon*, however, commanded all of George W. Goethals's attention. Having led the construction effort in Panama for over seven years, the chief engineer watched the *Ancon*'s progress from shore, shadowing the ship in a railcar adjacent to the canal. Watching the *Ancon* exit the final lock and make its way to the Pacific Ocean marked the culmination of the project that consumed all of his thoughts and energies for the better part of a decade.

Goethals was relieved when the *Ancon* completed its journey. There were times when the prospect of opening the canal seemed too distant or on the far side of too many obstacles to be possible. Despite the many engineering problems that had to be solved to build the canal, Goethals believed the greatest difficulties he had faced were not technical. He insisted that the opening of the canal was more the product of successful management than brilliant engineering. This belief was a manifestation of a broader trend that had a tremendous impact upon the U.S. Army's institutional culture.

Despite its stubborn traditionalism, the army was well connected to the society it served. It was subject to many of the same forces and trends that affected American society during the Gilded Age and Progressive Era. Shaped by a largely middle-class officer corps, the army's institutional culture embraced many—though certainly not all—of the attitudes, ideas, and trends that permeated the burgeoning American middle class. Chief among these was an abiding and widespread faith in the power and propriety of the intricately rationalized managerial systems and practices that reshaped public and private institutions in American society during the managerial revolution of the late-nineteenth and early-twentieth centuries.¹ The popularity of the managerial revolution within the U.S. Army was amply on display when it, through Goethals, took charge of the construction of the Panama Canal. Although the Panama Canal was a marvel of modern engineering, Goethals thought of it above all as a managerial problem. That perception informed his approach to leading the construction effort in Panama from 1907 until the canal opened in 1914. Similarly steeped in and accepting of modern managerial theory, army officers in line and technical branches alike applauded Goethals's leadership in the Canal Zone.

Ultimately, the popularity of the managerial revolution within the army made the Root reforms at least tolerable despite the fact that the officer corps was inclined to resist Root's conception of a rationalized system of professional education. The officer corps' embrace of the managerial revolution influenced it to accept the notion of a general staff even if it could not come to a consensus on the proper form, role, and scope of the General Staff as it was

¹ The course of the managerial revolution in private institutions is well covered in Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Belknap, 1977), and Charles Perrow, *Organizing America: Wealth, Power, and the Origins of Corporate Capitalism* (Princeton, NJ: Princeton University Press, 2002). For its impact in the public institutions, see especially Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877-1920* (New York: Cambridge University Press, 1982).

established in 1903.² Furthermore, the army's embrace of the managerial revolution marked the beginning of a long process of cultural change that would ultimately repair the schism between its institutional culture and institutional structures caused by the Root reforms.

Dreams of a canal in Panama were by no means new when George W. Goethals arrived in the Canal Zone as the newly appointed Chairman and Chief Engineer of the Isthmian Canal Commission (ICC) in 1907. For centuries, the Isthmus of Panama had been viewed as a strategic conduit between the Atlantic and Pacific Oceans. Prior to European contact, Mesoamerican societies made the isthmus the nexus of a robust regional trading network. In the sixteenth and seventeenth centuries, the king of Spain dreamed of building a canal across Panama. His schemes were never realized due to the limitations of existing technology. In place of an interoceanic waterway, Spanish officials settled for the construction of two major roads—the Camino de Cruces and the Camino Real—over which passed approximately one-third of all minerals and revenues extracted from Peru and bound for Madrid between 1600 and 1660.³

Panama's strategic value to Spain went neither unnoticed nor unchallenged. English privateers and the Royal Navy sacked Spain's colonial outposts at Portobelo in 1667 and 1739, as well as the city of Panama in 1671. By the time of these attacks, however, Spain's interest in Panama was fading. The gradual collapse of the Peruvian silver economy, the viability of a competing overland route via Buenos Aires, the beginning of the slow decline of Spanish military and political power in the Americas, and improving maritime capabilities that made the

² Tensions over the form and function of the U.S. Army general staff will be discussed in the next two chapters.

³ Noel Maurer and Carlos Yu, *The Big Ditch: How America Took, Built, Ran, and Ultimately Gave Away the Panama Canal* (Princeton, NJ: Princeton University Press, 2011), 14-30. See also Walter LaFeber, *The Panama Canal: The Crisis in Historical Perspective*, updated edition (New York: Oxford, 1989), 3-10.

passage of Cape Horn more viable combined to render Panama insignificant to global trade in the eighteenth and early-nineteenth centuries.⁴

That changed after the Mexican-American War. Having taken California from Mexico, the United States had a decided interest in shortening and better securing its communications routes between port cities on the Atlantic and Pacific coasts. Lacking transcontinental telegraph or rail services, Congress authorized contracts for American steamship companies to carry mail between San Francisco and the isthmus via the Pacific, and between the isthmus and both New Orleans and New York via the Gulf of Mexico and the Atlantic. William Henry Aspinwall, who won the contract for the Pacific route, also gained control of overland transportation connecting the Atlantic and Pacific routes, financing the construction of the Panama Railroad from 1850-1858. Fueled not only by government contracts to move mail between steamship packets and to move troops to western garrisons, but also by residual private demand from the California gold rush, the railroad became a profitable venture even before it was completed. Passengers would use as much of the railroad as had been completed, and then complete their journey on foot, mules, and small boats navigating the Chagres River.⁵

Americans soon learned from painful experience that the environment in Panama was deadly, especially after tropical rains. After concluding that American laborers were too expensive and too vulnerable to tropical diseases, the Panama Railroad Company opted instead to contract Chinese labor, who proved equally susceptible to environmental hazards. Nearly eighty percent of contracted Chinese laborers deserted the railroad or perished from disease or

⁴ Walter LaFeber, *The Panama Canal: The Crisis in Historical Perspective*, updated edition (New York: Oxford, 1989), 3-10; see also Maurer and Yu, *The Big Ditch*, 21-30.

⁵ Matthew Parker, *Panama Fever: The Epic Story of the Building of the Panama Canal* (New York: Anchor Books, 2007), 21-27; and Maurer and Yu, *The Big Ditch*, 41-44.

suicide, leading the company to bring in thousands of West Indian laborers to complete the job. Beyond the workforce, the unforgiving environment was also fatal for those merely passing through. Even after the horrors of the Civil War, the memory of the 4th U.S. Infantry Regiment's transit from New York to California in 1852 was visceral for Ulysses S. Grant, who noted in his memoirs decades later that "about one-seventh of those who left New York harbor with the 4th Infantry on the 5th of July, now lie buried on the Isthmus of Panama or on Flamingo island in Panama Bay."⁶

Later in the nineteenth century, there emerged a growing consensus that technology had progressed to the point that an interoceanic canal across Central America was feasible. While Americans devoted much energy to exploring possibilities in Nicaragua, the French *Compagnie Universelle du Canal Interocéanique* successfully negotiated a deal with the Colombian government to construct a canal across the province of Panama. The company and the canal were pet projects of Ferdinand De Lesseps, who had previously led the construction of the Suez Canal.⁷

Work on De Lesseps's new project began in 1877, and quickly devolved into an unmitigated disaster. De Lesseps's plans called for a sea-level canal—an ill-advised concept given Panama's rugged topography, geology, propensity for mud slides after tropical rains, and tidal patterns that create a twenty-foot difference between the sea level on Panama's Pacific and Atlantic coasts. Compounding these problems, De Lesseps's engineers inadvertently invited mud slides and created large malarial swamps by dumping all the soil they removed from the

⁶ Quotation from Ulysses S. Grant, *Memoirs and Selected Letters*, ed. Mary Drake McFeely and William S. McFeely (New York: The Library of America, 1990), 133. On fatalities among the Panama Railroad Company workforce, see Maurer and Yu, *The Big Ditch*, 43.

⁷ Parker, *Panama Fever*, 40-59. Panama was a Colombian province until November 1903.

canal into valleys adjoining their work sites, effectively blocking natural courses for runoff water during the rainy season. The pace of work slowed to a crawl and the incidence of disease among workers skyrocketed. Between disease and accidents, at least 22,189 workers died during the French construction period in Panama. As its failures became a national scandal, the French government refused to intervene to save De Lesseps, his company, and the canal. In 1889, the *Compagnie Universelle du Canal Interocéanique* went bankrupt. Its assets and canal rights were acquired by a new French company that thereafter took the bare minimum actions required to prevent Colombia from seizing the French equipment and revoking the canal concession.⁸

While the French effort was underway, the United States explored options for a canal through Nicaragua to compete with and balance against a French canal in Panama. American political leaders failed to achieve a consensus on the issue, and efforts to build a canal through Nicaragua were limited to an ill-supported private venture by the Maritime Canal Company. Construction began in 1887. Enough Congressmen were persuaded of its potential by 1889 to officially charter the company and its canal. By 1893, however, political and financial supporters realized that the Maritime Canal Company had wildly underestimated the amount of effort, resources, and money the project required. With public and private investment drying up, the company dissolved.⁹

⁸ The most detailed accounts of the French construction period are in David McCullough, *The Path between the Seas: The Creation of the Panama Canal, 1870-1914* (New York: Simon & Schuster, 1977), chapters 1-8; and Matthew Parker, *Panama Fever: The Epic Story of the Building of the Panama Canal* (New York: Anchor Books, 2007), chapters 6-13. An effective and much more concise analysis appears in Maurer and Yu, *The Big Ditch*, 57-66. The French mortality rate is based on estimates cited by McCullough on page 235 and by Maurer and Yu on page 61. William C. Gorgas estimated that the French lost one-third of their white work force (he fails to mention the nonwhite workforce) to yellow fever alone on an annual basis throughout the French construction period—see William C. Gorgas, *Sanitation in Panama* (New York: D. Appleton and Company, 1915), 149.

⁹ Maurer and Yu, *The Big Ditch*, 66-70.

The War with Spain in 1898 fundamentally altered the American outlook on the need for a canal across the isthmus. Docked at San Francisco when the *USS Maine* sank in Havana harbor and war began to seem more likely, the battleship *USS Oregon* received orders to steam for the east coast and rendezvous with the Atlantic squadron for possible operations against Spain. The *Oregon* set off on March 9, 1898. The public watched breathlessly as the 12,000 nautical-mile voyage of the *Oregon* played out in the newspapers. There was much relief when the *Oregon* appeared off of Florida at the end of May—67 days and one declaration of war after it had left San Francisco. If the long and tense journey of the *Oregon* conditioned Americans to begin to think of an isthmian canal as not only an economic ambition, but also a military necessity, the annexation of Hawaii and occupation of the Philippines completed the transition. Given its new possessions in the Pacific after the War with Spain, the United States considered a Central American canal to be a strategic imperative.¹⁰

Politically contentious issues surrounding the problem of exactly where and how to build a canal were resolved only after decisive interventions by Theodore Roosevelt. Although the Maritime Canal Company's Nicaraguan venture had failed, powerful financial and political backers continued to advocate for a canal in Nicaragua. For a time, it seemed the Nicaragua route was the most likely outcome. Because of his canal experience on the Tennessee River, one of then-Captain George W. Goethals's duties while assigned to Washington as Assistant to the

¹⁰ "The Oregon Taking War Stores," *New York Times*, March 15, 1898, 1; "The Oregon Expected at Callao," *New York Times*, April 1, 1898, 1; "No News of the Oregon: Spanish Torpedo Boat Supposed to be Looking Out for the Battleship," *New York Times*, April 22, 1898, 4; "The Oregon in Danger: Commodore Schley's Squadron May Sail South To-day to Protect Her from Spanish Attack," *New York Times*, April 23, 1898, 1; "The Oregon at Rio De Janeiro," May 1, 1898, 1; "Admiral Walker's Views: He Is Joyful Over Dewey's Victory, but Shows Anxiety as to the Battleship Oregon," *New York Times*, May 4, 1898, 3; "The Oregon at Barbados," *New York Times*, May 22, 1898, 1; "The Oregon at Key West: All on Board Are Well and the Ship Is Reported Ready to Take Part in the War," May 26, 1898, *New York Times*, 3; McCullough, *The Path Between the Seas*, 254-255; and Maurer and Yu, *The Big Ditch*, 71-72.

Chief of Engineers from 1894-1898 was to provide technical advice to a Senate select committee investigating proposed routes and plans for a Nicaraguan canal.¹¹ The appeal of Nicaragua, however, declined sharply after the turn of the century. Phillipe Bunau-Varilla—one of the leading engineers of the French effort in Panama—persuaded his countrymen to sell their property, assets, and equipment in Panama to the United States at a significantly reduced price. Given this development, Theodore Roosevelt successfully lobbied the House of Representatives in January 1902 to authorize and appropriate funds to open negotiations with Colombia to build a canal across Panama. But when the Colombians balked, Roosevelt acted swiftly.

Giving assurances of American support to separatists in Panama through the keenly interested and apparently omnipresent Phillipe Bunau-Varilla, Roosevelt played a major part in prompting the Panamanian Revolution of 1903. With American warships and a detachment of U.S. Marines preventing an effective Colombian military response, Panama declared independence in November 1903. Honoring a prior agreement, the new republic appointed Phillipe Bunau-Varilla as its agent in Washington to begin negotiations for a canal treaty with the United States. Rushing to complete negotiations before the Panamanian members of the new republic's delegation could reach Washington, Bunau-Varilla and Secretary of State John Hay completed the Hay—Bunau-Varilla Treaty on November 18, 1903. In return for an up-front payment of \$10 million and an annual payment of \$250,000 beginning in 1913, the treaty granted the United States political and legal control of the Panama Canal Zone. It defined the Canal Zone as a swath of land twenty miles wide, with a ten-mile buffer zone on either side of

¹¹ William J. Sewell to Daniel S. Lamont, January 24, 1896, File 10828, Box 233, Entry 103, RG 77, NARA I.

the canal along its entire 48-mile route, except for Panama City and Colón at its Pacific and Atlantic terminals, respectively.¹²

Using a vague threat of severe consequences if Panama failed to act expeditiously, Secretary Hay successfully pressed the new Panamanian government to ratify the treaty before it had even been translated into Spanish. Thus, American dreams of an isthmian canal became real and tangible. And although he would write in his autobiography that “no one connected with the American Government had any part in preparing, inciting, or encouraging the revolution,” Roosevelt privately considered his role in the affair to be his most significant foreign policy achievement. Moreover, he believed that the vast majority of Americans approved. The only opposition, he wrote to a friend, came from “a small body of shrill eunuchs” who failed to recognize the invaluable opportunity that he had seized.¹³ Vivid metaphors notwithstanding, Roosevelt’s perception of popular opinion was generally correct. Although many were uncomfortable with Roosevelt’s methods, the notion of an American canal in Panama was overwhelmingly appealing. Accordingly, the U.S. Senate ratified the Hay—Bunau-Varilla Treaty on February 23, 1904 by a lopsided vote of 66-14.¹⁴

Until Goethals’s arrival in Panama in March 1907, the Isthmian Canal Commission’s record in Panama was mixed at best. Led throughout much of 1904 and 1905 by Rear Admiral John G. Walker as chairman and John Findlay Wallace as chief engineer, the Americans fared

¹² LaFeber, *The Panama Canal*, 23-30; John Major, *Prize Possession: The United States and the Panama Canal, 1903-1979* (New York: Cambridge University Press, 1993), 34-49; Parker, *Panama Fever*, 220-246.

¹³ The first quotation is from Theodore Roosevelt, *Theodore Roosevelt: An Autobiography* (New York: Charles Scribner’s Sons, 1913), 522-523. The second is from Theodore Roosevelt to George Otto Trevelyan, November 30, 1903, quoted in John Milton Cooper, Jr., *The Warrior and the Priest: Woodrow Wilson and Theodore Roosevelt* (Cambridge, MA: Belknap Press, 1983), 71.

¹⁴ LaFeber, *The Panama Canal*, 31-33.

little better than their French predecessors. Where the French canal suffered from an infeasible plan, a lack of understanding of the disease environment, and immature technology, the Walker Commission was plagued by a refusal to acknowledge the emerging medical consensus about the disease environment and poor leadership.

The most significant problem was Walker's and Wallace's refusal to believe that yellow fever was a mosquito-borne illness. Yellow fever had been attributed to poor sanitary conditions until Cuban and American doctors demonstrated the link between yellow fever and the *aedes egypti* mosquito during the American occupation of Cuba after the War with Spain. Many laymen were unconvinced, Walker and Wallace among them. They denied requests from Colonel William C. Gorgas—the commission's Chief Sanitary Officer and an army doctor with considerable experience fighting the disease in Cuba—for adequate supplies, funding, and manpower for a mosquito eradication campaign. Instead, they ordered the well-known doctor to direct his efforts toward general sanitation of the Canal Zone. An entirely avoidable, but relatively mild epidemic then hit the Canal Zone in late 1904 and early 1905. As deaths and fears of a return to the nightmarish epidemics during the French construction period mounted, American employees in the Zone panicked. In April, May, and June 1905, three quarters of the American employees fled the Canal Zone. That exodus included Chief Engineer Wallace, whose resignation was accepted by a thoroughly disgusted Secretary of War William Howard Taft on June 25, 1905. As Admiral Walker had resigned a few months earlier, the Isthmian Canal Commission was adrift and rudderless, and work in Panama ground to a halt.¹⁵

¹⁵ Parker, *Panama Fever*, 280-303; McCullough, *The Path Between the Seas*, 438-458.

Succeeding Wallace as the ICC's chief engineer, John Stevens set a firm foundation for the successful completion of the canal. His tenure in Panama was marked by two distinct achievements: the practical elimination of yellow fever from the isthmus and the completion of the critically important railroad phase of the canal construction. Success on the yellow fever front required Theodore Roosevelt's intervention. Stevens and Theodore Shonts—who had succeeded Admiral Walker as chairman of the ICC in April 1905—also did not subscribe to the emerging scientific consensus that yellow fever was a mosquito-borne illness. Much like their predecessors, they were ill-disposed to support Gorgas in his efforts to fight yellow fever by eradicating the *aedes egypti* mosquito. After the outbreak of 1904-1905, however, Roosevelt consulted with his most trusted medical advisors. Their persuasive arguments and recommendations led him to order Shonts and Stevens to fully support Gorgas and his Department of Sanitation, sparing no expense or resource. Beginning in July 1905, Gorgas's teams meticulously worked their way through the Canal Zone fumigating and screening buildings, and attacking the *aedes egypti* in its larval stage by removing as much standing water as possible, and spraying kerosene over pools of standing water that could not be removed. The campaign was astonishingly successful—the ICC recorded no deaths from yellow fever after November 11, 1905.¹⁶

With the most deadly disease on the isthmus tamed, Stevens successfully organized, planned, and completed the railroad phase of the construction of the Panama Canal in just under a year and a half. With experience building railroads throughout the American West, Canada, and Mexico, Stevens was arguably the foremost American railroad engineer of his time. That

¹⁶ Gorgas, *Sanitation in Panama*, 155-156; John M. Gibson, *Physician to the World: The Life of General William C. Gorgas* (Durham, NC: Duke University Press, 1950), 138-152; and Parker, *Panama Fever*, 300-301 and 328-331.

expertise served him well. Shortly after arriving in Panama, Stevens assessed that whatever the result of the sea-level canal vs. lock canal debates in Washington would be, work could proceed on building the logistical infrastructure needed to sustain construction for years to come, and attacking the Culebra Cut—a gorge nine miles long that would have to be carved out of the Panamanian landscape for either type of canal.

Stevens set conditions for a lengthy construction effort. His construction crews built living quarters, docks, and storehouses; moved the Panama Railroad; and created an intricate railroad system to bring supplies from the storehouses to construction sites throughout the Canal Zone. Perhaps most importantly, Stevens established an ingenious rail system inside the Culebra Cut. The experienced railroad engineer intuitively understood that moving millions of cubic yards of earth out of the Culebra Cut was at least as important as the digging operation inside the Cut. In later years, Stevens could justifiably claim that he had “handed over to the army engineers a well-planned and well-built machine,” that “ran, comparatively speaking, like a high-grade watch.”¹⁷

George W. Goethals agreed. During his first weeks in the Canal Zone, he wrote home that “Mr. Stevens has done an amount of work for which he will never get any credit—or if he gets any, will not get enough.” Goethals was relieved that Stevens had accomplished so much. He reported that the railroad “part of the problem is practically solved, and being the part with which we are least familiar, it is going to be an advantage that he has been here in advance and taken hold as he has done.” Continuing, Goethals explained that “Mr. Stevens has perfected such an organization so far as the R.R. part of the proposition is concerned, that there is nothing

¹⁷ John F. Stevens, *An Engineer's Recollections* (New York: McGraw Hill, 1936), 1-53. Quotation from page 52. See also McCullough, *The Path Between the Seas*, 459-508; and Parker, *Panama Fever*, 304-342.

left for us to do but just have the organization continue in the good work it has done and is doing.”¹⁸ A year after the canal opened to commercial traffic, Goethals remained grateful. He wrote in *Scribner’s Magazine* that he had been “fortunate in falling heir to the organization that had been perfected for excavating the Culebra Cut, for no one not thoroughly familiar with railroad transportation and not possessed of organizing ability could have succeeded in this part of the work.”¹⁹

By the end of January 1907, however, all was not well with Stevens. Cracking under the strain of the job, he sent the extraordinarily morose letter to President Roosevelt that prompted his resignation and Goethals’s appointment.²⁰ Although he had accomplished much during his short tenure, Stevens departed at the right moment. He was an experienced railroad engineer with little knowledge of and no experience in canal engineering. Once the railroad phase of the construction was over, Stevens was no longer had the technical expertise needed to lead the effort. The administration had decided upon a lock canal in February 1906, and Congress approved four months later.²¹ The project needed to be led by an engineer knowledgeable of and experienced in the construction of lock canals. Moreover, as his letter to Roosevelt clearly revealed, Stevens was burned out and near his breaking point. Just as he was ill-equipped for the technical problems of canal’s construction moving forward, he was not in the proper mental state

¹⁸ George W. Goethals to “Toodles” [George R. Goethals], March 10, 1907, Container 3, George W. Goethals Papers, LC.

¹⁹ George W. Goethals, “The Building of the Panama Canal: Organization of the Force,” *Scribner’s Magazine*, LVII (May 1915), 533.

²⁰ John F. Stevens to Theodore Roosevelt, January 30, 1907, Reel 320, Series 4, William Howard Taft Papers, LC. Circumstances surrounding Stevens’s resignation and Goethals’s appointment are described on pages 38-40 in Chapter 3.

²¹ Mauer and Yu, *The Big Ditch*, 100.

to handle its problems of leadership and management. And it was the problem of management that defined Goethals's tenure in Panama.

Theodore Roosevelt, who felt a keen sense of ownership and personal investment in the Panama Canal, had come to frame the canal as a managerial problem well before appointing Goethals to lead the effort.²² In 1906, the President had complained to Secretary of War William H. Taft that although Chairman Shonts and Chief Engineer Stevens were “the very best men we could get for actually digging the canal,” he believed that “their phenomenal administrative and engineering qualities are not accompanied by any appreciation of the exact qualities necessary in dealing either with a foreign power, and especially a small Spanish American power, or with Congress or with the labor situation.” Despite his famous admonitions to “make the dirt fly,” Roosevelt believed that “actually digging the canal” was but one of several complicated issues with which the leadership of the ICC had to contend.²³ He became even more convinced of this when Stevens resigned, and likely emphasized managerial issues in his subsequent meetings with Goethals.

Seizing the opportunity to repair an organizational problem he believed the other commissions had suffered from, Roosevelt appointed Goethals to serve as Chairman and Chief Engineer of the ICC. He had floated a more radical idea one year earlier, testing among his close associates an idea that would reduce the commission to just one member, and would fill all other significant positions in the Canal Zone with appointees serving at the president's discretion who

²² On Roosevelt's perception that the problem was more managerial than technical, see Alfred D. Chandler, “Theodore Roosevelt and the Panama Canal: A Study in Administration,” in *The Letters of Theodore Roosevelt*, vol. 6, ed. Elting E. Morison, John M. Blum, and Alfred D. Chandler, Jr. (Cambridge, MA: Harvard University Press, 1952), 1547-1557.

²³ Theodore Roosevelt to William Howard Taft, August 14, 1906, Reel 320, William Howard Taft Papers, LC.

would report to rather than serve with the sole commissioner.²⁴ Although Roosevelt's inner circle advised that such a policy was politically infeasible, Stevens's resignation prompted Roosevelt to reorganize the ICC to make one commissioner—George W. Goethals—much more powerful than the others. In doing so, he did not intend to facilitate Goethals's work as an engineer, but to facilitate his work as an executive managing a mammoth undertaking. As Roosevelt later explained in his autobiography, "I tried faithfully to get good work out of the commission, and found it quite impossible; for a many-headed commission is an extremely poor executive instrument."²⁵ As would his successors in subsequent reorganizations of the ICC until the canal was complete, Roosevelt opted to concentrate power in Goethals's hands. He took this course neither for power's sake nor to satisfy Goethals's ego, but to improve the efficiency of the executive management of the construction effort.²⁶

Assessing progress in the Canal Zone shortly after his arrival in March 1907, Goethals identified management as the largest and most critical problem he faced, and surmised that it was the problem that broke John Stevens. "The magnitude of the work grows on me; it seems to get bigger all the time," he wrote home in the middle of March. Goethals found the chief engineer's work to be "lonely and isolated," and concluded that Stevens had "broken down with the responsibilities and an evident desire to look after too many of the details himself." He confided to his son that Stevens lacked "any assistants on whom he can throw off matters, preferring, as I

²⁴ William Loeb, Jr. to William Howard Taft, February 27, 1906, Reel 320, William Howard Taft Papers, LC.

²⁵ Theodore Roosevelt, *Theodore Roosevelt: An Autobiography*, Illustrated ed. (New York: Charles Scribner's Sons, 1926), 528.

²⁶ This point refutes the conclusions in Walt Griffin, "George W. Goethals and the Panama Canal," (PhD diss., University of Cincinnati, 1988), in which Griffin interprets Goethals's tenure at the Panama Canal as a long, and ultimately successful quest for power, and asserts such reorganizations of the ICC were the fruits of a deliberate campaign to gain more power.

understand the situation, to decide everything himself, and in this respect the job is too great.”²⁷ The problem of management was still looming foremost in Goethals’s mind in his next letter home. “The work,” he wrote, “is all absorbing and its magnitude enormous.” Reflecting on the task ahead, he described to his family exactly how he perceived his role as the newly appointed chairman and chief engineer of the Isthmian Canal Commission. He wrote, “As the head of everything here, I will not be able to do much with the details of the engineering, but I’m going to make the others work.”²⁸ By the end of his first month in the Canal Zone, Goethals had also come to frame the construction of the Panama Canal exactly as Roosevelt had—not as a technical engineering problem, but as a managerial problem.

None of his subsequent experiences in the Canal Zone changed his mind. Goethals maintained this view for the rest of his life. His retrospective writings and statements insist that the Panama Canal was more of a managerial triumph than an engineering or technological triumph. A year after the canal opened, Goethals wrote, “The construction of the canal involved the solution of no new engineering problems—simply the application of known principles and methods which experience had shown would give satisfactory results, for the very magnitude of the work precluded trying out anything new or experimental.” Continuing, he asserted that “the task was a formidable one, therefore, because of its size, rather than because of the engineering difficulties overcome.”²⁹ In a different forum, he claimed that when comparing the managerial problems of the canal to its engineering problems, “they made the latter appear relatively

²⁷ George W. Goethals to “Toodles” [George R. Goethals], March 17, 1907, Container 3, George W. Goethals Papers, LC.

²⁸ George W. Goethals to “Toodles” [George R. Goethals], March 22, 1907, Container 3, George W. Goethals Papers, LC.

²⁹ George W. Goethals, *Government of the Canal Zone* (Princeton, NJ: Princeton University Press, 1915), 2.

small.”³⁰ Goethals addressed this point most clearly in a 1922 interview in which he insisted that his “chief interest at Panama was not in the engineering, but in the men,” because he firmly believed “that the canal would be built if the men could be managed.” Explaining his success, Goethals stated with characteristic curtness, “We managed the men and the canal was built.” He went on to opine that the greatness of the Panama Canal was not in its massive locks, but rather “in the forming of a good-sized principality solely devoted to fighting the jungle, the Culebra Slide, and the Chagres River—and having them finish the fight on time.”³¹

While such statements were somewhat too extreme and certainly unfair to his subordinate engineers whose excellent work at the canal involved a daily struggle with monumental technical difficulties, Goethals was right to focus above all on the problem of management. The scale of the project was immense. Although it had to be led by an engineer who was an expert in the technical aspects of canal construction, the engineer in charge could not afford to dive into the technical work, and had to act in an executive capacity. When Goethals arrived on the isthmus, the workforce in the Panama Canal Zone was over 29,000 strong and the Isthmian Canal Commission had an operating budget that exceeded \$79 million.³² By contrast, the entire United States Army consisted of just under 54,000 soldiers and had an operating budget of over \$143 million.³³

³⁰ George W. Goethals, “The Building of the Panama Canal: The Human Element in Administration,” *Scribner’s Magazine*, LVII (June 1915), 721.

³¹ Samuel Crowther, “Don’t Fear to Attempt a Thing Just Because it Looks Big,” *American Magazine*, January 1922, 92.

³² Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1907*, 60th Cong., 1st sess., 1907, Senate Document No. 55 (Washington, DC: Government Printing Office, 1907), 34-37 and 139.

³³ U.S. Department of War, “Report of the Secretary of War,” *War Department, U.S.A. Annual Reports, 1907*, 60th Cong., 1st sess., House Document No. 2, vol. 1, 7 and 44-54.

Upon his appointment as Chairman and Chief Engineer of the ICC, then, Goethals assumed control of an organization that was roughly equivalent to half of the United States Army in both manpower and operating budget. At its peak, the workforce would swell to slightly less than 45,000 employees and contractors—a force roughly three quarters the size of the army.³⁴ While his limited training and extensive professional experiences to that point had given him the technical knowledge to lead the construction effort, nothing in his training and experience had prepared Goethals to manage an organization that large. After all, he was at the time of his appointment only a lieutenant colonel. The turn-of-the-century army certainly did not train its lieutenant colonels to be able to assume command of organizations roughly the size of an army corps. It lacked a system to train even its general officers to do so.³⁵

Goethals intuitively framed the construction of the Panama Canal in managerial terms that would have been familiar in any corporate boardroom at that time. The managerial revolution had taken hold of American society in the late-nineteenth century. It was a process that took place in the decades after the Civil War in which large, multi-unit, and multifunctional businesses supplanted traditionally small, individual enterprises as the major driving force of the American economy, generating an expanding class of managers to fill the administrative and executive apparatuses at the heart of these new businesses and corporations.³⁶ The jobs that

³⁴ See *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1907*, 26 and 193; and Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1913*, 63rd Cong., 2nd sess., 1913, House Document No. 426 (Washington, DC: Government Printing Office, 1913), 53, which noted a workforce of 44,733 in March 1913.

³⁵ At the time, the Leavenworth Schools were organized to produce competent staff officers for echelons at division and above, and the Army War College was used more as a planning agency that supplemented the general staff than as a truly educational institution. See Timothy K. Nenninger, *The Leavenworth Schools and the Old Army: Education, Professionalism, and the Officer Corps of the United States Army, 1881-1918* (Westport, CT: Greenwood Press, 1978), 68-111; and chapter 3, above.

³⁶ Chandler, *The Visible Hand*, 3-12.

were a part of these managerial hierarchies were increasingly professional and technical, and came with respectable status and remuneration. The growth of such positions fueled a considerable expansion of a middle class that was increasingly enamored with concepts of efficiency and “scientific management.”³⁷ As the reformist spirit of the Progressive Era swept over the country in the 1890s and early 1900s, such concepts were applied to problems beyond the economic sector, extending their influence to many aspects of American society.³⁸

The U.S. Army was not immune from the reach managerial revolution. In part, this was because of the naturally symbiotic relationship between an army and the society it serves. It is unsurprising to see that as the American economy became increasingly corporate and the middle class expanded, many of its values and trends found their way into the army by way of its largely middle-class officer corps. More importantly and less obviously, the values and trends of the managerial revolution were easily transferred to the army because they did not clash with its institutional culture. In fact, they seemed strikingly familiar to the army, as the seeds of the managerial revolution were planted during the Civil War.³⁹

³⁷ Chandler, *The Visible Hand*, 337-454; and Robert H. Wiebe, *The Search for Order, 1877-1920* (New York: Hill and Wang, 1967), 151-155.

³⁸ See Wiebe, *The Search for Order*, chap. 5-7; Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870 - 1920* (New York: Oxford University Press, 2003), chap. 4; and Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877-1920* (New York: Cambridge University Press, 1982), part III.

³⁹ Historians of the U.S. Army have long emphasized the impact of the managerial revolution on the U.S. Army. The traditional view, which focuses strongly on the Root reforms as a military manifestation of the managerial revolution appears most directly in chapters titled “The Managerial Revolution” in both Walter Millis, *Arms and Men: A Study in American Military History* (New Brunswick, NJ: Rutgers University Press, 1986), 131-210 and Edward M. Coffman, *The Regulars: The American Army, 1898-1941* (Cambridge, MA: Belknap, 2004), 142-201. Brian Linn points, somewhat indirectly, to the influences of the managerial revolution in not only informing the perceptions and policies of the “managers” group in his guardians-heroes-managers construct of the U.S. Army officer corps, but also enabling the “managers” rise to prominence in the late-nineteenth and early-twentieth centuries. See Brian McAllister Linn, *The Echo of Battle: The Army’s Way of War* (Cambridge, MA: Harvard University Press, 2007), 7, 40-67, and 93-115.

Historians of American business have identified mid-nineteenth century railroads as the foundation upon which the managerial revolution was built. They were the original large corporations that demanded sophisticated systems of management and administration.⁴⁰ Many railroad managers and executives were veterans of the war in civil or military capacities, often having performed valuable service in mobilizing and supplying armies in the field. The Union in particular made notable achievements in efficiently financing and resourcing its war effort, and crafting an intricate system to move supplies over an extensive rail network to sustain its armies. With a massive postwar demobilization, those who perfected the Union's financial and logistical systems transitioned to civil society, bringing with them the ideas and concepts of organization the army put to such effective use during the war.⁴¹ With the growth of large corporations in the 1870s to 1890s, these ideas and concepts—as well as plenty of new ones—were repeatedly tested and improved upon in corporate America. Meanwhile, the organizational concepts and skills developed during the Civil War atrophied and faded in the postwar army. They were neither used nor needed in the peacetime routine of a traditionally small army.⁴²

⁴⁰ The most extensive treatment of railroads in this context is Chandler, *The Visible Hand*, 79-205. See also Perrow, *Organizing America*, 111-113; Richard Franklin Bensel, *The Political Economy of American Industrialization, 1877-1900* (New York: Cambridge University Press, 2000), 55 and 290-291.

⁴¹ The wartime careers of key railroad engineers, managers, and executives—as well as the transition of wartime organizations, systems, and practices to private companies in peacetime—are succinctly but effectively explored in Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W.W. Norton, 2011), 3-36. There is an excellent discussion on the Union's war finance programs and their lasting postwar impact in Richard F. Bensel, *Yankee Leviathan: The Origins of Central State Authority in America, 1859-1877* (New York: Cambridge University Press, 1990), 239-302.

⁴² See Chandler, *The Visible Hand*, 122-500. Although Chandler's work focuses on the managerial revolution in civil society, his principles are applicable to the atrophy of managerial concepts and practices in the military. Chandler points out that the rise of managers and managerial practices depended upon the growth of corporate organizations, and that the professionalization of managers depended upon the continuing growth of multi-unit businesses in both size and diversity—as he points out in *The Visible Hand* on pages 6-9. After the Civil War, the U.S. Army downsized sharply. 1,000,692 soldiers strong in 1865, the army reported an end strength of 57,072 in 1866, and only 25,513 in 1875—see Russell F. Weigley, *History of the United States Army*, enlarged ed. (Bloomington, IN: Indiana University Press, 1984), 598. An army that reduced its forces by approximately 97.5% over the course of nine years was not, by Chandler's model, an organization in which modern managerial practices could be expected to thrive.

After the turn of the century, however, the army officers were particularly receptive to managerial trends that had antecedents in the Civil War, and were becoming increasingly popular within middle-class American society. The Corps of Engineers was especially attuned to these developments, as its mission necessarily brought its officers into more frequent and direct contact with the business community than their colleagues in the line.⁴³ In the absence of any other relevant frame of reference from his previous training and experience, then, it was natural for George W. Goethals to think of the Panama Canal as a complex and multifaceted managerial problem.

In addition to influencing how he thought about the canal, the managerial revolution shaped how Goethals organized the work in Panama. In the late-nineteenth century, corporate mergers and consolidation gave rise to large, multifunctional firms. Seeking maximum profit, executives developed thoroughly integrated systems of management defined by both centralized power and decentralized operations. Executives retained all power and responsibility, but delegated considerable authority to managers of subordinate organizations formed along well-defined functional or geographic lines, as circumstances dictated.⁴⁴

Goethals saw merit in that approach to management. He demonstrated as much at the Florence District from 1891-1894, when he divided his district into four divisions, each

⁴³ Historians of the U.S. Army have long made a convincing case for middle-class officers as a natural conduit of popular managerial theories and techniques in the late-nineteenth and early-twentieth centuries. Walter Millis described the period between the Civil War and World War I as the U.S. Army's very own managerial revolution, an idea he considered so important that it became the title of an entire chapter in his work *Arms and Men*. See Walter Millis, *Arms and Men: a Study in American Military History* (New Brunswick, NJ: Rutgers University Press, 1986), chap. 3. The same can be said of Mac Coffman's *The Regulars*, although Coffman perceived the army's embrace of the managerial revolution to be limited to Root's tenure in office and the subsequent decade. See Edward M. Coffman, *The Regulars: The American Army, 1898-1941* (Cambridge, MA: Belknap Press, 2004), chap. 5. See also James L. Abrahamson, *America Arms for a New Century: The Making of a Great Military Power* (New York: Free Press, 1981), chap. 6-7.

⁴⁴ Chandler, *The Visible Hand*, 381-450.

organized to work on one of the district's major lines of effort.⁴⁵ Having succeeded with that approach before, Goethals instinctively adopted it in Panama. Because "the work is all absorbing and its magnitude is enormous," he wrote to his son, "I will not be able to do much with the details of the engineering, but I'm going to make the others work."⁴⁶ In a different letter, he explained, "I am going to divide up the supervision of the work among the other three Engineers on the commission, let them look after the details of the work, and just maintain general supervision over the whole."⁴⁷ In the end, that is exactly how Goethals organized the ICC workforce. When he assumed control, the ICC's construction department was in disarray, having been organized in twelve divisions, each with independent clerical, administrative, and logistical apparatuses. Goethals did not make immediate changes, "recalling the President's desire to continue intact the existing organization," and convinced "that it would be madness to attempt any change" until he had a firmer understanding of the job. He believed that premature change "would have resulted in nothing short of chaos."⁴⁸

Goethals settled on a scheme of organization in 1908 that would remain in place, for the most part, until construction was complete. He divided the canal into three segments and created three corresponding engineering divisions. The Atlantic, Central, and Pacific Divisions were each responsible for one segment of the canal. Additionally, because he considered the locks to be complex enough to require one senior engineer's full attention, he created a separate division responsible only for planning and designing locks. The same general principle informed how he

⁴⁵ Refer to chapter 2 for Goethals's stewardship of the Florence District.

⁴⁶ George W. Goethals to "Toodles" [George R. Goethals], March 22, 1907, Container 3, George W. Goethals Papers, LC.

⁴⁷ George W. Goethals to "Toodles" [George R. Goethals], March 17, 1907, Container 3, George W. Goethals Papers, LC.

⁴⁸ Goethals, "The Building of the Panama Canal: Organization of the Force," 534.

organized portions of the workforce dedicated to the various administrative and logistical tasks that supported the work. Goethals ensured he had a body of employees and a supervisor dedicated to each of the Canal Zone's many functions, and assumed a role that was more closely akin to an executive of a large corporation than a general leading his troops.⁴⁹

The Atlantic Division was responsible for all canal construction work from deep water in Limón Bay at Colón to the Gatún Dam. Goethals placed this division under the charge of William L. Sibert, an army engineer who had considerable canal experience. Assisting Sibert were several other officers from the Corps of Engineers. The Atlantic Division was responsible for constructing breakwaters to protect the Atlantic entrance to the canal from storms, dredging a channel from Limón Bay to Gatún Dam, emplacing three flights of double locks known as the Gatún Locks, and building the Gatún Dam. The dam was the most important project assigned to the Atlantic Division, and consumed the bulk of its resources and effort until early 1912. Over 100 feet high and approximately a mile and a half long, its size was unprecedented for its time. The dam was designed to block the powerful Chagres River, thereby flooding 162 miles of jungle to make Gatun Lake large enough and consistently deep enough to serve as both a 21-mile-long section of the Panama Canal and a reservoir to provide water for the canal's locks.⁵⁰

Goethals assigned the Central Division responsibility for all construction from a point just south of the Gatún Dam to the continental divide at Pedro Miguel. David du Bose Gaillard,

⁴⁹ George W. Goethals to David D. Gaillard, June 1, 1908, Folder 91, Box 6, David D. Gaillard Papers, USACE; Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 41 and 52.

⁵⁰ Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1909*, 61st Cong., 2nd sess., 1909, House Document No. 263 (Washington, DC: Government Printing Office, 1909), 3-4; Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 41; Goethals, "The Building of the Panama Canal: Organization of the Force," 544; McCullough, *The Path Between the Seas*, 540-541; and Parker, *Panama Fever*, 402-403 and 440-446.

a well-regarded officer of the U.S. Army Corps of Engineers, led the Central Division. The division's principle tasks were to dig and dredge a channel through what would become the expanded Gatún Lake after the completion of the Gatún Dam, and to excavate the Culebra Cut. The latter was the most technically difficult project on the isthmus, even more difficult than designing and building the canal's monumental locks. The Culebra Cut—renamed the Gaillard Cut after that engineer's untimely death from a brain tumor in December 1913—was a nine-mile stretch of the canal that had to be blasted and dug out of mountains near the continental divide. Although the initial estimates figured that the excavating the Cut would involve removing 53 million cubic yards of earth, Gaillard's division had excavated over 100 million cubic yards by the time the canal opened in 1914, nearly half of the total volume of excavation in the entire Canal Zone during the decade-long construction effort. The volume of excavation in the Culebra Cut was significantly greater than expected because the cut's topography, soil, and weather combined to produce frequent catastrophic mud slides throughout the construction period, and even after the canal opened in 1914. These slides bedeviled Goethals, Gaillard, and the entire Central Division, accounting for nearly one-third of excavation in the Cut.⁵¹

The Pacific Division's area of responsibility began at the end of the Culebra Cut and stretched to the canal's Pacific terminus near Flamingo Island south of Panama City. This division's major tasks included digging, blasting, and dredging a channel from the Culebra Cut to the Pacific, and constructing locks at Pedro Miguel and Miraflores. Goethals placed his close

⁵¹ *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1909*, 10; Sydney B. Williamson, *Untitled Manuscript*, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 41; Goethals, "The Building of the Panama Canal: Organization of the Force," 544; D.D. Gaillard, "Culebra Cut and the Problem of the Slides," *Scientific American*, November 9, 1912, 388-390, located in Folder 52, Box 6, David D. Gaillard Papers, USACE; McCullough, *The Path Between the Seas*, 541, 543-554, and 611; and Parker, *Panama Fever*, 402-403 and 420-429.

friend and associate Sidney B. Williamson in charge of the Pacific Division, and appointed other civilian engineers to serve as his assistants. In doing so, Goethals fostered a productive rivalry between the Atlantic and Pacific Divisions. Because the former was led and staffed by army engineers and the latter by civilian engineers—and because the two had very similar scopes of work—the Atlantic and Pacific Divisions competed to outperform each other, especially after Goethals decided to publish the statistics of each division’s progress in excavation and concrete emplacement in the weekly ICC newspaper, the *Canal Record*.⁵²

While the three engineering divisions would build their foundations and manage their physical construction, Goethals considered the canal’s massive locks to be complex enough to demand an independent department equal in stature, if not in size, to the engineering divisions. When President Roosevelt and Congress decided in favor of a lock canal, John Stevens had opened an office in Washington to design the locks. Goethals moved that office and its staff to the isthmus as a subordinate organization within the office of the Chairman and Chief Engineer, placing Harry Foote Hodges at its head. Hodges was an army engineer who had graduated from West Point one year later than Goethals, and who enjoyed an excellent reputation from previous work on the Soo River. He and his staff were responsible for designing not only the massive lock gates, but also—and more importantly—the intricate array of valves and conduits needed to make the locks electrically powered and capable of raising and lowering ships 28 feet in fifteen minutes or less. Hodges was also responsible for monitoring the manufacture of the lock gates,

⁵² *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1909*, 15; Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 41-42; Goethals, “The Building of the Panama Canal: Organization of the Force,” 544; McCullough, *The Path Between the Seas*, 541-542; and Parker, *Panama Fever*, 403.

which was the only major aspect of the construction of the Panama Canal that was subcontracted to a private firm.⁵³

Goethals applied the same organizational principles to the medical, administrative, and logistical dimensions of the work. He left the Sanitary Department in William C. Gorgas's hands. By the time Goethals arrived, the problem of yellow fever on the isthmus had been resolved. According to Gorgas, "By the fall of 1907 . . . our fight against disease in Panama had been won, and from that time on, our attention was given to holding what had been accomplished."⁵⁴ But that blithe statement belied the scale of the medical work that remained. Although the commission recorded its last death from yellow fever on November 11, 1905, the Sanitary Department could not become complacent. Gorgas's inspection teams, oil slickers, and fumigation teams had to continue their work in order to keep the yellow-fever-bearing *aedes egypti* mosquito at bay.

But since 1905, Gorgas's principal nemeses were the *anopheles* mosquito and malaria. The *anopheles* presented a much more difficult problem, as it was far more resilient than the *aedes egypti*, and was impervious to attempts to eradicate it at the larval stage. While it could not be eliminated, Gorgas thought it could be reduced drastically. His teams drained swamps, spread oil in standing water that could not be drained, cleared overgrown land near the canal and the cities and camps along the line of the canal, treated the entire Canal Zone with insecticide

⁵³ George W. Goethals to William H. Taft, February 20, 1908, Container 5, George W. Goethals Papers, LC; Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1910*, 61st Cong., 3rd sess., 1910, House Document No. 1030 (Washington, DC: Government Printing Office, 1910), 2-5. See also Goethals, "The Building of the Panama Canal: Organization of the Force," 542-543; Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 40-41; McCullough, *The Path Between the Seas*, 542-543; and Parker, *Panama Fever*, 446-451.

⁵⁴ Gorgas, *Sanitation in Panama*, 156.

deemed so essential that the ICC built a special plant to produce it locally, and even imported and introduced throughout the Canal Zone natural predators of the *anopheles* mosquito.

Additionally, Gorgas's Sanitary Department administered roughly 40,000 doses of quinine per day in the hopes of mitigating the incidence of malaria in an environment in which the very best efforts could only reduce the *anopheles* population, not eradicate it altogether.⁵⁵ The department's work brought significant results. In June 1907, the Isthmian Canal Commission reported an average daily sick rate of 31.1 per thousand employees and an annual total of 205 deaths from malaria. By June 1912, the average daily sick rate was down to 22.91 per thousand employees, and an annual total of only 21 deaths from malaria.⁵⁶

Goethals used a similar departmental structure to address the administrative and logistical functions of the Isthmian Canal Commission. He charged the Quartermaster Department with recruiting skilled and unskilled labor; assigning all quarters for ICC employees; constructing, furnishing, and maintaining residential and office buildings; and acquiring and distributing fuel, food, distilled water, and supplies throughout the Canal Zone. He organized the Department of Commissary and Subsistence to manage the ICC's commissaries, hotels, kitchens, and messes. Goethals also assembled an office and staff for the Examiner of Accounts and Disbursements to manage finances and claims throughout the construction of the canal. Finally, he organized the

⁵⁵ Gorgas, *Sanitation in Panama*, 159-167, 182-205, and 219-222. Statistics on quinine are found on page 221. See also Parker, *Panama Fever*, 364-366.

⁵⁶ *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1907*, 32 and 193; and Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1912*, 62nd Cong., 3rd sess., 1912, House Document No. 967 (Washington, DC: Government Printing Office, 1912), 65 and 533.

Department of Civil Government, which managed the Canal Zone's post offices, police force, prisons, schools, fire department, and courts.⁵⁷

In part, Goethals relied upon a departmental system of organization because it was the only way he could attempt, to varying degrees of success—to keep his workload down to a manageable level. Even though he was conscious of the need to delegate and accordingly organized the work in geographic and functional divisions and departments, Goethals's personal share of the work was still enormous. In his second month on the job, he reported to his family, “Since I came here, I have been confined to the office almost continuously from 7:30AM to 10 PM.”⁵⁸ A few days later, he reported that his office hours began at the same early hour, and lasted “till we shut up, and though I have stopped for lunch & dinner, I have been spending evenings at it as well.” He then expressed a determination to set an office routine that allowed him to get out to personally observe “some part of the work” at least every other day.⁵⁹

By all accounts, he succeeded in setting such a routine, and even increased the frequency of his inspection tours along the line of the canal to six mornings a week. But that did not in any way alleviate the length of his work days or the weight of his duties. Observers throughout his tenure in Panama commented on his almost ubiquitous presence in the Canal Zone, the

⁵⁷ Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1909*, 61st Cong., 2nd sess., 1909, House Document No. 263 (Washington, DC: Government Printing Office, 1909), 22-29.

⁵⁸ George W. Goethals to “Toodles” [George R. Goethals], April 9, 1907, Container 3, George W. Goethals Papers, LC.

⁵⁹ George W. Goethals to “Toodles” [George R. Goethals], April 12, 1907, Container 3, George W. Goethals Papers, LC.

consistently late hours he kept at his office, and the eventually fatal chain-smoking habit he developed in Panama as a means of dealing with the stress of the job.⁶⁰

The departmental system was absolutely essential to the successful completion of the canal. Goethals realized that he needed to harness the expertise and creativity of his subordinate engineers and officers in order to get the job done. Goethals immediately perceived the advantage of the organization he adopted in 1908 and generally maintained for the rest of the construction period. “The more I think of this organization the more it appeals to me,” Goethals wrote to David du Bose Gaillard at the Central Division. He believed that such an organization would “throw responsibility” on those subordinate leaders in charge of the various new divisions who had been designated members of the Isthmian Canal Commission “to a greater extent than they now have.”⁶¹

Later, and in a more public forum, Goethals explained what he believed were the most important virtues of the mode of organization he used in Panama. “In addition to definitely fixing the work in charge of each subordinate,” Goethals wrote in *Scribner’s Magazine*, “an effort was made to give him full authority and hold him responsible, thus securing the best that was in him.” And in his view, it worked. He reported, “As a consequence, each individual took a personal interest and pride in the work, feeling that the particular work on which he was engaged was *the* important piece; it therefore became *our* Canal and *we* were doing it.”⁶² In this way, managing leaders was a critical piece of Goethals’s solution to the managerial problem that

⁶⁰ An extensive account of Goethals’s work habits can be found in Albert Edwards, “The Boss of the Job,” *The Outlook*, June 24, 1911, 391-411.

⁶¹ George W. Goethals to D.D. Gaillard, June 1, 1908, Folder 91, Box 6, David D. Gaillard Papers, USACE.

⁶² Goethals, “The Building of the Panama Canal: Organization of the Force,” 544. Italics are in the original.

he perceived the Panama Canal to be. Managing leaders, however, was a particularly thorny issue for Goethals.

On this point, many commentators have depicted Goethals as an all-powerful czar or a despot concerned at least as much with increasing or preserving his own power and authority within the Canal Zone as with completing the canal.⁶³ Such interpretations are founded upon a misinterpretation of contemporary commentary. Goethals's own friends referred to him as "the Czar of Panama."⁶⁴ A reporter's remark that Goethals, "with his immense capacity for work and the restricted area of his domain . . . succeeds in the role of an autocrat after a fashion that must cause no little envy to Nicholas II," was representative of depictions of Goethals that appeared in the press during the construction period.⁶⁵ Goethals himself agreed, writing in his account of governing the Canal Zone that President Roosevelt's executive order of January 8, 1908 that unquestionably declared that all other members of the Isthmian Canal Commission were subordinate to the Chairman and Chief Engineer "permitted the subordination of everything" and placed him at the head of "an autocratic form of government for the Canal Zone."⁶⁶

But as Goethals's statement shows, these characterizations referred to the form and extent of Goethals's power and authority, not to the manner in which he exercised power and authority. In referring to him as a czar, Goethals's friends were remarking on the fact that he controlled not only the construction of the canal, but also the "civil government, courts, schools, post office,

⁶³ In his dissertation, Walt Griffin interprets Goethals's tenure in Panama as a somewhat contentious quest for consolidated executive power—see Griffin, "George W. Goethals and the Panama Canal." Julie Greene presents Goethals as a benevolent but also patriarchal and racist despot in Julie Greene, *The Canal Builders: Making America's Empire at the Panama Canal* (New York: Penguin Books, 2009), 53-62.

⁶⁴ George W. Goethals to "Toodles," [George R. Goethals], March 22, 1907, Container 3, George W. Goethals Papers, LC.

⁶⁵ Albert Edwards, "The Boss of the Job," *The Outlook*, June 24, 1911, 400.

⁶⁶ Goethals, *Government of the Canal Zone*, 50.

municipal governments that are scattered all along the line, the police, [and] the battalion of marines.”⁶⁷ The reporter who characterized Goethals as a successful autocrat also wrote that “such an absolutism would not be endured except for the almost universal feeling that Goethals is just.”⁶⁸ Although that claim slightly overstates the case, it accurately captures a widely-held contemporary opinion that Goethals did not abuse the vast power and responsibility with which he was entrusted. While he was given autocratic powers, he did not behave as an autocrat.

In fact, Goethals delegated considerably more authority to his subordinate leaders than one could have reasonably expected from an army officer of his generation. As Williamson recalled, “While Col. Goethals was always willing to discuss the work with his Division Engineers in any or all of its phases and was thoroughly familiar with it from the ground up, he left the administration and details of the work to the respective division heads and held them strictly responsible for the results.”⁶⁹ Goethals retained responsibility for planning the canal’s locks and the Gatun Dam within his office, delegating that considerable task to Harry F. Hodges and his department staff. Otherwise, according to Williamson, “other features such as the smaller dams, municipal improvements, docks and foundation plans for the locks were prepared in the division offices, and approved by” Goethals.⁷⁰

An example of this style of management occurred in 1908 when Goethals and the military engineers on the ICC determined that the original plan for the locks on the Pacific side

⁶⁷ George W. Goethals to “Toodles,” [George R. Goethals], March 22, 1907, Container 3, George W. Goethals Papers, LC.

⁶⁸ Albert Edwards, “The Boss of the Job,” *The Outlook*, June 24, 1911, 400.

⁶⁹ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 42.

⁷⁰ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 41.

of the canal placed the locks in a location that would be unacceptably vulnerable to naval gunfire in the event of war. Sydney B. Williamson surveyed and selected new locations for the locks, and forwarded his findings and recommendations to Goethals for approval. Williamson then created the general schematics for a flight of two locks at Miraflores, and a single, final lock at Pedro Miguel. When a disagreement arose among the three division engineers as to the feasibility of Williamson's plan, Goethals asked Sibert, Gaillard, and Williamson to conduct a technical study of the issue and forward their written opinions to him. Unsurprisingly, Williamson argued in favor of his plan. Sibert and Gaillard advocated for a triple lock at Miraflores and the elimination of the Pedro Miguel lock. After studying both options, Goethals approved Williamson's plan, which informed the Pacific Division's work through 1913.⁷¹

On this issue, Goethals allowed his subordinates much discretion. At no point did he unilaterally direct any action or create technical plans of his own. His interventions into the matter occurred at only two points: the initial identification of the problem and the final decision on its resolution. In between those interventions, his subordinates enjoyed broad discretion to develop and advocate for their own plans. This is particularly notable on an issue as important to the construction of the Panama Canal as the location and general plan for three of its six locks.

Although he delegated considerable authority to his subordinates, Goethals was by no means an easy person to work for. He was an incredibly demanding boss, especially to his principal subordinates. Intensely focused on the work, some of those who reported directly to Goethals found him to be an acerbic and demanding taskmaster. Robert E. Wood served in

⁷¹ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 44; William L. Sibert to George W. Goethals, February 2, 1908, D.D. Gaillard to George W. Goethals, February 1, 1908, and William L. Sibert to D.D. Gaillard, February 1, 1908, Container 5, George W. Goethals Papers, LC.

Panama throughout Goethals's tenure as the ICC's assistant chief quartermaster, and eventually as its chief quartermaster. Later in 1918, he served as the Acting Quartermaster General of the U.S. Army. After leaving the army, Wood became a successful businessman who held the presidency of Sears & Roebuck from 1928-1939 before serving as chairman of the board from 1939-1954. Reflecting upon his many experiences and accomplishments, Wood remarked of Goethals in 1963, "I was his assistant for seven years, and I might say that everything in my life since has seemed comparatively easy." To Wood, Goethals was "stern and unbending—you might say a typical Prussian."⁷² Williamson remembered that while Goethals's leadership style was to delegate authority and then hold subordinate leaders "strictly responsible for the results," his personality was such that "this made a man do his best and carry on his work so that he was damned certain of the results."⁷³

In holding his principle subordinates "strictly responsible for the results," Goethals spared no feelings and took little account of pride or ego. He did not attempt to rule by committee, or to achieve consensus once he had made up his mind. As he said after the successful completion and opening of the canal, "I doubt if this result could have been accomplished in any other way than by a single responsible head."⁷⁴ While he delegated and consulted freely, Goethals was quite firm and unbending when he came to a definite decision. He was equally firm and unbending when he felt a subordinate was underperforming, or when he

⁷² Robert E. Wood, *Monument for the World* (Chicago, IL: Encyclopaedia Britannica, Inc., 1963), 34.

⁷³ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 42.

⁷⁴ Goethals, "The Building of the Panama Canal: Organization of the Force," 541.

was not satisfied by the results attained by a particular department or division. At times, this caused friction with some of his principal subordinates.

Although they maintained a functioning professional relationship, Goethals and Gorgas had a major falling out on the isthmus that affected their personal relationship for the rest of Gorgas's life—and beyond, as it influenced a particularly villainous depiction of Goethals in Marie Gorgas's 1924 biography of her late husband.⁷⁵ At first, Goethals and Gorgas got on amicably enough. For all of March 1907, while Goethals was on the isthmus getting acquainted with the work and John Stevens had not yet departed, the Gorgas family cheerfully hosted the Goethals and his wife Effie their home.⁷⁶ In late 1907 and early 1908, however, Goethals grew concerned with the way Gorgas managed the Sanitary Department. Brilliant as he was as a doctor and a scientist, Gorgas's organizational skills were not his best trait. Not only Goethals, but also Williamson, Sibert, Gaillard, and Secretary of War Taft noticed that Sanitary Department operations lagged somewhat in efficiency, suffered from inadequate coordination with the engineering and quartermaster divisions, and most importantly, reported expenditures that appeared to be unreasonably high. As Williamson put it in a characteristically colorful way, Gorgas was “too easy going and of too pleasant a disposition to be a good executive . . . and his subordinates took advantage of this and spent money like drunken sailors.”⁷⁷

Taking action, Goethals decided to redistribute certain Sanitary Department functions. While the Sanitary Department retained direct responsibility for the hospitals and the sanitary

⁷⁵ Marie D. Gorgas and Burton J. Hendrick, *William Crawford Gorgas: His Life and Work* (Garden City, NY: Doubleday, Page & Co., 1924), 216-19

⁷⁶ George W. Goethals to “Toodles” [George R. Goethals], March 10, 1907, March 17, 1907, and March 22, 1907, Container 3, George W. Goethals Papers, LC.

⁷⁷ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 43; Goethals, “The Building of the Panama Canal: Organization of the Force,” 546.

inspectors, the crews that performed the drainage, ditching, and fumigation work related to the anti-malarial campaign would be managed by the Atlantic, Central, and Pacific Divisions. This was more a matter of redistributing control of work crews, supply management, and disbursement of funds than it was a matter of redistributing responsibility for the fight against malaria. Gorgas and his sanitary inspectors still maintained full control over directing what anti-malarial work had to be done throughout the isthmus. Nevertheless, Gorgas interpreted the new measures as a personal and professional affront. Goethals consulted him on the decision and secured Gorgas's acquiescence to a six-month test period of the new system. At the end of the trial period, Gorgas requested a return to the old system. Observing a reduction in both sick rates due to malaria and expenditures, Goethals rejected that request. Whenever Gorgas revisited the issue, as he did in both 1909 and 1910, Goethals's curt reactions betrayed rising levels of frustration and commensurately decreasing levels of patience. As the two drifted further apart, he came to view Gorgas's continued objections to his decision to be a sign of disloyalty.⁷⁸

Relations with Atlantic and Central Division Engineers Sibert and Gaillard were similarly strained. Sibert was a member of West Point's class of 1884 whose subsequent canal and river work was both well known within the Corps of Engineers and a source of great pride for Sibert. In fact, Sibert believed his background made him more qualified than Goethals to lead the construction effort in Panama. He resented his subordinate status to an engineer whom he considered to be less adept at canal work, and rarely lost an opportunity to directly or indirectly communicate his frustration to Goethals and others, including members of Congress whom he

⁷⁸ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 43; Goethals, "The Building of the Panama Canal: Organization of the Force," 546; Griffin, "George W. Goethals and the Panama Canal," 332-361.

thought he could influence to arrange for Goethals's removal.⁷⁹ As early as June 1907, after then-Major Sibert made a petty issue of seniority in rank with then-Major Gaillard because an executive order had mistakenly listed his name before Gaillard's, Goethals reported home that "Sibert . . . gets cantankerous and hard to hold at times."⁸⁰ His opinion hardened after years of Sibert's scheming. In the summer of 1911, Goethals wrote in a response to a congratulatory letter from Colonel Albert Todd, the U.S. Army attaché to the American legation in Berlin, "I was somewhat amused by your remark that I am 'seconded so efficiently and loyally by Gorgas and Sibert.'" He remarked, "This is neither true in spirit nor in fact."⁸¹

David du Bose Gaillard was also a member of the class of 1884 at West Point, where he had been Sibert's roommate. Gaillard was a brilliant engineer who struggled mightily with the problems in the Culebra Cut, especially the slides. He too bristled under Goethals, believing that Goethals lacked confidence in him and was too demanding. Goethals had full confidence in Gaillard's engineering abilities, but he did have some concerns about Gaillard's management of his division. The problem, as Goethals reported in a letter to his son in April 1907, was that Gaillard alienated his workers almost immediately after arriving on the isthmus. "For some reason or other, the men don't take kindly to Gaillard," he noted. Because of the nature of the

⁷⁹ "Reasons Why the Isthmian Canal Commission Should Not be Abolished Prior to the Completion and the Official Opening of the Panama Canal," undated, Folder 11, David D. Gaillard Papers, USACE; William C. Adamson to Katherine Gaillard, October 29, 1912, William C. Adamson to Katherine Gaillard, March 22, 1912, and Katherine Gaillard to "Brother Jim," undated, Folder 90, David D. Gaillard Papers, USACE suggest that Sibert and Gaillard (and their wives), were lobbying over Goethals's head on matters related to the organization of the ICC, especially about the relative power of Goethals over other commissioners—even going so far as to write directly to William C. Adamson, the chairman of the House Committee on Interstate and Foreign Commerce, and considering an attempt to orchestrate a wider circulation of their position in the press. Katherine Gaillard to Pierre Gaillard, September 19 [no year listed—presumably 1912], Folder 90, David D. Gaillard Papers, USACE shows that Sibert, Gaillard, and Gorgas sent direct and indirect appeals all the way to the Secretary of War.

⁸⁰ George W. Goethals to "Toodles" [George R. Goethals], June 13, 1907, Container 3, George W. Goethals Papers, LC. Goethals explained the seniority issue more completely in Goethals, "The Building of the Panama Canal: Organization of the Force," 540.

⁸¹ George W. Goethals to Albert Todd, August 12, 1911, Container 13, George W. Goethals Papers, LC.

work in the Culebra Cut, he explained, most of Gaillard's workers were railroad men who were "rough and outspoken & they are all anxious to deal directly with me." Given the circumstances, Goethals concluded, "if things don't improve—as I hope they will when the men find that his talk is after all harmless, I shall ask to have him relieved."⁸²

Goethals therefore gave extra attention to Gaillard, which Gaillard perceived to be undeserved micromanagement. Between Goethals holding him "strictly responsible for the results" in the Culebra Cut and within the Central Division, and the mounting strain of the recurring slides in the Cut, Gaillard was constantly stressed. Although he died tragically from a brain tumor on December 5, 1913, his wife believed his demise was due to the pressure Goethals had put on Gaillard. Upon encountering Goethals's youngest son Tom, who as a medical student had been invited to observe the unsuccessful procedure on Gaillard's brain, Katherine Gaillard remarked coldly, "Your father has killed my husband."⁸³

While Goethals was in no way responsible for Gaillard's death, he was not exactly blameless in these disputes. He maintained functioning professional relationships with his detractors, but at the same time, he took some amount of vindictive pleasure in frustrating them on relatively insignificant matters that did not impact work in the Canal Zone. Disapproving requests for leave appears to have a preferred way of getting back at them. Gorgas was on the receiving end of this tactic at least twice. And Katherine Gaillard at one point felt compelled to

⁸² George W. Goethals to "Toodles" [George R. Goethals], April 22, 1907, Container 3, George W. Goethals Papers, LC.

⁸³ Quoted in McCullough, *The Path Between the Seas*, 574. Katherine Gaillard never swayed from her belief that it was the work and not a brain tumor that killed her husband, whom she described as "a man, who in the accomplishment of the conquest of the slides, absorbing their cost into that of the regular excavation, finishing the work ahead of scheduled time—did so at the cost of his life." See Katherine Gaillard to Frederic J. Esskin, August 21, 1935, Folder 90, David D. Gaillard Papers, USACE.

travel to visit the Secretary of War in order to preempt Goethals's rejection of her husband's request for leave.⁸⁴

Despite such tension, Goethals continued to work effectively with and delegate authority to his subordinates—even those in the decidedly anti-Goethals faction in the Canal Zone—until the construction was complete. However much he was tempted to do so, he did not lobby for the relief of Sibert, Gaillard, or Gorgas until he began to make plans for the post-construction organization of the Canal Zone, when the remaining work would no longer justify their positions. In fact, he intervened in 1908 and persuaded then-Secretary of War Taft to avoid relieving either Sibert or Gaillard in order to make room on the commission for the newly-designated head of the ICC Quartermaster Department, Major C.A. Devol. According to Goethals, “Such a course would have discredited the officer suggested for relief by the secretary, and this I wished to avoid.”⁸⁵ Similarly, “the question of getting rid of Gorgas,” according to Pacific Division Engineer Williamson, “never entered Goethals’ head.”⁸⁶

Goethals's professional and personal relationships with his principal subordinates in the Canal Zone were not all fraught with such tension. Williamson remained a friend to and defender of Goethals for the rest of his life. Harry F. Hodges and his naval counterpart in the Canal Zone, Rear Admiral H.H. Rousseau, remained close and eventually served as honorary pallbearers at Goethals's funeral.⁸⁷ And Robert E. Wood admired the man he had described as a

⁸⁴ George W. Goethals to Jacob M. Dickinson, April 2, 1910, Container 10, George W. Goethals Papers, LC; George W. Goethals to Lindley M. Garrison, May 15, 1913, Container 20, George W. Goethals Papers, LC; Katherine Gaillard to Pierre Gaillard, September 19 [no year listed—presumably 1912], Folder 90, David D. Gaillard Papers, USACE.

⁸⁵ Goethals, “The Building of the Panama Canal: Organization of the Force,” 543.

⁸⁶ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 43.

⁸⁷ “Goethals Buried Beside the Hudson,” *New York Times*, January 25, 1928.

tough and demanding boss, remarking almost fifty years after the canal's opening that Goethals's "iron will and energy were responsible for driving the work to conclusion in record time."⁸⁸

Wood's view was shared by many of the rank-and-file workers in the Canal Zone. For Goethals, the problem of management in the Canal Zone extended beyond the principal subordinates to whom he delegated various aspects of the work. In addition to managing his deputies, Goethals devoted considerable time and energy to managing the entire workforce. Although he recognized this as one of his two most significant managerial problems, Goethals had no consistent example from the managerial revolution to guide his approach to managing the workforce. Some civilian executives were strict disciplinarians, either out of an obsession with efficiency rooted in a belief that maximum efficiency led to maximum profits, or because new technologies demanded firm discipline in order to minimize accidents and stoppages of work. Others were more benevolent, focusing more intently on workers' morale out of a belief that a content workforce was more productive, and therefore was good for business.⁸⁹ Goethals was more inclined toward the morale-centric approach. He firmly believed that "contentment leads to efficiency," and that "the best results are secured through co-operation of men who are contented and who have respect for and confidence in their leader."⁹⁰ But as his inclusion of "respect for and confidence in their leader" vaguely suggests, Goethals saw value in the disciplinarian approach as well.

⁸⁸ Wood, *Monument for the World*, 34.

⁸⁹ An excellent, though brief, overview of the general state of labor management during the managerial revolution can be found in Perrow, *Organizing America*, 173-175. Perrow characterizes labor policies at that time to have been "in most respects inadvertent." His conclusions are largely based upon and well supported by Walter Licht, *Working for the Railroad: The Organization of Work in the Nineteenth Century* (Princeton, NJ: Princeton University Press, 1983).

⁹⁰ Goethals, "The Building of the Panama Canal: The Human Element in Administration," 724 and 734.

The common theme in these two distinct approaches to labor management is that they were informed by perceptions of what was best for business. Similarly, Goethals subordinated all other concerns to the completion of the canal, and it informed his approach to labor management. He alternated between being a stern disciplinarian wielding absolute power and authority in the Canal Zone, and being a conscientious steward of workers' morale as he felt the good of the canal required. At his core, Goethals firmly believed that "everything should be subordinated to the construction of the canal." More than anything else, that singular notion informed his management of labor in the Canal Zone.⁹¹

The workforce under Goethals's charge was enormous and diverse. When he arrived in 1907, it consisted of 29,446 employees of the ICC and the Panama Railroad Company. Just under nineteen percent of them came from the United States. Almost fifteen percent came from Europe, while the remainder—approximately two-thirds of the entire workforce—came from the West Indies.⁹² Three years later, in March 1910, the workforce in the Canal Zone included 38,676 employees of the ICC and the Panama Railroad Company, with roughly the same demographic composition.⁹³ Goethals quickly realized that in such a large and diverse

⁹¹ Quoted in Goethals, *Government of the Canal Zone*, 46. Unquestionably, Julie Greene has done the best work on labor in the Canal Zone. See especially Greene, *The Canal Builders*; Julie Greene, "Spaniards on the Silver Roll: Liminality and Labor Troubles in the Panama Canal Zone, 1904-1914," *International Labor and Working-Class History* 66 (Fall 2004): 78-98; and Julie Greene, "Movable Empire: Labor, Migration, and U.S. Global Power," *Journal of the Gilded Age and Progressive Era* 15, no. 1 (January 2016): 4-20. Greene, however, views racism, patriarchy, and imperialism as the major elements that influenced Goethals's management of labor. I disagree. While Goethals's views on race and the imperial context of the Panama Canal certainly influenced his thinking and actions to some degree, these factors bore considerably less influence on his approach to labor than his overriding concern for completing the canal.

⁹² *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1907*, 139. All figures taken from the June 30, 1907 data.

⁹³ Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1910*, 61st Cong., 3rd sess., 1910, House Document No. 1030 (Washington, DC: Government Printing Office, 1910), 313. Figures taken from the March 1910 data. While complete demographic data is not provided in this report, I have extrapolated from the data provided in the table for the gold and silver roles, and for the regions of

workforce was an equally diverse set of cultures, norms, and expectations of how the work should be conducted and how labor should be managed. He wrote in 1915 that the presence of “40,000 men gathered from all parts of the world” in the Canal Zone, “many miles from home and away from the ties and associations which have more or less guided and restrained them,” made the “human element” of his job “charged with uncertainties and difficulties.”⁹⁴ To Goethals, managing the workforce as significant and complicated as the technical aspects of canal construction.

Goethals believed that the first step to managing the workforce was to assert his authority decisively. He chose to do so over the issue of unions on the isthmus. In March 1907, Goethals arrived in Panama in the midst of an ongoing labor dispute over wages for steam shovel and locomotive engineers and conductors. In order to strengthen their negotiating position, these men pressed their demands through their union leadership. The International Brotherhood of Steam-Shovel and Dredge Men took the issue straight to the White House in January 1907. When President Roosevelt referred the matter to the ICC, the local chapters of the unions representing steam shovel and locomotive engineers and conductors in the Canal Zone took up the issue with John Stevens. While Stevens offered to meet a few of their demands, the deal he offered fell far short of their expectations. Still unsatisfied, they formed a committee to approach Goethals, who refused to take any action on the grounds that the International Brotherhood of

origin for the 15,045 employees enumerated as “laborers” to conclude the demographics in March 1910 closely approximated the demographics in June 1907.

⁹⁴ Goethals, “The Building of the Panama Canal: The Human Element in Administration,” 724.

Steam-Shovel and Dredge Men had already brought the matter directly to the Roosevelt administration, thus requiring a decision from Secretary of War Taft.⁹⁵

News of Taft's decision arrived on the isthmus on May 6, 1907. Based on changes to the average wages in the United States, Taft agreed to raises for both the locomotive engineers and conductors, but refused all of the steam shovel crews' demands. Furthermore, Taft decreed that future labor disputes would be addressed to and adjudicated by Isthmian Canal Commission officials in the Canal Zone. Goethals applauded the decision, writing that "so long as recourse could be had to the authorities in Washington, it would be useless to attempt an adjustment with a view to prompt settlement unless the men were given what they demanded, for, if denied, they would immediately take it to Washington." Taft's decision bolstered his ability to manage the workforce, not only avoiding a repetition of the labor dispute with the steam shovel and locomotive engineers and conductors, but also "materially strengthening the hands of the isthmus authorities."⁹⁶

Goethals wasted no time in leveraging his newly-strengthened position. The steam shovel crews were particularly displeased with Taft's decision and decided to escalate the situation. Union leaders planned to force the issue through mass resignations. Assuming that their services were too important to the construction effort, the steam union leaders reasoned that the threat of mass resignations would move the ICC to meet their demands. Most crews adhered

⁹⁵ George W. Goethals, "The Building of the Panama Canal: Labor Problems Connected with the Work," *Scribner's Magazine*, LVII (April 1915), 398-401. See also George W. Goethals to "Toodles" [George R. Goethals], April 4, 1907. Roosevelt delegated supervision of the ICC to the Secretary of War. Throughout the construction period, most executive actions related to the Panama Canal came from the Secretary of War's office

⁹⁶ Goethals, "The Building of the Panama Canal: Labor Problems Connected with the Work," 411.

to the plan. As Goethals recalled, “out of a total of forty-eight steam-shovels that had been at work, in two days’ time only thirteen shovels were left with crews.”

To the surprise of his disaffected crews, Goethals refused to negotiate and allowed them to leave the isthmus. He filled many of the vacancies on the steam shovels with mechanics and junior clerks who had listed some amount of previous mechanical training on their employment records. Having given the equivalent of promotions and pay raises to the replacement steam shovel crews, and with the locomotive engineers and conductors having received part of the increase in wages they had demanded, Goethals created a situation in which “the sentiment was against the steam-shovel men.” He assessed that “the disturbance affected the work and reduced the output for the time being, but the action taken had a wholesome effect on all classes of employees, for the steam-shovel crews had appeared to be indispensable, yet the outcome showed conclusively that the defection by them or any other one class of men would not tie up the whole work.”⁹⁷ He put it more bluntly in a letter home shortly after the ordeal, reporting that the resolution of the issue left the workforce “so tame that they now meekly eat out of our hands,” and that “the men have learned that it doesn’t pay to bluff.”⁹⁸

After the dust settled, a committee of locomotive engineers and conductors requested a meeting with Goethals. They hoped to persuade Goethals to sign a written agreement guaranteeing them not only the concessions which Taft had granted them, but also the right to collectively represent any individual engineer or conductor with grievances in the future. Goethals refused. He chose to make a stand on this issue not to challenge Taft or Roosevelt, but

⁹⁷ Goethals, “The Building of the Panama Canal: Labor Problems Connected with the Work,” 412.

⁹⁸ George W. Goethals to “Toodles,” [George R. Goethals] May 25, 1907, Container 3, George W. Goethals Papers, LC.

to keep unions out of the Canal Zone and strengthen his own authority in resolving future labor grievances. Goethals told the committee that their proposed agreement was not “in accord with government practice, and the Canal, as government work, so far as concerned the various classes of employees, was an ‘open shop.’”

He also curtly informed the committee that “it was ill-advised to make *demands*,” and “thereafter none would be given any consideration.” Making what he considered to be the all-important distinction, he explained that “requests, if properly made, would be received and acted on according to their merits.” Finally, he “declined to take up with any committee a grievance of any individual of the order that it represented, for the best party to present it and with whom to discuss it was the person aggrieved.” He promised the committee that any member of the workforce could raise any grievance to their immediate supervisor—and if that failed to bring a resolution that satisfied the aggrieved worker, he could then see Goethals about it, confident that the matter would be investigated and adjudicated if the investigation showed that the complaint had merit.⁹⁹

Through these early decisions and actions, Goethals successfully strengthened his authority and ability to manage the workforce. By keeping unions out of the Canal Zone and rejecting collective bargaining, Goethals simultaneously removed the mechanism by which Zone-wide strikes could occur, and averted subsequent incidents in which local chapters could appeal over his head by pushing national and international trade unions to lobby the White House directly. Perhaps most importantly, by denying individual workers any recourse other than appealing directly to him to resolve labor disputes, Goethals exponentially increased his

⁹⁹ All quotations in this and the previous paragraph are from Goethals, “The Building of the Panama Canal: Labor Problems Connected with the Work,” 413. Italics are in the original.

influence over the workforce by maximizing both his contact with individual workers and the extent to which workers felt he was invested in them personally. In this way, the policy increased not only Goethals's authority, but also the morale of the workforce, which appreciated the quick access to the ultimate authority in the Canal Zone the policy promised in the event of labor disputes and grievances.

Goethals consistently strove to maintain his authority, which he considered to be critically important to the construction effort. When Taft, as President-elect in 1909, ordered him to adjust his stance on unions and "receive committees," Goethals persuaded Taft to modify the order. Taft's revised directive mandated that Goethals permit collective representation for collective issues affecting any "class of labor," but granted him the authority to refuse collective representation for any individual worker.¹⁰⁰ Subsequently, there were few large-scale labor disputes in the Canal Zone, and those that did arise failed to effect the work substantially.

Although discouraging collective bargaining played a significant role in the relative absence of major labor disputes in the Canal Zone between 1907 and 1914, a more important factor was the well-publicized campaign to improve and sustain the morale of his workforce. This is certainly not to say that the ICC rank and file worked in an idyllic paradise. Most toiled for little pay in extraordinarily austere conditions, and all were subjected to a hostile disease environment. As Gorgas's efforts bore fruit, deaths from disease decreased. However, as improving sanitary conditions allowed more attention to be paid to excavation, deaths from preventable accidents increased dramatically. But at no point did an exodus of labor occur as it did during the yellow fever epidemic in 1904-1905. In fact, so much of the workforce opted to

¹⁰⁰ This is recounted in Goethals, "The Building of the Panama Canal: Labor Problems Connected with the Work," 415-416.

remain on the job that Goethals's labor agents had to suspend recruiting unskilled laborers in 1910. Despite glaring injustices in the pay and privileges afforded to different groups of workers—particularly nonwhites—the workforce remained generally content and committed to building the canal.¹⁰¹

Although the vast majority of the workers who built the Panama Canal were people of color, racial discrimination was rampant in the Canal Zone. From the beginning of the American construction period, attitudes and perceptions about race shaped ICC labor policies to an incredible extent. Aware of the comparatively high wages in the United States, canal officials made a deliberate decision to fill nearly all of its unskilled labor force, which was by far the most sizable class of work on the isthmus, with foreign workers. Pseudo-scientific theories about the work ethic, strength, subservience, honesty, and relative immunity to tropical diseases of various races and ethnicities informed officials' decisions on where and whom to recruit to build the canal. During his tenure as Chief Engineer, John Stevens was frustrated that he failed to convince officials to send Chinese laborers, whom he believed were highly efficient workers and immune to all tropical diseases. While he had immediate access to a pool of willing West Indian laborers, he was unable to reconcile his prejudices and accept them. In fact, he wrote that it was “useless to think of building the Panama Canal with native West Indian labor,” and did not

¹⁰¹ *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1910*, 37. The next year's report notes, “The past year has been the first since the inception of the work that no contract laborers were brought to the Isthmus.” See Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1911*, 62nd Cong., 2nd sess., 1911, House Document No. 162 (Washington, DC: Government Printing Office, 1911), 42. While the ICC felt that it was necessary to recruit 941 Barbadians later in 1911, it found that it had surplus laborers in mid-1912, and allowed the United Fruit Company to contract 1,339 ICC laborers for work in Guatemala—see *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1912*, 50. A last round of recruiting took place in December 1912 to reinforce the workforce for the final phase of construction—see *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1913*, 54.

“believe the average West Indian nigger is more than equivalent to one-third of an ordinary white northern laborer.”¹⁰²

Stevens’s prejudices influenced the racialization of the silver and gold system—the hallmark of structural and officially-sanctioned discrimination in the Canal Zone.¹⁰³ “Silver” and “gold” referred to the ICC’s two payrolls: the gold roll and the silver roll. The distinction between the two was implied by their terms. Gold roll employees were paid in American gold currency. Silver roll employees were paid in local silver currency. Originally, a laborer’s classification was determined by the distinction between skilled and unskilled labor, with the former filling the gold roll and the latter relegated to the silver roll. Although the most of those listed on the gold roll were white Americans or Europeans, nearly a thousand West Indians were classified as skilled laborers and were listed on the gold roll.¹⁰⁴

Stevens, however, brought Jim Crow laws to the Canal Zone. As he built housing, hospitals, hotels, and kitchens to prepare the Zone for construction, Stevens wanted to avoid racial intermingling. Accordingly, the distinction between the gold and silver rolls was gradually racialized, with “gold” becoming a euphemism for white Americans and northern Europeans, and “silver” becoming a euphemism for workers of color. Those familiar with the means and modes of segregation in the United States in the late-nineteenth and early-twentieth centuries felt quite at home with the implications of separate commissary entrances labeled “gold” and

¹⁰² See Parker, *Panama Fever*, 337-338—quotation on the latter page.

¹⁰³ Once again, Julie Greene has produced the best work on the Gold Roll and Silver Roll at the Panama Canal. See especially Greene, *The Canal Builders*. Matthew Parker’s treatment is also particularly illuminating in Parker, *Panama Fever*.

¹⁰⁴ Parker, *Panama Fever*, 382-383. See also Goethals, “The Building of the Panama Canal: The Human Element in Administration,” 721-722.

“silver,” gold-only hotels, and silver-only kitchens.¹⁰⁵ One astute observer noted that through the silver and gold system, “the I.C.C. has very dexterously dodged the necessity of lining the Zone with the offensive signs ‘Black’ and ‘White.’”¹⁰⁶

Goethals inherited this system from Stevens, and did nothing at all to change it during his tenure. He convinced himself that the silver and gold system continued to be defined by class of labor and not by color. He maintained that position even after construction was complete, going so far as to say that the silver and gold system “was found not only convenient but politic, since it avoided all reference to the color line.” This was no mere rhetoric; Goethals genuinely believed that the silver and gold system was colorblind. He even made some attempts to enforce distinctions along classes of labor rather than color, going so far as to reprimand commissary clerks who clearly treated African Americans differently than white Americans. But while he would from time to time address the grievances of individuals who had been discriminated against because of their race, he neither took steps to repair a system that enshrined inequality and segregation in the Canal Zone, nor recognized that the system was consciously designed to preserve inequality and segregation.¹⁰⁷

Goethals’s cognitive dissonance on this issue was rooted in racism. Longtime friend and colleague Sydney B. Williamson, who was profoundly racist himself, accurately described

¹⁰⁵ See Greene, *The Canal Builders*, 62-69 and Parker, *Panama Fever*, 383. Definitive evidence of the racialization of the gold and silver rolls may be found in Executive Secretary to Tom M. Cooke, February 15, 1907, File 02-C-55, Box 12, Entry 30, RG 185, NARA II. The former states, “In accordance with instructions from the Chief Engineer such colored employees as are now paid on the gold rolls are to be transferred to the silver rolls, paying them the equivalent in silver to what they were drawing in gold.”

¹⁰⁶ Harry A. Franck, *Zone Policeman* 88 (New York: The Century Co., 1913), 29.

¹⁰⁷ See, for example, George W. Goethals to Henry A. Hart and John Thomas, March 18, 1910 and George W. Goethals to John Price, March 19, 1910, File 02-C-55, Box 12, Entry 30, RG 185, NARA II. See also Goethals, “The Building of the Panama Canal: Labor Problems Connected to the Work,” 395-396.

George Goethals as “a man of strong prejudices.”¹⁰⁸ Evidence of such prejudices is readily apparent in surviving correspondence from various stages in his career. In 1877, he exchanged letters with a friend in which he referred to Cadet Johnson C. Whittaker—an African American member of Goethals’s class who was brutally assaulted two months before graduation in 1880 and, in one of West Point’s worst chapters, subsequently expelled under false charges of feigning the entire incident—as “the Darkey.” In addition to the label, Goethals wrote to a friend and to applaud an incident in which a fellow cadet had assaulted Whittaker prior to a formation, and reported that he and his colleagues were watching Whittaker’s progress in mathematics, rooting for him to fail and be dismissed by the academic board.¹⁰⁹

His views did not temper over time. In response to the army’s decision to station an all-black cavalry detachment at West Point in 1907, Goethals wrote to his son, “I am sorry that they have sent the negro troopers to West Point.” He explained, “I can appreciate the feeling of the Southerners on that score, and the powers that be ought to have considered that point.”¹¹⁰ Later still, and despite their vitally important contributions as the vast majority of his workforce in Panama, Goethals publicly claimed that “West Indian laborers were never entirely satisfactory.” Goethals recalled, “Their standard of living is low, and as a class they are sluggish and lack vitality; but their efficiency was increased by introducing competition through the European

¹⁰⁸ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 42. In the original, the term “prejudices” is spelled “preducies.” Williamson’s own racial prejudices are apparent throughout the manuscript, especially on pages 29 and 37.

¹⁰⁹ George W. Goethals to “Friend Hank,” April 28 and May 19, 1877, George W. Goethals Files, USMA. For more on the Whittaker incident, see Donald B. Connelly, *John M. Schofield and the Politics of Generalship* (Chapel Hill, NC: University of North Carolina Press, 2006), 261-268.

¹¹⁰ GWG to “Toodles” [George R. Goethals], April 4, 1907, Container 3, Goethals Papers, LC.

laborer, by supplying them with proper food, by training, and by familiarizing American foreman with their peculiarities.”¹¹¹

In his racism, Goethals was unexceptional for his time. Where he was exceptional, however, was in his capacity to move beyond deeply-held racial prejudices to deal fairly on an individual basis with those against whom he was prejudiced. As with his racism, this was a trait that Goethals carried throughout his career after his cadet years at West Point. Later, his ability to deal fairly on an individual basis without regard to his prejudices was a hallmark of his tenure in Panama, and was one of the most significant factors in his ability to keep the canal workforce content and stable enough to finish the canal.

Goethals demonstrated it most clearly by intervening in Cadet Charles Young’s case at the West Point in 1889 while serving as an instructor in the Department of Civil and Mechanical Engineering. Never gifted in the technical subjects, Young finished the first semester of his final year at West Point ranked 48th out of 49 in civil and military engineering, which was taught by then-Captain George W. Goethals. He continued to struggle in Goethals’s class. In the spring examinations at the end of his final semester, Goethals declared him deficient in engineering, endangering Young’s ability to graduate and receive a commission. In its initial deliberations in June 1889, the Academic Board reviewed Young’s files, found him deficient in engineering and recommended him for dismissal. At that moment, Goethals’s “sympathy was aroused.”¹¹²

¹¹¹ Goethals, “The Building of the Panama Canal: Labor Problems Connected with the Work,” 397.

¹¹² Quotation from George W. Goethals to Ada M. Young, May 8, 1922, printed in Patricia W. Romero, ed., *I Too Am America: Documents from 1619 to the Present* (Cornwells Heights, PA: The Publisher’s Agency, Inc., 1978), 190. Writing to Young’s widow after his death in 1922, Goethals described the events of May-August 1885 in a somewhat detached manner: “I regret to state that I know little of Colonel Young’s career at West Point outside of the Section Room in Civil and Military Engineering. He had considerable difficulty with the course and was deficient in it . . . I was leaving West Point, intending to remain there during the summer; my sympathies were aroused, and I offered to give him a certain amount of time daily in order to assist him in preparation for the

He intervened and prevailed upon the board to grant Cadet Young a reprieve to study further and face re-examination prior to September 1, 1889. While preparing to leave West Point at the end of the summer for his next assignment, Goethals set aside one or two hours every day for the entire summer to tutor Young and assist him in preparing for his re-examination. Two days after Goethals left West Point, Young passed the examination and was awarded a commission as a second lieutenant of cavalry, the last cadet in the class of 1889 to graduate—and also last African American to graduate from West Point until Benjamin O. Davis, Jr. graduated with the class of 1936.¹¹³ Young was profoundly grateful for Goethals's efforts. He would proclaim in later years that he could never forget “the disinterested help of . . . General Goethals.” Thinking about those who treated him well during his cadet years, Young went on to say that “the world is better and only worth living perhaps, because it has its Skerretts, Bethels, Goethals, Gordons, Barnums, Haans, and Langhorns with the others of that stripe.”¹¹⁴

Goethals made a point of offering both access and similar “disinterested help” to workers of all races in Panama. In his weekly routine, he set aside five hours on Sunday mornings to hear their complaints and grievances. Frequently, he launched formal investigations to determine the validity of what he heard, and took swift and decisive action when his investigators determined that a worker had been wronged. “Sunday court,” as it came to be known, attracted so many visitors that in order to allow all to be seen, Goethals had to devise a system in which “gold”

examination which he was to take the last of August. This I did and subsequently learned that he successfully passed it.” See also the entry on June 8, 1889 in Private Notebook, Secretary of the Academic Board, “Extracts from the Proceedings of the Academic Board Private Sessions,” 1880-1908, USMA; and Brian G. Shellum, *Black Cadet in a White Bastion: Charles Young at West Point* (Lincoln, NE: Bison Books, 2006), 116 and 123-125

¹¹³ Theodore J. Crackel, *West Point: A Bicentennial History* (Lawrence, KS: University Press of Kansas, 2002), 147-149; Shellum, *Black Cadet in a White Bastion*, 125-128; and “Official Register of the Officers and Cadets of the U.S. Military Academy, West Point, N.Y., June, 1889,” Official Registers of Officers and Cadets, USMA, 11.

¹¹⁴ Charles Young to Delamere Skerrett, July 13, 1915, reprinted in Shellum, *Black Cadet in a White Bastion*, 131-132.

employees could go straight to Goethals's office and "silver" employees only reached Goethals if they first met with his secretary or chief clerk and remained unsatisfied after that meeting. Despite this extra hurdle, nonwhite workers regularly got through to air their grievances to Goethals, who proved just as willing to investigate their claims and redress legitimate grievances as he was with white American workers. That Goethals accommodated such diverse groups in his Sunday morning sessions stood out as worthy of notice and commentary to his admirers and critics alike.¹¹⁵

Some of Goethals's contemporaries ascribed his commitment to holding court every Sunday that he was on the isthmus to a strong sense of fairness. Pacific Division Engineer Sydney B. Williamson insisted that Goethals was "absolutely fair in his dealings with his organization from the highest to the lowest laborer on the work."¹¹⁶ While Goethals prided himself on treating his workers fairly, he would not have agreed that this was the underlying motivation for his Sunday routine. Although he did have a strong sense of and commitment to

¹¹⁵ Goethals described "Sunday court" in Goethals, "The Building of the Panama Canal: The Human Element in Administration," 725-728. Some interesting and unvarnished records of investigations resulting from Sunday mornings and other encounters with employees can be found in Box 1 of the T.B. Miskimon Papers at the Booth Family Center for Special Collections, Georgetown University Library, Washington, DC. Journalist Albert Edwards described one such Sunday morning in which "the first callers were a Negro couple from Jamaica" arguing about money, after which "came a Spanish laborer who had been maimed in an accident," who was followed, respectively, by a man who had been recently fired, a committee of machinists, a nurse, a foreman, and then an African American laborer before there have been so many visitors that Edwards stopped taking note of individual cases. "It is as remarkable a sight as I have ever seen to watch him at it," Edwards wrote, explaining that Goethals was "a good listener until he is quite sure he has got to the nubbin of the matter, and then, like a flash, the decision is made and given." See Albert Edwards, "The Boss of the Job," *The Outlook*, June 24, 1911. A similarly glowing report can be found in Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper and Brothers, 1930), 241-249. While I avoid relying too heavily on this source due to its extreme bias that borders upon hero-worship, it can be given some weight on this issue as Joseph Bucklin Bishop was a regular observer of "Sunday court" sessions as a member of the ICC. Marie Gorgas, however, saw Goethals's Sunday routine as an exercise in paternalism carried out by a "Venetian doge" and a "patriarchal despot." See Gorgas and Hendrick, *William Crawford Gorgas*, 218-219. Given the preponderance of assessments that disagree with hers, it is safe to assume that her view was heavily influenced by the personal animosity she felt toward Goethals for what she perceived to be the wrongful treatment of her husband, William C. Gorgas.

¹¹⁶ Sydney B. Williamson, Untitled Manuscript, January 16, 1934, Box 1, Folder 2, Sydney B. Williamson Papers, VMI, 42-43.

fairness when dealing with people on an individual basis—the quality that allowed him to move beyond his racial prejudices in one-on-one interactions—his Sunday morning sessions were motivated more by his interpretation of the relationship between the morale of the workforce and workers’ efficiency than by any sense of empathy for his workers. According to Goethals, conditions in Panama “were not conducive to contentment; on the whole, a general clearing-house became an important factor in the common desire to secure harmony, and the ‘Sunday court,’ which seems to have attracted attention, was established more for this purpose than with the idea of meting out justice.”¹¹⁷

The relationship between workers’ morale and efficiency informed all of the actions Goethals took on behalf of the workforce. “That contentment leads to efficiency was fully recognized at the beginning of the enterprise,” he wrote in 1915, “and had resulted in the adoption of a broad, generous, and what seemed to me a very wise policy in regard to the force.” That belief influenced Goethals’s decisions to improve housing, improve the quality of food served to the workforce, and open Y.M.C.A. clubhouses in all of the ICC towns along the line of the canal. It even inspired the establishment of a baseball league in the Canal Zone that became so popular and competitive that Goethals at one point had to launch an investigation to find out if various divisions and departments were giving temporary contracts to professional baseball players during their offseason in order to gain a competitive advantage. Goethals’s concern for and actions on behalf of the morale of the workforce extended to workers’ families as well. “If Mrs. Smith were dissatisfied,” he explained, “Mr. Smith was apt to be dissatisfied also, with a consequent loss of interest in his work and lack of efficiency.” Going further, Goethals wrote

¹¹⁷ Goethals, “The Building of the Panama Canal: The Human Element in Administration,” 725-726.

that “if these little grievances and dissatisfactions had been allowed to smoulder, they would have spread and become general throughout the force, seriously affecting the whole human machine.”¹¹⁸

Goethals succeeded in sustaining the morale of his workforce, though not necessarily in the ways that he had intended. Most of his efforts to improve workers’ morale in order to generate a stable and efficient workforce were directed at the gold workers. His housing initiatives were generally limited to gold towns—silver workers and families lived in barracks, dormitories, or ramshackle settlements along the line of the canal. The Y.M.C.A. clubhouses that were established throughout the Canal Zone were gold establishments. And while silver workers could watch baseball games put on by the Canal Zone’s league, they could not play. Yet, although it was generally efficient, the gold force was never stable, constantly subject to high turnover as its workers grew restless or homesick and left the isthmus. The silver force, however, proved far more stable.¹¹⁹

This indicates that of all the actions Goethals took on behalf of workers’ morale, his “Sunday court” and his accessibility to workers as he made his rounds along the canal were the most effective. Of all the initiatives he launched for the benefit of workers’ morale, his Sunday morning sessions certainly were the most colorblind, and the most applicable to the entire workforce. Much celebrated during the construction period, and long remembered afterwards,

¹¹⁸ See Goethals, “The Building of the Panama Canal: The Human Element in Administration,” 724-734. Quotation on page 727.

¹¹⁹ The comparative stability of the two sides of the workforce is well documented in the annual reports of the ICC. See especially *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1910*, 37; *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1911*, 42; *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1912*, 50; and *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1913*, 54. All of these document relative stability in the “silver” force and explicitly characterize the “gold” force as unstable due to high personnel turnover.

“Sunday court” was immensely popular with canal workers, among whom a song called “Tell the Colonel” had become popular by 1911. “Don’t hesitate to state your case, the boss will here you through;” the third stanza began, “it’s true he’s sometimes busy, and has other things to do, but come on Sunday morning, and line up with the rest—you’ll maybe feel some better with that grievance off your chest.”¹²⁰

Ultimately, Goethals’s belief “the canal would be built if the men could be managed” was correct. His management of the work on the Isthmus—improving the organization of the work, managing his principal subordinates, and managing the workforce—was an absolute success. In his first year on the job, Goethals pushed the Isthmian Canal Commission to excavate an amount of material that tripled what had been excavated previously between 1904 and 1907. The output of Goethals’s organization only became more impressive over time. Under his leadership, the Panama Canal opened to commercial traffic in August 1914—a result that was very much in doubt when Goethals arrived on the isthmus in 1907.¹²¹

His management of the work on the isthmus reflected popular contemporary managerial practices in corporate America, and what American society at the time celebrated as “scientific management.” Like the major railroads of the mid- and late-nineteenth century, Goethals organized his major engineering divisions geographically. Like the large multidivisional corporations that succeeded the railroads as the largest private enterprises in the United States in

¹²⁰ Albert Edwards, “The Boss of the Job,” *The Outlook*, June 24, 1911, 395.

¹²¹ Quotation from Samuel Crowther, “Don’t Fear to Attempt a Thing Just Because it Looks Big,” *American Magazine*, January 1922, 92. On excavation, 8,076,327 cubic yards were excavated between 1904 and 1907. 24,792,703 cubic yards of material were excavated between July 1, 1907 and June 30, 1908. See *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1907*, 39; and Isthmian Canal Commission, *Annual Report of the Isthmian Canal Commission for the Fiscal Year Ended June 30, 1908*, 60th Cong., 2nd sess., 1908, House Document No. 1054 (Washington, DC: Government Printing Office, 1908), 35.

the late-nineteenth century, Goethals organized supporting engineering, medical, administrative, and logistical departments and divisions along functional lines.

Just as executives ran their corporations, Goethals delegated considerable authority to subordinates he selected to lead departments and divisions, while at the same time closely monitoring their progress. He maintained firm control over the general direction of the entire project, and retained enough power to be the final arbiter of major decisions in order to keep all divisions and departments functioning coherently and cohesively along schedules and plans he established or approved. With the work organized in that manner and a system in place that simultaneously facilitated centralized control and decentralized operations, Goethals focused on supervising his principal subordinates and maintaining the morale of his workforce in the hopes of maximizing its efficiency. Such managerial principles were not new to Goethals. He had applied them to a more limited extent at Florence, Alabama from 1891-1894, and instinctively returned to them when confronted with similar problems on a much larger scale.

Goethals's embrace of the managerial revolution was by no means unusual in the military during the Progressive Era. His leadership and style of management in Panama were widely applauded throughout the army, not just the Corps of Engineers. In personal letters received in a two-month span in 1910 alone—four years before the canal was completed—Goethals received high praise from a general commanding a division in the Philippines, the U.S. Army Quartermaster General, two majors of cavalry, and the general then serving as the president of the U.S. Army War College. Anti-reform stalwart Nelson A. Miles expressed similar sentiments

as early as 1908, suggesting that even those officers who most actively resisted the Root Reforms saw merit in new managerial theories and techniques.¹²²

Furthermore, army officers revealed an increasing investment in the managerial revolution by using its language in a military context and advocating for its methods in professional military journals during the early-twentieth century. Brigadier General Robert K. Evans argued that the army needed to adopt more “businesslike” recruiting practices in the *Infantry Journal* in 1911.¹²³ A year earlier, another infantryman described the armies of the great powers as “huge machines” which had rendered war “a scientific affair” that could only be managed efficiently by professional soldiers.¹²⁴ It is significant that such thoughts and language appear in works produced by line officers. The army’s acceptance of the managerial revolution was not limited to the Corps of Engineers, whose mission necessarily involved frequent contact and cooperation with American industry. The influence of the managerial revolution upon the army was much broader and cannot be ascribed to one branch alone.

Embracing the managerial revolution was the first stage of a gradual process that would eventually realign the army’s institutional culture with its institutional structures, ultimately fulfilling the promise of the Root reforms. Subscribing to contemporary managerial theories allowed the officer corps to accept the notion of a general staff—even if it could not agree on the form and function of the General Staff as established in the General Staff Act of 1903. Most

¹²² J.B. Aleshire to George W. Goethals, March 1, 1910, Container 9, Goethals Papers, LC; W.P. Duvall to George W. Goethals, February 7, 1910, Container 9, George W. Goethals Papers, LC; Daniel L. Tate to George W. Goethals, March 19, 1910, Container 10, George W. Goethals Papers, LC; J.W. Watson to George W. Goethals, Container 10, George W. Goethals Papers, LC; W.W. Wotherspoon to George W. Goethals, April 18, 1910; Nelson A. Miles to George W. Goethals, March 11, 1908, Container 7, George W. Goethals Papers, LC.

¹²³ Robert K. Evans, “National Enlistment,” *Infantry Journal* VIII (July-August 1911): 4.

¹²⁴ Lieutenant Colonel Collin H. Hall, “War and Public Opinion,” *Infantry Journal* VII (July 1910): 823-827. Quotations on pages 824 and 826

importantly, the managerial revolution provided the U.S. Army with an effective theoretical framework to conceptualize and resolve many of its systemic weaknesses and failures that the first year of the American intervention in the First World War revealed.

CHAPTER 5
Crisis:
1917 and the Origins of Cultural Change

In his room at the Hotel Astor on the night of May 11, 1917, George W. Goethals attempted to exorcise a gloomy mood by writing a letter to his oldest son George. A trip to New York City should have allowed brief respite from his demanding and immensely frustrating work on the U.S. Emergency Fleet Corporation in Washington. But he had travelled north to see off to war his youngest son Tom, a Harvard-trained and Boston-based doctor who was also an officer in a reserve medical unit. In New York, he was surprised to discover that Tom was newly engaged to a young woman named Mary Webb, whom he had never met. She did not make a strong first impression—Goethals reported to George only that “she seems very quiet and I hope they will be happy together.” He was similarly succinct in describing his farewell to Tom. “I didn’t linger long,” he wrote; “[I] bade him goodbye and he’s off to England, enthusiastic over the prospect and the future.” The elder Goethals, however, while outwardly cavalier about his son’s opportunity for wartime service, was less enthusiastic. Something had unsettled him at the dock. Ruminating over what he saw of Tom’s unit, he wrote, “They are illy [sic] prepared and equipped and yet better so than some of the outfits that are going I guess.”¹

Goethals’s assessment was accurate. Despite Elihu Root’s series of reforms in the wake of the War Department’s scandalous performance in mobilizing for and managing the War with

¹ George W. Goethals to “Dody” [George R. Goethals], May 11, 1917, Box 4, George W. Goethals Papers, LC.

Spain, the U.S. Army's readiness for war in 1917 was only marginally better. The army's troubled mobilization to enter the First World War made this abundantly clear. Short of training camps, supplies, and ships, comparatively few American soldiers crossed the Atlantic in 1917. In fact, by April 1918—a full twelve months after declaring war—only 320,000 soldiers had been shipped overseas to join the American Expeditionary Forces (AEF). Among these, approximately 4,600 had engaged in combat on the Western Front. At that time, the Germans had approximately 1,569,000 riflemen fit for service on the Western Front. Opposing them, the Allies mustered 1,245,000 riflemen. By lending only 4,600 soldiers to front-line combat by the end of its first year of belligerency, the United States contributed only 0.37% of Allied combat power on the Western Front as the final major German offensives in the war were getting underway.²

Given such sparse numbers, it is difficult to conclude that the first year of the American war effort was particularly successful. Few contemporary observers thought so. In addition to being too small to bring significant forces to bear on the battlefield, the AEF at the beginning of 1918 was still reliant upon France and Britain for essential equipment like helmets and artillery pieces. Additionally, it was poorly trained and wedded to a tactical doctrine that blithely ignored many of the lessons learned by the Allies at great cost since 1914. Although both the AEF and the War Department proved to be learning organizations that were capable of resolving enough shortcomings to influence the course of the war in the latter half of 1918, their experience in 1917 was at best a long stumble into war.

² All data comes from official War Department statistics compiled in Leonard P. Ayres, *The War with Germany: A Statistical Summary*, 2nd edition (Washington, DC: Government Printing Office, 1919), on pages 15, 104, and 105, respectively.

There were three principal causes for that stumble. First, institutional dysfunction stemming from the schism between the U.S. Army's institutional structures and institutional culture in the wake of the Root reforms degraded the effect of those reforms and did considerable harm to the U.S. Army's ability to prepare for war, mobilize forces, and sustain them throughout a modern industrialized war. Second, and stemming from this dysfunction, Congressional politics rendered the General Staff insignificant and ineffective immediately before its first major test. Finally, and most significantly, President Woodrow Wilson failed to develop and communicate an effective grand strategy, despite having claimed strategic planning exclusively as his own prerogative. In short, conditions were ripe for a problematic mobilization for war.³

The army's shortcomings in 1917 served as a seminally important shock to its system. Although it did not identify all of its weaknesses and shortcomings, the army had, by the winter of 1917-1918, recognized that its war effort was in danger of failing. This was a frightening thought, given the state the Allies' prospects for 1918 after Russia withdrew from the war, allowing Germany to focus almost exclusively on the Western Front. Significantly, the points of failure in the American war effort that both army officers and the wider public identified and addressed were weaknesses in War Department organization and logistics. By its first winter, the AEF had not yet seen enough combat for flawed doctrine and training to surface. But inadequate stocks of war materiel, ill-supplied units and training camps, congestion on the

³ The best definition of grand strategy is offered by B.H. Liddell Hart: "While practically synonymous with the policy which guides the conduct of war, as distinct from the more fundamental policy which should govern its object, the term 'grand strategy' serves to bring out the sense of 'policy in execution.'" Grand strategy, then, "is to co-ordinate and direct all the resources of a nation, or band of nations, towards the attainment of the political object of the war—the goal defined by fundamental policy." See B.H. Liddell Hart, *Strategy*, 2nd revised edition (New York: Praeger, 1967), 335-336.

railroads, and a critical shortage of coal were failures that both soldiers and civilians could see and understand.

On an institutional level, the army perceived its own shortcomings to be failures of management. Because the managerial revolution was well infused into the army's institutional culture, War Department officials and army officers alike framed shortcomings and considered solutions in terms of prevailing theories and systems of management. From this perspective, and with the added weight of the prospect of failure and defeat in the First World War, key officers and officials finally realized that the army's systems and structures were wholly inefficient and inadequate for the complexities of modern industrial warfare. Thus, the American experience of war in 1917 created a crisis severe enough to shock the army to a degree that made possible the cultural shift needed to realign the army's institutional culture with its structures.

A significant cause of the army's lack of preparedness was more than a decade of institutional dysfunction related to the General Staff. During and after Root's tenure in the War Department, reformers failed decisively to influence not only the extremely powerful and well-connected chiefs of administrative and logistics bureaus, but also, more generally, Goethals's generation of officers. Although they acknowledged and accepted modern managerial theories and techniques, most officers from that generation continued to cling to their traditional systems and structures. Many would have preferred considerably more moderate reforms to the existing bureau system than to create a General Staff endowed with the power to synchronize and coordinate the efforts of the several bureaus. Consequently, Goethals and many of his peers—including some of those who, like Goethals, served on the General Staff in its earliest years—harbored attitudes about the General Staff that fell somewhere between apathy and contempt.

Under pressure from the bureau chiefs and their Congressional allies, and lacking clear support from the generation of officers that had risen to lead the officer corps, the General Staff in 1917 was a faint shadow of what Root had envisioned in 1903.⁴

Root vacated the office a year after passing the General Staff Act, leaving the War Department in the hands of William Howard Taft. Ever the amiable diplomat, Taft placed more value in consensus than decision and preferred to allow the Chief of Staff and the bureau chiefs to mold their own working relationships. Without firm backing from the Secretary of War, the General Staff could only exercise its planning and coordinating functions if the Chief of Staff could overcome the resistance of the bureau chiefs. None of the first three Chiefs of Staff overcame them. The fourth, Major General J. Franklin Bell, was much more willing to confront the bureaus, but still could not preserve the authority of the General Staff.⁵

In this power struggle, the pendulum swung briefly in favor of the General Staff during Major General Leonard Wood's tenure as Chief of Staff from 1910-1914. The bureau chiefs, led predominantly by Adjutant General Fred C. Ainsworth, vigorously reasserted their claims to power by resisting what they perceived to be Wood's encroachments upon their rightful prerogatives. Secretary of War Henry Stimson, a former law partner of Root, sided with the Chief of Staff in a much-publicized struggle over muster roll procedures in 1912 and forced Ainsworth's retirement under the threat of court martial for insubordination.

⁴ Daniel Beaver emphasizes continuity as well as change in the wake of the Root reforms—see Daniel R. Beaver, *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885-1920* (Kent, OH: Kent State University Press, 2006). This theme and an emphasis on change as a somewhat turbulent and incremental process are also readily apparent in J.P. Clark, *Preparing for War: The Emergence of the Modern U.S. Army, 1815-1917* (Cambridge, MA: Harvard University Press, 2017).

⁵See Clark, *Preparing for War*, 240-241.

Within the War Department, prospects for the new General Staff seemed promising. Ainsworth, however, proved to be as stubborn and energetic as Wood.⁶ Having been forced out of the War Department, he enlisted Congressional allies to continue his efforts to diminish the power of the Chief of Staff, and to sharply restrict the size and scope of the General Staff. Prompted by Ainsworth, the powerful Senate Armed Services Committee drafted legislation to protect the authority and independence of the bureau chiefs. Parts of the National Defense Act of 1916 constituted the apogee of attacks by the bureau chiefs and their allies in Congress. While the act authorized an increase to the total number of officers assigned to the General Staff Corps, it sharply limited the number of General Staff officers that could be assigned to duties in or near Washington, D.C.⁷

Institutional resistance to the General Staff envisioned by Root, however, was not limited to bureau chiefs and their Congressional patrons. Although officers of Goethals's generation generally agreed on the need for a general staff, they failed to achieve consensus on its form and place within the institution prior to the passage of the General Staff Act of 1903. The debate that played out in professional journals offered a wide range of options. Some officers had long advocated for a general staff corps similar to what Root's General Staff Act created.⁸ Many

⁶ James E. Hewes, Jr., *From Root to McNamara, Army Organization and Administration, 1900-1963* (Washington, DC: U.S. Army Center of Military History, 1975), 10-50; Otto Nelson, Jr., *National Security and the General Staff* (Washington, DC: Infantry Journal Press, 1946), 73-273; Russell F. Weigley, *History of the United States Army*, Enlarged edition (Bloomington, IN: Indiana University Press, 1984), 326-341; and Clark, *Preparing for War*, 241-244.

⁷ As a result of this legislation, only nineteen General Staff officers were assigned to the War Department in Washington, D.C. in the spring of 1917. Of these nineteen, only eleven were duty positions dedicated to shaping operational plans and coordinating mobilization efforts. By comparison, Germany and England went to war in 1914 with 650 and 232 officers assigned to their General Staffs, respectively. The National Defense Act of 1916 essentially gutted the General Staff, leaving it drastically undermanned at the beginning of its first major test. See Clark, *Preparing for War*, 253-254; Weigley, *History of the United States Army*, 350-353; Coffman, *The War to End all Wars*, 23-24.

⁸ T.A. Bingham, "The Prussian Great General Staff and What it Contains that is Practical from an American Standpoint," *Journal of the Military Service Institution of the United States* vol. 13, no. 58 (July 1892): 666-676.

thought that rather than create a new entity altogether, the War Department should simply modify the existing bureau system to assign general staff responsibilities to the Adjutant General Corps and the supply bureaus.⁹

The officer corps remained ambivalent about the new system even after the passage of the General Staff Act. The editors of the *Journal of the Military Service Institution of the United States* felt compelled to publish an editorial in the fall of 1903 to persuade a skeptical officer corps that the General Staff was compatible with army traditions and habits. “The general staff idea,” they wrote, “is not a suddenly discovered and flippant innovation, but a broadly conceived and wise business proposition worthy of the honest and fair minded support of all military men.” More tellingly, they argued that the new General Staff was not intended “to tear down the system which brought ultimate victory over the armies of the Confederacy, but to improve and render more elastic the methods which, during a long era of peace, had grown to be sufficiently unworkable to be distasteful to many of the general officers who have commanded troops in recent years.”¹⁰ As this editorial suggests, significant parts of the officer corps remained obstinately ambivalent about the new General Staff. In the absence of a zealous commitment to reform, officers’ perceptions, attitudes, and actions continued to be shaped above all by comfortably familiar traditions.

⁹ Henry T. Allen, “Proposed Reorganization for our Central Staff,” *Journal of the Military Service Institution of the United States* vol. 27, no. 106 (July 1900): 26-30; and Henry T. Allen, “The Organization of a Staff Best Adapted to the United States Army,” *Journal of the Military Service Institution of the United States* vol. 28, no. 110 (March 1901): 169-183. The popularity of this view can be inferred by the fact that the latter article earned first honorable mention in journal’s essay contest on the need for a general staff. The lack of consensus, however, can be inferred from the fact that the editors considered no entry worthy of first prize, and Allen’s first honorable mention was the highest award given.

¹⁰ Vaulx 8, “The Evolution of a General Staff,” *Journal of the Military Service Institution of the United States* vol. 33, no. 125 (September-October 1903): 200-206. Quotations on pages 206 and 200, respectively.

Consequently, officers of Goethals's generation often acted in a manner that undermined the General Staff in its early years. Aside from its stalwart partisans, many company and field grade officers did not look upon general staff duty as a particularly desirable professional experience. John J. Pershing recalled that the new General Staff "did not meet at once with the full favor of the army," and that some officers "especially took exception to what they called a usurpation of authority," on the part of the General Staff, "and in several instances they had reason for complaint." Neither did Pershing view the early General Staff as a particularly prestigious assignment. "The mere designation of members of the General Staff, including the chief," he opined, "is no guarantee of their infallibility; in fact, the first General Staff could have been duplicated several times over from the commissioned personnel of the army, to its improvement in several instances."¹¹

Although Pershing joined Goethals as one of the first officers assigned to the General Staff, Pershing fled as soon as possible to serve as an observer of the Russo-Japanese War, and never returned to General Staff duty until he became the Chief of Staff after the First World War. His skepticism of the new organization influenced his view of it for the rest of his career. From its inception through World War I, Pershing found fault with the General Staff's organization and operation, describing it as "too much the inarticulate instrument of the Chief of Staff, who often erroneously assumed the role of Commanding General of the Army."¹² Goethals's own attitude about and interactions with the General Staff had much in common with Pershing's. He

¹¹ John J. Pershing, *My Life Before the World War, 1860-1917*, ed. John T. Greenwood (Lexington, KY: University Press of Kentucky, 2013), 214. Pershing drafted this manuscript in the 1930s. His disdain for his time on the early General Staff is evident in the fact that he devoted only four paragraphs to the subject in a memoir that is 362 pages long.

¹² The quotation is from John J. Pershing, *My Experiences in the World War*, vol. 1 (New York: Frederick A. Stokes Company, 1931), 17.

was only too happy when duty with the Taft Board pulled him away from the rest of the General Staff, and he never again sought to work with the new coordinating agency.¹³ By habitually working around the General Staff, Goethals revealed a preference for the traditional but increasingly outdated bureau system.¹⁴

In part, Goethals, Pershing, and their contemporaries maintained such traditional attitudes because they experienced no significant impetus for change prior to World War I. Goethals succeeded at Panama by working around, rather than with, the General Staff. If anything, this reinforced his confidence in the bureau system. Similarly, Pershing relied upon traditional systems when he commanded the Punitive Expedition in Mexico. The logistics effort to sustain Pershing's campaign showed considerable strain from the very beginning of the operation. But although these significant difficulties should have prompted institutional introspection, the expedition itself did not present a shock substantial enough to force changes upon obsolete systems of supplying armies and waging war. In a spirit of self-congratulation at its end, the army's experiences in Mexico served instead to perpetuate confidence in the continued relevance of the bureau system.¹⁵

Neither Goethals nor his contemporaries anticipated that the First World War would provide just such a shock. When war broke out in 1914, the U.S. Army had just over 98,000

¹³ This is discussed in chapter 3.

¹⁴ Goethals's official and personal correspondence from the Canal Zone is compiled in boxes 5-39, George W. Goethals Papers, LC. For evidence of coordination with the General Staff regarding the defense of the Canal Zone, see W.W. Wotherspoon to George W. Goethals, June 23, 1911 and W.W. Wotherspoon to Leonard Wood, June 20, 1911, Box 13, George W. Goethals Papers, LC. It is worth noting, however, that even on this issue, Goethals was not working with the General Staff *per se*, but with a board comprised of the Chief of Staff, the President of the War College, and several bureau chiefs.

¹⁵ Supply shortages and a lack of logistical planning were most readily apparent when the U.S. mobilized National Guard units to support the Punitive Expedition. See U.S. Army Center for Military History, *History of Military Mobilization in the United States Army, 1775-1945* (Washington, DC: Government Printing Office, 2006), 196-201; and Weigley, *History of the United States Army*, 350-351.

soldiers on its rolls. By 1916, the army had increased by approximately ten percent, reporting a total strength of 108,399. Although it expected to rely upon augmentation from the National Guard in time of war, the mobilization of the National Guard in 1916 brought only 158,664 additional men under arms. Given the mobilization of millions by European belligerents in 1914, it was clear that the U.S. Army was not prepared to play a role in the First World War.¹⁶ Nor did the army anticipate participating in the war during its early stages. Although the United States clearly sympathized with and supported Britain and France, neither the American public nor the administration favored joining the war in its first two years, even after the attack against the *Lusitania* in May 1915. Given this, the army had little reason and fewer resources to prepare for its eventual role in the First World War.¹⁷

Although the Panama Canal opened as the war in Europe was just beginning, Goethals clearly did not anticipate going to war. In recognition of his achievements in Panama, he had been promoted to major general with the thanks of Congress. Rather than maneuvering for a command or senior duty in the War Department that would position him well for significant service if the United States entered the war, Goethals remained in Panama. He served as governor of the Panama Canal Zone from 1914 until September 1916, when he returned to the United States to retire from the army. As governor, Goethals focused above all on transitioning the Canal Zone workforce from a construction organization to a smaller maintenance and operations organization, digging out from continuing landslides in the Culebra Cut significant enough to close the canal for up to six months at a time, and completing the construction of

¹⁶ Figures drawn from Weigley, *History of the United States Army*, 599 and 350, respectively.

¹⁷ On political and public attitudes about the war, Michael S. Neiberg's recent work has no peer. See Michael S. Neiberg, *The Path to War: How the First World War Created Modern America* (New York: Oxford University Press, 2016), chapters 1-3.

fortifications to defend the canal. Beyond the possibility of a hostile European power attacking the canal, war did not weigh heavily on his mind. He was focused on the next chapter of his life, organizing a private engineering firm based in New York City that he would lead in retirement. He was placed on the army's retired list on November 15, 1916, and expected to remain a civilian from that point forward.¹⁸

Although the army was more attuned to the war than Goethals was, its experience of neutrality from 1914 through March 1917 did not produce a clear recognition of the imperative for institutional change. The army continued to grapple with the proper role and composition of the general staff, even as it deployed troops to the Mexican border and organized an expeditionary force to pursue Pancho Villa within Mexico. While the Preparedness Movement—a national campaign for improved military readiness—became more popular in 1916, it had little impact on the army. Consequently, the army neither updated its tactical doctrine to account for lessons coming out of the war in Europe, nor seriously prepared to mobilize and deploy an expanded army capable enough to make a rapid impact on the battlefield should the United States be drawn into war. Goethals put it best when he astutely observed at the end of February 1917, “Washington is in a state of unrest as to the future, but there seems to be little doing in the way of preparedness for the army.”¹⁹

¹⁸ War Department Special Orders No. 263, November 9, 1916, File # 3644-ACP-1880, RG 94, NARA I. Goethals's service as governor of the Canal Zone is covered in Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper & Brothers, 1930), 250-270. Researchers looking into Goethals's service as governor should look first at folders 11-12 in box 3, and folders 1-2 in box 4, George W. Goethals Papers, LC.

¹⁹ Weigley, *History of the United States Army*, 342-354; Edward M. Coffman, *The Regulars: The American Army, 1898-1941* (Cambridge, MA: Belknap Harvard, 2004), 140 and 195-201. Quotation from George W. Goethals to “Dody” [George R. Goethals], February 25, 1917, Box 4, George W. Goethals Papers, LC.

Ultimately, the Preparedness Movement was more of a political tool than an effective means for preparing either the nation or its army for war. It helped convince Congress to more than double the size of the army through the National Defense Act of 1916. But the increase was to happen in increments spread over five years—the army

The most significant step the army took to prepare itself for war was drafting and successfully lobbying for the Selective Service Act. Passed in February 1917, thanks in large part to the considerable efforts of Judge Advocate General Enoch Crowder, Chief of Staff of the Army Hugh Scott, and Secretary of War Newton D. Baker, the act committed the nation, in the event of war, to raising an army through selective national conscription rather than through a nationwide call for states to raise volunteer regiments. This was a significant success for military reformers, who were still working against the grain of both public perceptions of how to mobilize for war and the army's institutional culture. Since the American Revolution, the army had relied upon state volunteers to meet wartime demands for military manpower. The volunteer system continued to bear much weight in the officer corps up and down the chain of command. Junior and senior officers alike saw them as the avenue for promotion and glory in war.²⁰

Even after the passage of the Selective Service Act, the matter was not completely settled. Theodore Roosevelt, ever the active and vocal ex-president, lobbied strenuously for the right to raise a volunteer division and bring it to France as one of the first American divisions committed to the war.²¹ Although many officers denounced the idea as arcane, dangerous, and completely inappropriate for modern warfare, many officers still applied to serve in Roosevelt's division. George W. Goethals pushed his oldest son, a 1907 graduate of West Point then serving as a captain of engineers, to interview for a position in the division and may also have leveraged

would be only marginally larger when the United States entered the war in April 1917. In the meantime, both the institutional struggle over the General Staff and the operational deployment in Mexico and along the border consumed the army's attention. For more, see John Patrick Finnegan, *Against the Specter of a Dragon: The Campaign for American Military Preparedness, 1914-1917* (Westport, CT: Greenwood Press, 1974).

²⁰ John Whiteclay Chambers, II, *To Raise an Army: The Draft Comes to Modern America* (New York: Free Press, 1987), 6-7 and 13-71. See also Clark, *Preparing for War*, 256.

²¹ Chambers, *To Raise an Army*, 136-141; J. Lee Thompson, *Never Call Retreat: Theodore Roosevelt and the Great War* (New York: Palgrave MacMillan, 2013), 171-185.

his connection with the former president to secure his son a position on Roosevelt's division.²² Even a young Captain George C. Marshall—who would soon serve with great distinction on the Western Front with the 1st Infantry Division and the AEF's 1st Army Headquarters—applied, interviewed, and was identified as a regimental commander in Roosevelt's proposed division. Marshall, Goethals, and others like them, presumably including George R. Goethals, required formal releases from Roosevelt when it became apparent that Woodrow Wilson had accepted the advice of Baker, Scott, and Crowder, and would not authorize the volunteer division.²³

Despite setting conditions for the first national draft since the Civil War, the U.S. Army remained egregiously unprepared for war in 1917. The army itself bore a significant amount of responsibility for its poor state of readiness. Institutional dysfunction and related Congressional politics gutted the general staff, leaving it far too small to plan and coordinate the myriad aspects of mobilization for the type of mass industrialized warfare that characterized World War I. Furthermore, lingering traditionalism within the officer corps also influenced the retention of arcane tactical doctrine and friction over the best model for expanding the army in the event of war.

²² Goethals mentioned that he and his friend and colleague Harry Hodges gave his son "a good send off to Teddy, but I very much question if the present administration gives him the opportunity should war eventuate." He qualified that doubt, however, by noting that the administration "may have nothing to say about the matter" due to Roosevelt's many friends in Congress. See George W. Goethals to "Dody," February 25, 1917, Box 4, George W. Goethals Papers, LC. Later letters, however, reveal that while army officers were more than happy to take advantage of the opportunity presented by a volunteer division under Roosevelt, they did not necessarily agree with the principle of raising such a division. In April, Goethals reported that "the inconsistency of Teddy advocating conscription and then wanting his volunteers has been irritating to a great many." One month later, Goethals wrote, "Sentiment among army men seems divided on the subject of sending Teddy, the majority inclined against him." See George W. Goethals to "Dodie" [George R. Goethals], April 29, 1917, and George W. Goethals to "Dody" [George R. Goethals], May 18, 1917, Box 4, George W. Goethals Papers, LC.

²³ Marshall's role in Roosevelt's volunteer division is revealed in Forrest Pogue's notes of an interview with him on September 28, 1956. See Larry I. Bland, ed., *George C. Marshall: Interviews and Reminiscences for Forrest C. Pogue*, Revised edition (Lexington, VA: Marshall Foundation, 1991), 584.

Furthermore, the army's ability to plan and coordinate a large-scale mobilization for a major war in Europe was severely limited by inadequate strategic direction and communication from the White House. Famously mistrustful of career soldiers and committed to keeping his pre-decisional thoughts to himself and a very small circle of close friends and advisors, Wilson offered little clarity on whether he would commit the nation to war until a few days before his war address to Congress. Even after the country was at war, few in or out of the army knew what the American contribution to the war would be. Some anticipated a large army fighting in Europe, while others saw the United States providing only naval and financial assistance to the Allies. Firm plans for the deployment of a major American army did not mature until the summer of 1917, and they did not receive the President's final approval until the fall. Such delays also retarded the equally important development of an industrial base efficient and expansive enough to sustain a rapid mobilization and a protracted war effort. What ultimately became a four million-man army would need millions and millions of helmets, rifles, bayonets, bandoliers, and uniform sets; many more millions of bullets; thousands of machine guns, artillery pieces, trucks, wagons, and train cars; hundreds of airplanes; dozens of tanks; and food, fuel, and fodder to feed all parts of the army.²⁴ And it would need enough ships to move soldiers and supplies across the Atlantic—a commodity in shockingly short supply in the United States upon its entry into the war.²⁵

Shipping presented an immediate problem at the outset of American intervention, and the administration called Goethals back into public service to address it. Few reliable American

²⁴ For more on Wilson's shortcomings in strategy and communications, and their impact on the army in 1917, see Rory McGovern, "'We Will All be Wiser in a Few Days': Woodrow Wilson, Grand Strategy, and the U.S. Army in 1917," *Journal for the Liberal Arts and Sciences* 20, no. 2 (Spring 2016): 6-26.

²⁵ Statistics for American shipping, industrial production, and logistics operations in support of the war effort is found in Ayers, *The War with Germany*, 37-100.

ships were available for use as transatlantic military transports in 1917, largely because of a half-century of decline and neglect in the U.S. merchant marine. Navigation acts signed into law by George Washington in 1789 and kept in place with little modification throughout the nineteenth century prohibited the registration of foreign-built ships into the nation's merchant marine fleet. While a superabundance of American timber drove down the costs of shipbuilding in the United States and made American ships attractive options in the maritime market prior to the Civil War, European shipbuilders produced ships made of iron—and later, steel—that were superior in quality and priced competitively with wooden American competitors after the war. Even when a robust steel industry developed in the United States, its monopolistic practices ensured prices remained considerably higher than its European competition.²⁶

In the latter half of the nineteenth century, then, American merchants increasingly opted for European-built ships. Accordingly, they were forced to register their ships under foreign flags, and the American merchant marine withered away. Having carried 65 percent of U.S. imports and exports in the middle of the nineteenth century, the merchant marine carried less than ten percent by 1914. Shipbuilders reconfigured their yards to take part in the massive naval modernization program that the United States undertook in the late-nineteenth and early-twentieth centuries. While this allowed the navy to prepare more adequately for industrialized warfare by producing more and better battleships, destroyers, and eventually submarines—it did little for the army in a war that required transports to ship soldiers and supplies overseas.²⁷

²⁶ William J. Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917* (Lewiston, NY: Edwin Mellen Press, 1992), 1-4.

²⁷ Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 4-11; and David M. Kennedy, *Over Here: The First World War and American Society*, Twenty-fifth anniversary edition (New York: Oxford University Press, 2004), 301. On naval modernization, see Peter Karsten, *The Naval Aristocracy: The Golden Age of Annapolis and the Emergence of American Navalism* (New York: Free Press, 1972), chapters 6-8.

The Wilson administration recognized the problem of a depleted merchant marine. When the Panama Canal was nearly complete, administration officials agreed that the United States had a vested interest in rebuilding a federally owned and operated merchant marine. That sentiment gained momentum with the outbreak of war in 1914. Still committed to peace, Wilson sensed an opportunity to dominate Latin American trade as the war consumed the attention and resources of European competitors. With the passage of the Ship Registry Act of 1914, foreign-built ships could be transferred to the American registry. Further momentum stalled for a time due to formidable political resistance from friends of American shipping companies that feared being pushed out of business by a more robust U.S. merchant marine equipped with vessels built abroad. By September 1916, however, Congressional factions with nagging fears of economic isolation united with Congressional advocates of preparedness to pass the Shipping Act in September 1916. The law established the United States Shipping Board, granting it both regulatory and statutory powers to own and operate a merchant fleet. Additionally, it authorized the board to create the Emergency Fleet Corporation, a public-private corporation established under the Shipping Board to purchase and contract for the construction of merchant vessels.²⁸

When the Shipping Act passed, Goethals thought his service to the nation was nearing its end. First as Chairman and Chief Engineer of the Isthmian Canal Commission and then as Governor of the Panama Canal Zone, nearly a decade in Panama had taken its toll. The job was wearing, and Goethals was eager to move on to the next chapter in his life, opening his own engineering firm. By June 1916, he alerted his family that he planned to request relief from the Canal Zone and retirement from the army in July.²⁹

²⁸ Kennedy, *Over Here*, 302-305.

²⁹ George W. Goethals to "Dody," June 5, 1916, Box 4, George W. Goethals Papers, LC.

That was unrealistic. Owing in part to the difficulty in appointing a replacement so quickly, and in part to Goethals's well-known connections to Roosevelt, Taft, and prominent Republicans, Wilson persuaded Goethals to delay the effective date of his resignation until after the election in November. Goethals departed the Canal Zone, never to return, in September 1916 and began to set up a new home and business in New York City. Placed on the retired list two months later, his engineering firm opened for business in January. His retirement from public service, however, was short lived. Goethals re-entered public life in April 1917 when called to serve as chairman of the newly constituted Emergency Fleet Corporation.³⁰

He was far from happy to serve in such a capacity. Goethals had been approached in February and March 1917 by members of the U.S. Shipping Board who hoped to gain not only his endorsement for the emergency construction of a fleet of wooden ships in the event of an American entry into the war, but also his consent to manage the construction of the wooden fleet. For the Shipping Board, this was a public relations stunt intended to influence policymakers and the American public to accept the wooden ship plan. At no time did they intend to give him complete control of shipbuilding efforts. In any case, they failed to gain either the general's endorsement or his willingness to join the effort. Goethals did not believe that wooden ships could be built strong enough withstand the forces of waves on the open ocean while being propelled by the relatively advanced steam engines called for in the Shipping Board's plans. Furthermore, he had "no desire whatever to handle" the Emergency Fleet Corporation. "If we were to enter the war," Goethals later explained, "I preferred military duty."³¹

³⁰ George W. Goethals to "Dody," July 12, 1916; September 13, 1916; October 20, 1916; and January 22, 1917, Box 4, George W. Goethals Papers, LC.

³¹ "General Goethals and the U.S. Shipping Board (as told by General Goethals himself)," Box 43, George W. Goethals Papers, LC, 1-2. Although undated and unattributed, this source is a first-person account written less than

As it was attempting to repair a shipping crisis at least a half-century in the making with plans developed by a lawyer and a nautical hobbyist, Goethals was justifiably skeptical of the Shipping Board. In an example of a flaw replicated too often on other boards organized to assist in the management and direction of mobilization for war in 1917, officials who lacked expertise in shipping and shipbuilding dominated the Shipping Board. The chairman of the board was William J. Denman, a member of Harvard Law School's class of 1897 who had made a name for himself as a specialist in maritime and admiralty law, and as one of San Francisco's leading progressive Democrats. One of his most trusted subordinates was Frederic A. Eustisan, the amateur yachtsman and Harvard-educated scion of a wealthy Massachusetts family who developed and persuaded Denman of the merits of the wooden ship plan. In fact, only one member of the U.S. Shipping Board in the spring of 1917 had a legitimate maritime background. The rest were merely political appointees and their friends.³²

Goethals was also rightly skeptical of his own fitness for the job. Although he could bring his experiences at the Panama Canal and his considerable organizational and managerial talents to the table, he lacked expertise in shipping and shipbuilding. He was sufficiently self-aware to know that ship construction was not his natural element. And as a lifelong soldier,

nine months after the events occurred. According to the secretary who typed it, this document "was written in the first person" and "was dictated to me by General Goethals, at my request, in January, 1918." She insisted that the manuscript was a "transcription of my shorthand notes" that "was seen and O.K.'ed by General Goethals." See Martha Wellington to Farnham Bishop, August 12, 1929, Box 43, George W. Goethals Papers, LC. On the Shipping Board's design to use Goethals for public relations purposes, see Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 75-77.

³² Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 53-57 and 67. The sole member of the board with true expertise in shipping and shipbuilding was John A. Donald.

Goethals longed for wartime service in France, not to waste away on a board that he considered to be full of “some excellent hot air artists.”³³

Having been very clear with the Shipping Board officials who approached him, Goethals was surprised to receive a letter from Wilson on April 11, 1917 that informed him of his appointment to lead the construction of the Shipping Board’s wooden fleet. In it, Wilson told Goethals that he had approved the Shipping Board’s plans, and had been reliably informed that the wooden ship plan had received Goethals’s “enthusiastic endorsement,” and that Goethals had intimated to the Shipping Board that he “would be willing to accept in directing the enterprise in cooperation with them.”³⁴ Apoplectic, Goethals took a train to Washington and demanded a meeting with the Shipping Board in which he bluntly called its chairman a liar. He then requested an appointment with President Wilson to clarify the situation. As a major general on the U.S. Army’s retired list, he acknowledged, “If this was a military duty which the President desired me to take hold of, there was nothing for me to do but accept.” Wilson stonewalled Goethals. On his third unsuccessful attempt to see the president, he was informed by Wilson’s personal secretary, as he later recalled, “that the President could not see me but expected me to take hold of the work, as I was subject to orders and he had decided that this should be my task in the war.”³⁵

Although his sense of duty compelled him to accept the president’s decision without public complaint, Goethals did not assume control of the project intending to put aside his

³³ George W. Goethals to “Dody” [George R. Goethals], April 19, 1917, Box 4, George W. Goethals Papers, LC.

³⁴ Woodrow Wilson to George W. Goethals, April 11, 1917, Box 43, George W. Goethals Papers, LC.

³⁵ “General Goethals and the U.S. Shipping Board (as told by General Goethals himself),” Box 43, George W. Goethals Papers, LC, 3.

differences with the Shipping Board. The duplicitous manner in which William Denman and other members of the board secured Goethals's appointment ensured a dysfunctional relationship with Goethals for as long as he was associated with them. In letters to his son, Goethals regularly referred to the Shipping Board as "the fool board."³⁶ Even its first meeting with Goethals quickly degenerated into mutual recrimination. "I found the air still hot," Goethals wrote in the aftermath, "but I increased the temperature by giving them my opinion of them, from which they gathered that I couldn't serve under them or with them and I assured them they had drawn correct conclusions."³⁷

Despite this, the Shipping Board exercised its right to create a public-private corporation as a separate but subordinate entity to procure and contract for the construction of merchant and transport ships, and named Goethals as its general manager. The Emergency Fleet Corporation was thus created on April 16, 1917. In a bid to maintain control over Goethals despite the general's insistence that he would be given full control, Denman named himself as the president of the corporation. Goethals, however, did not acknowledge any degree of subordination in his new position. After the articles of incorporation were signed, Goethals told his son, "A separate corporation was formed and I am it." Friction between Goethals and Denman was bound to continue.³⁸

The two men became embroiled in a major feud over the nature of the shipbuilding program. Goethals adamantly opposed Eustis's wooden ship plan and moved quickly to thwart

³⁶ George W. Goethals to "Dodie" [George R. Goethals], April 29, 1917, Box 4, George W. Goethals Papers, LC.

³⁷ George W. Goethals to "Dodie" [George R. Goethals], April 19, 1917, Box 4, George W. Goethals Papers, LC.

³⁸ General Goethals and the U.S. Shipping Board (as told by General Goethals himself)," Box 43, George W. Goethals Papers, LC, 3-4. See also Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 90-91. Goethals's quotation is from George W. Goethals to "Dodie" [George R. Goethals], April 19, 1917, Box 4, George W. Goethals Papers, LC.

it. Discovering upon his arrival that Eustis had arranged for the board to authorize firms in Georgia to construct yards for building wooden ships, Goethals “flew into the air” and countermanded the authorizations, demanding that no further orders for shipbuilding were to leave the offices of the Shipping Board and Emergency Fleet Corporation without his endorsement. “There were objections,” recounted Goethals, who told the board that his demands “would stand until they discharged me or secured my relief.”³⁹

Goethals preferred a steel shipbuilding program to the wooden program that Eustis and Denman had attempted to force upon him through secret deals and arrangements before he arrived in Washington. He believed steel ships were more seaworthy, better able to escape or survive submarine attacks, and would be more useful in a merchant capacity after the war. Accordingly, he developed and advocated for a shipbuilding plan “stipulating the construction of steel vessels, with wooden ships limited to the number that could be turned out by already established yards.” Such a program would contract existing firms and yards to construct a small number of wooden ships, but divert the preponderance of funds appropriated to the Shipping Board and the Emergency Fleet Corporation to orders for the construction of new steel ships and new yards capable of building steel ships.⁴⁰

His proposals met considerable resistance from the Shipping Board, which was already pushing forward with the wooden program. Goethals complained to his son that his new “job is the most strenuous one I have struck yet,” a telling complaint in light of his career to that point. “I am so handicapped,” he elaborated, “by the promises that have been made to every Tom,

³⁹ George W. Goethals to “Dodie” [George R. Goethals], April 29, 1917, Box 4, George W. Goethals Papers, LC.

⁴⁰ General Goethals and the U.S. Shipping Board (as told by General Goethals himself), Box 43, George W. Goethals Papers, LC, 4-5.

Dick, and Harry who has lumber that contracts would be given them.” Continuing, he wrote, “I can’t get the Fool Board to ask for permission to build steel ships as well as wood, and though I have been asking for money enough to do something, they haven’t submitted their estimates, promising each day that they would do so tomorrow—and as tomorrow never comes neither do the estimates.”⁴¹ As Goethals’s bitterness grew, his willingness to work with Denman in any constructive manner vanished. The feeling was mutual for Denman, who was more than able and willing to match Goethals’s assertiveness and combativeness. This influenced a tit-for-tat escalation of acrimony in which lay the true nature of their feud.

From early May onward, their inability to cooperate was much more about authority and control than it was about the relative merits of wooden and steel ships. Simply put, Goethals resented what he perceived to be an intrusion upon his prerogatives as the General Manager of the Emergency Fleet Corporation. In one memorable and particularly tense meeting of the Shipping Board, Goethals “drew forth a letter of instructions which Denman had sent” to him, telling Denman and the rest of the board that he would “flatly refuse complying with the instructions.” According to Goethals, the instructions “were at variance with the understanding that I was in supreme control, that I was there by order of the President, that I could be dictated to by no one but the President and would maintain this position until relieved by him.”⁴² Similarly, Denman resented Goethals’s intransigence and frequent challenges to his authority as chairman of the U.S. Shipping Board and president of the Emergency Fleet Corporation.⁴³

⁴¹ George W. Goethals to “Dody” [George R. Goethals], May 4, 1917, Box 4, George W. Goethals Papers, LC.

⁴² General Goethals and the U.S. Shipping Board (as told by General Goethals himself), Box 43, George W. Goethals Papers, LC, 5.

⁴³ Denman’s resentment played out largely in his conversations with reporters and his lobbying of Woodrow Wilson for support. It became most apparent in May and June 1917 when he systematically attacked contracts that Goethals had negotiated with steel firms, charging that Goethals had accepted artificially high prices for steel plates,

Mutual animosity blinded both men to the fact that they had gradually arrived at positions that were actually quite similar. Denman began the affair as a stalwart proponent of Eustis's wooden ship plan. But Goethals's skepticism and a spring 1917 revelation that wartime demands were leading steel shipyards to significantly increase their capacity pushed Denman to adopt a more moderate position that allowed for both steel and wooden ship construction. Similarly, while Goethals was adamantly opposed to the wooden ship program, he came to accept the inclusion of some wooden ships within his own plans due to both fiscal constraints and the existence of contracts already executed before he arrived in Washington. Both Goethals and Denman, then, had come to accept the notion of a hybrid steel and wooden shipbuilding program by the middle of May 1917. The only difference between their two positions was in the ratios of wooden ships to steel ships that they envisioned. They were already on common ground and should have been able to resolve their remaining differences to work together and contribute something constructive to the war effort.⁴⁴

Unfortunately, they did not. The feud between Goethals and Denman played out in an ugly and public manner from May through July 1917. Both men did much to add fuel to the fire. Goethals was unable to keep the dispute confined to the offices of the Shipping Board and the Emergency Fleet Corporation. He allowed it to become a press sensation, with journalists, editorialists, and cartoonists routinely calling attention to the escalating feud. He also aired his grievances in a very public setting in late May when asked to deliver an impromptu speech at the annual banquet of the American Iron and Steel Institute in New York City, in which he

attempting to force a final showdown with Goethals through President Wilson by implicitly arguing that Goethals's continued management of shipbuilding would lead to considerable financial waste. See Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, chapter 4, especially pages 123-128.

⁴⁴ Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 96-98 and 154-155.

proclaimed that the task he inherited was “simply hopeless.” He joked that he resented his association with the Shipping Board because he regarded “all boards as long, narrow, and wooden,” and because it denied him what he believed to be the necessity of “absolute authority in carrying out any important work.” For his part, Denman escalated the situation by lobbying incessantly for President Wilson’s support in sustaining his authority at the expense of Goethals’s, and in systematically working to undermine his general managers contracting initiatives. Their relationship irreparably poisoned, both men appealed to President Wilson for full authority in merchant and transport shipbuilding.⁴⁵

The President supported Denman in the dispute. It is possible that he was never quite comfortable with Goethals at the helm of the Emergency Fleet Corporation. Given his inclinations against career soldiers and associates of Theodore Roosevelt, Wilson likely would not have appointed Goethals to serve with the Shipping Board without Denman’s lobbying to attach Goethals’s name to the wooden ship program to improve public perception of and support for the plan. When both Goethals and Denman appealed to him to intervene in the feud, the President did not agonize for long over whom to support. Wilson composed a diplomatic response to Goethals on July 19, 1917, stating decisively but politely that Goethals and the Emergency Fleet Corporation were subordinate to Denman and the Shipping Board.⁴⁶

⁴⁵ Goethals’s speech is reprinted in full in “The Goethals Plan for Shipbuilding,” *The Lumber World Review* XXXII, no. 11 (June 10, 1917): 41. See also George W. Goethals to “Dodie” [George R. Goethals], May 28, 1917, Box 4, George W. Goethals Papers, LC—which demonstrates clearly that Goethals courted not only the press, but influential officials and business leaders in his public advocacy for his shipbuilding program; General Goethals and the U.S. Shipping Board (as told by General Goethals himself),” Box 43, George W. Goethals Papers, LC, 5; and Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 108-128, 137-148, and 163-173.

⁴⁶ Woodrow Wilson to George W. Goethals, July 19, 1917, Box 43, George W. Goethals Papers, LC. See also Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 170-174.

Goethals, however, refused to accept this subordinate position. In a reply the next day, he explained that he had accepted his appointment in April believing that it came with assurances that he would enjoy “absolute and complete authority for the administration on the constructing side; that everything the Board could do would be done, and that it would act on” his “suggestion and initiative.” Goethals then explained, “Believing that a centralization of authority in one man is necessary to carry out the shipbuilding program rapidly and successfully, after mature consideration of the whole subject, I am satisfied that I cannot secure efficient results under the conditions of your letter.” Concluding his resignation on a candid note, Goethals wrote, “I am convinced, therefore, that the best interests of the public welfare would be served if I were replaced by someone on whom full authority can be centered and whose personality will not be a stumbling block.”⁴⁷ Finding that sentiment compelling, Wilson then asked Denman to also resign from the Shipping Board, hoping to wipe the slate entirely clean and allow officials untainted by public controversy to address the critical shortage of American shipping.⁴⁸

Goethals’s nearly four months of service with the U.S. Shipping Board thus proved to be fruitless. As newspapers reported on the growing acrimony between Denman and Goethals, the Shipping Board made no progress whatsoever in resolving the shipping crisis. The Emergency Fleet Corporation eventually became a reasonably effective organization, working with the U.S. Shipping Board to facilitate the production of enough new ships to increase the gross troop and cargo capacity of American shipping by nearly one million deadweight tons, but the majority of those new ships entered service between June 1918 and January 1919.⁴⁹ As the war ended in

⁴⁷ George W. Goethals to Woodrow Wilson, July 20, 1917, Box 43, George W. Goethals Papers, LC.

⁴⁸ General Goethals and the U.S. Shipping Board (as told by General Goethals himself),” Box 43, George W. Goethals Papers, LC, 6; Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 175-180.

⁴⁹ Ayers, *The War with Germany*, 39-40.

November 1918, these new ships had but a limited impact on the American war effort. Almost four months of marking time while Goethals and Denman bickered over authority and the Wilson administration stood idly by cost the American war effort much in lost time and opportunity.

Goethals's experience with the U.S. Shipping Board was generally representative of the management and direction of the mobilization for war throughout the first year of the American war effort. Progressives went to war in 1917, carrying with them the managerial theories and faith in bureaucratic structures that were important features of early-twentieth-century American society. Aware that industrialized warfare on a vast scale required degrees of a controlled economy and coordination between industry and the military that the country had not previously experienced, Wilson commissioned a number of boards, councils, and committees staffed by civilians to assist in coordinating the military, economic, and industrial mobilization for war. The President, however, granted these boards, councils, and committees vague instructions and ill-defined authority. The effectiveness of such agencies was entirely contingent upon both their ability to forge amicable and effective working relationships, and the willingness of civilian and military officials to cooperate with each other voluntarily. As administration-appointed council, board, and committee members scrambled to define their roles and authorities, the management of the war effort took on a confused and improvisational air throughout the first year of the American intervention.⁵⁰

⁵⁰ Examples include the Council of National Defense, the War Industries Board, the Committee on Public Information, the National War Labor Relations Board, etc. See especially Kennedy, *Over Here*, chapters 1 and 2. The ill-defined authority of such boards becomes particularly clear in the records of the Council of National Defense. The minutes of a joint meeting of the Council of National Defense and the Advisory Commission on March 31 and April 26, 1917 show that the CND was completely, and unknowingly, replicating the work of the U.S. Shipping Board at that time. Minutes from July 8, 1917 note that "The Commission, being apart from and not a part of the Government is probably not fully advised concerning the progress actually being made in connection with the

Such was the case with even the War Industries Board (WIB), generally considered to be among the more effective civil advisory and coordinating agencies established during the war. Wilson intended the WIB to coordinate the mobilization of American industry. Prior to 1918, however, the WIB was largely unsuccessful in its mission. Its mandate was unclear—some saw it as a temporary agency organized to meet a wartime emergency, while others assumed its purpose was to establish the systems necessary for the federal government to oversee a planned and coordinated national economy on a permanent basis. Additionally, the military did not perceive a need to listen to or work closely with the War Industries Board prior to April 1918.⁵¹

With the internal dynamics of the WIB and its dysfunctional relationship with the army and navy in 1917, even the formidable Bernard Baruch, who would revitalize the WIB in 1918, was sidelined and unable to aid the war effort in any substantial way. Baruch spent much of the last few months in 1917 hounding military and civil officials alike about the need to extract saltpeter from Chile to produce enough gunpowder to sustain the war through 1919 and 1920, and the need to devote shipping to transport that saltpeter to American plants. It was a fool's errand. Military officers had more immediately pressing issues to deal with, and the Shipping

war program,” and that it is unsure whether the ultimate goal was to “raise, equip, and train 500,000 or 1,000,000 soldiers.” See Minutes of Special Joint Meeting of the Council of National Defense and the Advisory Commission, March 31, 1917; Minutes of Meeting of the Advisory Commission of the Council of National Defense, April 26, 1917; and Minutes of Meeting of the Advisory Commission of the Council of National Defense, July 8, 1917 in Volume 413, Bernard Baruch Papers, Seeley G. Mudd Manuscript Library, Princeton University, Princeton, NJ.

⁵¹ The best, if perhaps overly laudatory account of the WIB is still Robert D. Cuff, *The War Industries Board: Business-Government Relations during World War I* (Baltimore, MD: Johns Hopkins University Press, 1973). Valuable firsthand accounts may be found in Bernard M. Baruch, *American Industry in the War: A Report of the War Industries Board* (New York: Prentice-Hall, 1941); and Bernard M. Baruch, *Baruch: The Public Years* (New York: Holt, Rinehart, and Winston, 1960), chapters 3-4; and Hugh S. Johnson, *The Blue Eagle: From Egg to Earth* (New York: Doubleday, 1935), chapter 10. These accounts are subject to the bias of authors whose personal investment in the WIB and its legacy were considerable. Daniel R. Beaver, “The Problem of American Military Supply, 1890-1920,” in *War Business, and American Society: Historical Perspectives of the Military-Industrial Complex*, ed. Benjamin Franklin Cooling (Port Washington, NY: Kennikat Press, 1977): 73-92 offers a moderate corrective, especially on pages 78-81, which succinctly highlights the problems the WIB and similar agencies experienced throughout 1917 and early 1918.

Board could not find enough tonnage to meet the War Department's needs, let alone dedicate ships to satisfy Baruch's plans. Such was the confused state of the management of the war effort. Baruch angrily spun his wheels over saltpeter, blind to the fact that although he had a point about the need for saltpeter if the war were to last into late 1919 and 1920, the government and military were deluged with much more immediate needs and problems.⁵²

Shortcomings in the civilian boards and agencies were not the only problems in the American mobilization in 1917. The army's performance was similarly improvisational and lackluster. With the General Staff so sharply restricted and the bureaus once again ascendant, many of the conditions that led to a problematic mobilization in 1898 still existed in 1917. Bliss, then serving as the Assistant Chief of Staff, foresaw the complications ahead. He wrote a memorandum to the Chief of Staff on March 31, 1917, recommending immediate changes to the War Department's management of logistics in order to avert disaster should the army be called upon to mobilize for war with Germany. Bliss foresaw a situation in which "the War Department may be placing huge orders for supplies of all kinds," but that the several bureaus of the department could inadvertently compete with each other for the same limited resources. "If the matter is not properly coordinated," he explained, "it may result that one bureau of the War Department requiring great quantities of such material will find that the manufacturers supplying it have tied themselves up for a long time in contracts with another bureau of the War Department." Bliss recommended "that this matter should be brought to the attention of bureau

⁵² See entries from October 31; November 1, 3, 5, 6, 8, 14; December 5, 11, 12, 17, and 21 in *Diary for 1917*, Volume 654, Bernard Baruch Papers, Seeley G. Mudd Manuscript Library, Princeton University, Princeton, NJ. Baruch was almost obsessively focused on the nitrate issue, noting on November 8, 1917, "When I think how this matter has been handled, I could commit murder."

chiefs with the view to their arranging some sort of a 'steering committee' among themselves to insure an orderly and uniform acquisition of supplies."⁵³

Although it was not acted upon at the time, Bliss's warning was remarkably prescient. Only weeks later, the well-meaning commanding officer of the arsenal at Rock Island, Illinois cornered the market on the nation's leather supply, without regard for the needs of other arsenals or other supply bureaus. "Well that was wrong, you know," he explained after the war, "but I went on the proposition that it was up to me to look after my particular job, and I proceeded to do so."⁵⁴ The major problem with the American war effort in its early months was that many people were looking after their particular jobs, and nobody was coordinating them. By the summer of 1917, a national draft was in progress and more than 150 distinct committees, agencies, and bureaus were requisitioning, purchasing, and transporting supplies in support of the mobilization. Each zealously seized the initiative and went about their work. As the War Department was organized in 1917, it was impossible for the Secretary of War and the Chief of Staff of the Army to be aware of all of the independent initiatives and efforts, let alone to synchronize and coordinate them.⁵⁵

Part of the problem was Secretary of War Newton D. Baker's failure to identify the ultimate responsible party for shaping the army's war program in 1917. Baker was not the most obvious choice for Secretary of War. He had earned an excellent reputation among progressives as the highly successful city solicitor, and later mayor of Cleveland. Little in his background or

⁵³ Tasker H. Bliss, Memorandum for the Chief of Staff, March 26, 1917, Volume 211, Tasker H. Bliss Papers, LC.

⁵⁴ Quotation from Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917-1919* (Lincoln, NE: University of Nebraska Press, 1966), 62.

⁵⁵ See Beaver, *Newton D. Baker and the American War Effort, 1917-1919*, 50-62; Coffman, *The War to End All Wars*, 34-35.

temperament made him a likely candidate for Secretary of War. That did not stop Woodrow Wilson from nominating Baker when Secretary Lindley Garrison tendered his resignation in 1916 because he felt the President's belated and rather tepid support of the Preparedness Movement risked national security for domestic political gain. To a significant extent, the president nominated Baker because of his known antimilitarism and rumored pacifism. Wilson had long admired Baker, whose achievements in Cleveland had made him a rising star in the Democratic Party, and had considered nominating the mayor for a cabinet position earlier in his administration. More importantly in 1916, however, Wilson calculated that nominating Baker to serve as Secretary of War would signal to domestic and international audiences alike that his late nod to the Preparedness Movement did not constitute a decision to enter the war.⁵⁶

While Baker was an excellent choice for that purpose, he had much to learn before he would earn his reputation as an effective Secretary of War. In 1916 and 1917, however, Baker steered an ineffectively moderate course in the War Department. Accordingly, he supported the National Defense Act of 1916, which simultaneously ensured the continued existence of the General Staff and severely restricted its strength and authority to plan and prepare for war, as it was created to do. In the absence of a policy framework based on past experience or study of military problems, Baker's natural inclinations were to either serve as a conduit for President Wilson's opinions, attempt to satisfy all interested parties, or to be guided by the traditionalist arguments of senior officers who were products of a traditionalist institutional culture.⁵⁷

⁵⁶ Beaver, *Newton D. Baker and the American War Effort, 1917-1919*, 1-8. On Garrison's resignation, see Clark, *Preparing for War*, 252-253; and Coffman, *The War to End All Wars*, 16-17.

⁵⁷ Beaver, *Newton D. Baker and the American War Effort, 1917-1919*, 8-21.

The Secretary of War's relative passivity in managing the army during the first year in the war set conditions for many of the most significant problems that plagued the American war effort until the armistice in November 1918. Baker gave considerable latitude to General John J. Pershing when he was appointed to command the American Expeditionary Forces in France, vesting him with "all necessary authority to carry on the war vigorously." Accordingly, Pershing believed that he could dictate all of the terms of the American war effort and expect the War Department to instantaneously support his every demand.⁵⁸

Pershing and 191 members of the AEF headquarters embarked on the S.S. *Baltic* on May 28, 1917. During the twelve-day transit, Pershing's staff convened a number of planning boards to consider all-important questions. Those answers would fundamentally shape the American war effort. Topics included the eventual size of the AEF, the theater of operations in which the AEF should be employed, when American troops could commit to battle, and whether or not any amalgamation of American units with British and French units should be permitted. Pershing and his principal staff officers determined that the AEF should eventually grow to 1,000,000 soldiers, would be employed along the southern portion of the Western Front in the Lombardy region, would remain a distinct national force rather than be committed piecemeal as reinforcements for larger British and French units, and would be committed as soon as sufficient shipping could be arranged to transport divisions to France.⁵⁹

Such questions, however, were not the proper purview of a field commander. All dealt with problems of national politics, national economics, and coalition warfare. The

⁵⁸ From Newton D. Baker to John J. Pershing, May 26, 1917, reprinted in Pershing, *My Experiences in the World War*, I: 39.

⁵⁹ Donald Smythe, *Pershing: General of the Armies* (Bloomington, IN: Indiana University Press, 1986), 13-18.

administration and the War Department should have provided Pershing with specific guidance for most of the questions his staff considered during its voyage to Europe. At the very least, AEF planners should have worked with staff officers in the War Department to verify that their plans were realistic and their requests were feasible. By planning while isolated in the hold of the *Baltic* for nearly two weeks, however, Pershing and his staff created their vision and expectations in a vacuum, with meaningful input from neither the War Department that had to mobilize, train, and ship forces to Pershing, nor the Allied armies alongside whom the AEF would fight. Unsurprisingly, then, Pershing's plans and expectations were not entirely feasible.

The first and most significant obstacle was the lack of shipping. The tonnage required for the forces envisioned by AEF planners on board the S.S. *Baltic* did not exist. Pershing's plans relied upon more American tonnage than was available. As Pershing's staff crafted its plans, the feud between Goethals and Denman was relegating the Emergency Fleet Corporation and the U.S. Shipping Board to a painfully ineffective and irrelevant existence from which it would not recover until 1918. With all appropriate ships available in the United States in the summer of 1917, the War Department estimated that it could only ship 650,000 soldiers to France prior to July 1918, assuming minimal losses at sea. That did not stop Pershing and his staff from drafting plans that called for over 1.3 million soldiers in France by July 1918. With no significant tonnage of new American shipping forthcoming, the army had to rely on substantial British assistance to transport sustain the AEF. But Pershing soon learned that German U-boats had sunk over 1.5 million tons of British shipping in April and May 1917 alone. The United Kingdom could not afford to dedicate any of its ships to support the AEF until it reduced its monthly losses.

Consequently, the army only managed to send 194,000 soldiers to France by December 1917, despite having swelled to a total strength of 1.1 million soldiers.⁶⁰

Even before troops could move to their ports of embarkation for transit to France, however, Pershing's plans made significant problems for the ongoing mobilization back in the United States. The War Department was already hard-pressed to construct training camps in time to receive the first round of draftees. It contracted camp construction based on the assumption that the strength of American divisions would be approximately 21,000 soldiers, as called outlined in existing U.S. Army tables of organization. Pershing and his staff, however, decided that the AEF would deviate from established doctrine and field divisions that were each approximately 28,000 soldiers strong. This was no small administrative problem. Divisions over thirty percent larger than anticipated necessarily required over thirty percent more barracks, latrines, uniforms, food, and equipment than anticipated. Because Baker had empowered Pershing with such authority, the War Department had to mobilize divisions at the strength that Pershing wanted. But it could not react in time to adjust the construction and supply contracts that had been crafted to build and sustain camps designed to mobilize smaller divisions. Although it was not the only factor, this contributed to chronic shortages of supplies at Army training camps throughout 1917 and well into 1918.⁶¹

⁶⁰ See Smythe, *Pershing: General of the Armies*, 16-18. The discrepancy between War Department estimates and Pershing's plans is identified in Coffman, *The War to End All Wars*, 128. For statistics on U.S. Army strength and shipping, see Ayers, *The War with Germany*, 15 and 37. It must be noted that part of the British reluctance to commit a portion of its surviving shipping to transport American soldiers was due to Pershing's refusal, entirely in keeping with his instructions from Wilson and Baker, to allow his soldiers and small units to be absorbed by British and French armies. But even had he agreed to amalgamation, Britain would have been hard pressed to commit substantial amounts of shipping to trans-Atlantic troop convoys until at least the fall of 1917.

⁶¹ See Beaver, *Newton D. Baker and the American War Effort, 1917-1919*, 82-83 and Smythe, *Pershing: General of the Armies*, 37-38. Pershing's decision on AEF divisional strength is well covered in David R. Woodward, *The American Army and the First World War* (New York: Cambridge University Press, 2014), 107-112.

Short of billets, supplies, and ships, the army mobilized and deployed to France at a painfully slow pace. By the end of 1917, the United States had little to show from its war effort. Eight months after declaring war, less than 200,000 American soldiers were in France, and most of those were either rear-echelon troops or in training and not yet committed to the front lines. Although elements of the 1st Infantry Division began serving “training” rotations in the trenches on October 21 and suffered its first combat losses on November 3, Pershing’s staff reported on November 6, 1917 that none of the four American infantry divisions then in France were ready for frontline service for any purpose other than training. American and Allied officials alike wondered whether the U.S. Army would be able to field forces of sufficient quality and quantity to play any role in stopping anticipated German offensives in 1918.⁶²

Goethals was unwillingly idle as the war effort sputtered and stalled. “I would give anything to go to France,” he wrote to his son in July 1917, “but I see no hope of that.” With the dust just then settling from his feud with Denman and subsequent resignation from the Shipping Board, Goethals observed, accurately for the time being, “The President isn’t going to give me anything to do, that’s certain.” Disappointed but well aware of his place on the sidelines, Goethals returned to his engineering firm, resigned to “go to road work and whatever else may turn up.”⁶³ Ever persistent, Goethals kept trying to convince anyone who would lend a sympathetic ear to an eager, if aged, soldier. In August, he met with Secretary of War Baker and cabled General Pershing in France requesting command of engineers overseas. Pershing neglected to respond, and Baker politely declined, arguing that such a move would be impolitic

⁶² USAWW 2:68; Smythe, *Pershing: General of the Armies*, 56-69 and 62-63; and Coffman, *The War to End All Wars*, 168-169.

⁶³ George W. Goethals to “Dody” [George R. Goethals] and Priscilla, July 29, 1917, Box 4, George W. Goethals Papers, LC.

because Goethals had retired as a major general, and would therefore outrank the Chief of Engineers, who was then still a brigadier general. In October, Goethals reported, somewhat despondently, that a friend was “kind enough to say that he is going to try and influence Pershing to send for me, but I haven’t any hopes.”⁶⁴

There were a few motivations for these rejections. Politically, Goethals’s name was tarnished. A highly-regarded public figure linked to Theodore Roosevelt since his 1907 appointment as Chairman and Chief Engineer of the Isthmian Canal Commission, Wilson and Baker were already reluctant to place Goethals in any position where he could achieve prominence unless absolutely necessary. The public fiasco with the Emergency Fleet Corporation left Wilson feeling burned and exasperated. It would take much for him to allow Goethals to serve in any meaningful capacity. Meanwhile, simultaneously convinced that modern war was a younger man’s business and jealously mindful of his position and prerogatives as commander of the AEF, Pershing was reluctant to allow older, well-known generals to serve in the AEF.⁶⁵

While in limbo, Goethals was the object of some suspicion rooted in the nativist sentiment pervasive in the United States during the First World War. Since at least the early-nineteenth century, American nativism had ebbed and flowed in cycles that generally corresponded with economic boom and bust cycles. During the Gilded Age and Progressive Era,

⁶⁴ See George W. Goethals to “Dody” [George W. Goethals] and Priscilla, August 5, 1917 and October 29, 1917, Box 4, George W. Goethals Papers, LC. The quotation is from the October 29th letter. For Goethals’s request to Pershing for command of engineers in France, see Goethals to Pershing (cable), August 3, 1917 and George W. Goethals to John J. Pershing, August 3, 1917, Box 40, George W. Goethals Papers, LC. For Pershing’s answer, see Pershing to Goethals (cable), August 7, 1917 and John J. Pershing to George W. Goethals, September 11, 1917, Box 40, George W. Goethals Papers, LC.

⁶⁵ The political consequences of the Goethals-Denman controversy is well documented in Williams, *The Wilson Administration and the Shipbuilding Crisis of 1917*, 144-148 and 173-178. For Pershing’s crusade against aged and popular generals, see Smythe, *Pershing: General of the Armies*, 55.

however, nativist sentiments increased as mass industrialization and urbanization generated a significant increase in immigration. Tensions related to this increase in immigration intersected with ethnocentrism and a popular and pseudoscientific eugenics movement to produce a unique phase in the history of American nativism in which Americans began to view Europeans in highly racialized terms.⁶⁶

The outbreak of war in Europe in 1914 increased nativist sentiment in the United States. Popular leaders like Theodore Roosevelt added fuel to the fire by declaring their hatred for all “hyphenated Americans” and demanding “100% Americanization” as a necessary precondition of wartime readiness. When the United States entered the war in 1917, nativist sentiment easily transitioned to anti-German sentiment. Paranoid about German spies and sabotage within the U.S., average Americans mobilized against anything that looked, sounded, or seemed German. Vigilante organizations popped up throughout the country to monitor their communities and enforce patriotism. One such organization, the American Protective League, boasted over 250,000 members nationwide. More than a grassroots vigilante organization, it gained official sanction from both the Justice Department and the War Department to serve as a domestic espionage agency working closely with both the Justice Department’s Bureau of Investigation—predecessor to the modern F.B.I.—and the War Department’s Military Information Division.⁶⁷

In such an environment, Goethals fell under suspicion from some quarters. Although his ancestry was Flemish and Dutch, some assumed from his last name that he was of German

⁶⁶ See John Higham, *Strangers in the Land: Patterns of American Nativism, 1860-1925*, 2002 edition (New Brunswick, NJ: Rutgers University Press, 2002), chp. 1-7.

⁶⁷ Higham, *Strangers in the Land*, chp. 8-9; Kennedy, *Over Here*, ch. 1. For a brief and recent study of the APL, see Bill Mills, *The League: The True Story of Average Americans on the Hunt for WWI Spies* (New York: Skyhorse, 2013).

descent. Furthermore, as the Panama Canal neared completion in 1913, Goethals took a well-publicized European tour during which he met with and was received warmly by Kaiser Wilhelm II. In May 1917, an anonymous citizen referring to himself only as “A TRUE AMERICAN” sent a memorandum to the *Providence Journal* alleging that Goethals had worked closely with a German agent in the Canal Zone, surreptitiously communicating with German naval officers by flashing lights out to sea from a room in the Tivoli Hotel. The author of the memorandum also alleged that Goethals had exaggerated the effect of the slides in 1915 and 1916 in order to redirect ships carrying munitions bound for Russia around Cape Horn, consequently denying the Russian army the timely arrival of munitions needed to defend against German offensives on the Eastern Front. The editor of the *Providence Journal* wrote to the Bureau of Investigation, an action which suggests that the editor was part of the American Protective League. The chief of the Bureau of Investigation thought the accusations were likely false, but forwarded them to the Military Information Division anyway. The Military Information Division pursued the accusations only so far as to determine whether the German agent named in the memorandum was in the Panama Canal Zone. While it does not appear that these accusations carried much weight in military and political circles, they could have planted seeds of doubt about Goethals among the more paranoid.⁶⁸

Regardless of how he came to be sidelined, Goethals stewed unhappily as a passive observer of the war. In August, he noted that efforts to resolve the shipping crisis were “getting nowhere.” In September, he was becoming more overtly critical of the war effort, telling his family that he wished Elihu Root were back “in Washington at the helm.” Succinctly assessing

⁶⁸ All correspondence related to this accusation and investigation are located in File 6370-85, Box 1901, Military Intelligence Division General Correspondence, 1917-1941, RG165, NARA II. Many thanks to Tim Nenninger for his assistance in locating this file.

the state of the war effort at home, Goethals commented acidly, “Confusion still reigns here.” By October, his correspondence pulled no punches. Noting that the papers announced that Major General John Biddle was likely to succeed Tasker Bliss as Acting Chief of Staff of the U.S. Army, Goethals remarked, “I am glad they are going to have brains and good judgment there at last.” Finally, in November, Goethals reported that a friend had complained that “everything is confusion in Washington,” and that “the regiments he has charge of are seriously handicapped by lack of chow, clothing, rifles, and equipment of all kinds.”⁶⁹

Goethals’s criticism of the War Department was consistent with the opinions and observations of many long-serving military officers early in the war. Then-Colonel Robert L. Bullard—a veteran officer of over three decades of service who would command at the division, corps, and army level in 1918—jotted in his diary in June 1917, “Of my stay in Washington the great impression left is that if we really have a great war, the War Department will quickly break down.” Peyton C. March, who would become the Chief of Staff in 1918, found that “the War Department, including the General Staff, had no conception of what we were entering upon” as the United States entered the war. Pershing himself described the War Department in 1917 as “suffering from a kind of inertia.”⁷⁰

These officers were justifiably critical of the war effort up to that point. It was no major exaggeration to claim, as Senator George E. Chamberlain of Oregon did on January 19, 1918,

⁶⁹ See, respectively, George W. Goethals to “Dody” [George R. Goethals], August 19, 1917; George W. Goethals to “Dody” and Priscilla, September 18, 1917; George W. Goethals to Priscilla and “Dody” [George R. Goethals], September 23, 1917; George W. Goethals to “Dody” [George R. Goethals] and Priscilla, October 29, 1917; and George W. Goethals to “Dody” [George R. Goethals], November 4, 1917, Box 4, George W. Goethals Papers, LC.

⁷⁰ March’s remark is in Peyton C. March, *The Nation at War* (Garden City, NY: Doubleday, Doran, & Co., 1932), 3. Bullard and Pershing are quoted in Coffman, *The War to End All Wars*, 49-50.

that “the military establishment of America has fallen down.”⁷¹ Much was wrong with the American war effort in the first year of its intervention in the First World War. Cultural and political resistance to the Root reforms had ensured the survival and preeminence of the War Department’s anachronistic supply bureaus. Meant to procure and distribute supplies for a small peacetime army dispersed throughout the continental United States, the bureaus could not possibly manage the demands of mobilizing and supplying millions of men. They tried their utmost, but they could not keep pace with the enormous demands of modern industrialized warfare. They simply could not produce, procure, and distribute supplies at the same rate that the War Department inducted soldiers drafted under the auspices of the Selective Service Act.⁷²

Beyond failures of logistics, the American war effort in 1917 suffered from many other shortcomings. It lacked coherence and unity in communication and coordination between the AEF and the War Department. Pershing’s rapidly changing plans and demands in France tended to upset or render irrelevant plans and initiatives the War Department had initiated in the United States, further compounding the problems plaguing the American mobilization for war.⁷³

⁷¹ “Declares America Has Fallen Down in its War Work,” *New York Times*, January 20, 1918, 1.

⁷² Recently, some scholars have defended the performance of the War Department bureaus in 1917. Daniel R. Beaver offers a limited defense, suggesting that the bureaus did about as well as could be expected reasonably, but that the conditions the bureaus faced were beyond the ability of the United States government to handle with limited preparation. His critique admits that the bureau system itself was ill suited for the war, but he seems to not find fault with the institution itself for producing such a system. James Charles Fischer takes that argument a step further, arguing that the bureaus turned in an excellent performance in 1917, conducting business exactly as they were designed. According to Fischer, the problem was that the realities of 1917-1918 did not match pre-war assumptions, which caused the bureaus to be flooded, through no fault of their own, by unforeseen requirements. See Daniel R. Beaver, *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885-1920* (Kent, OH: Kent State University Press, 2006); and James Charles Fischer, “Not Fallen, but Flooded: The War Department Supply Bureaus in 1917” (PhD diss., Ohio State University, 2003).

While it would be unfair to charge the officers manning the bureaus, as Pershing did, with not caring about or putting enormous effort into supporting the AEF, it is similarly unfair to soften the characterization of the bureaus’ failure in 1917. Failure due to anachronistic organizing principles and assumptions is still a failure. It is not too harsh to say that the War Department had stumbled or fallen down in 1917. It had. And that makes its recovery in 1918 all the more interesting.

⁷³ Not just while in transit to Europe aboard the *Baltic*, but throughout the war, Pershing rarely consulted with the War Department when developing his plans. For a good discussion of Pershing’s belief that the AEF was an

Furthermore, in rushing to meet Pershing's demands, the War Department dispatched severely undertrained units to France. What stateside training they did receive was based on faulty doctrine that failed to appreciate the extent to which modern artillery and machine guns had changed warfare. This was due to Pershing's abiding belief that stagnation on the Western Front was a product of European failures, and that the war could be won with bayonets and the American spirit.⁷⁴ Officers like Goethals, Bullard, March, and Pershing, however, did not recognize all of these problems by December 1917. They focused specifically on supply failures and the War Department's evident mismanagement of the war effort.

Politicians and the public at large also focused on problems of logistics and management. These problems stood out most clearly because the army's experience of the war by December 1917 was almost entirely limited to mobilization. Shortcomings in tactical doctrine would not reveal themselves until the AEF was more heavily engaged in combat in 1918. Similarly, many of the problems generated by Pershing's changing plans and demands would not be readily apparent until he outlined a program that called for fielding one hundred American divisions in France by summer 1919, an expectation that defied any realistic appraisal of the country's ability to raise, equip, train, ship, and sustain a force of that strength.⁷⁵

autonomous entity from (and perhaps even superior to) the War Department, see Smythe, *Pershing: General of the Armies*, 46-49. In another example, Pershing and his planners kept altering their artillery requirements, without ever ascertaining what was actually available in quantity in the U.S. The only field piece that was manufactured in the U.S. that the AEF requested in significant quantity was a 4.7-inch field gun that was so new as to still be considered experimental. Further changes to the artillery program made by the AEF staff paralyzed the Ordnance Department, rendering it unable to initiate production until December 1917. See Beaver, *Newton D. Baker and the American War Effort*, 56.

⁷⁴ The best source for AEF tactical doctrine in 1917 and adaptation in 1918 is Mark Ethan Grotelueschen, *The AEF Way of War: The American Army and Combat in World War I* (New York: Cambridge University Press, 2007). For very effective and very brief discussions and critique of Pershing's "open warfare doctrine," see Grotelueschen, *The AEF Way of War*, 30-38; and Smythe, *Pershing: General of the Armies*, 72-73.

⁷⁵ See Woodward, *The American Army and the First World War*, 191-193; and Smythe, *Pershing: General of the Armies*, 142-151.

Conversely, mismanagement and supply shortages were obvious that winter to even the most casual observers of the war. Reports of unacceptably high rates of illness at mobilization camps that were undersupplied for adverse weather shocked an American society that expected more from its government and military. Reports such as one coming out of Camp Custer, Michigan, that soldiers were splitting into two groups to alternate between their barracks and outdoor training sites because a shoe shortage forced them to share footwear, triggered troubling memories of the scandals surrounding the mobilization for the War with Spain in 1898. Mismanagement of railroad shipments caused an energy crisis in the Northeast as coal cars stacked up beyond Philadelphia on the thoroughly clogged rail lines leading to New York. And in France, the AEF received some newly-arrived artillery batteries and machine gun companies that had gone through their mobilization training in the United States without ever having seen or used a howitzer or a machine gun. Such reports shocked and embarrassed soldiers and civilians alike. This was no way to win a war.⁷⁶

Both the army and the American public blamed these problems on poor management. In his speech proclaiming that the war effort had “fallen down,” Senator Chamberlain blamed “inefficiency in every bureau and department of the Government of the United States.”⁷⁷ Facing Congressional inquiries and a rising tide of negative press, Secretary Baker fell under increasing pressure to make a substantial course correction. As the supply crisis became more severe, some politicians and newspaper editors began to call for his resignation. Baker needed to find a solution quickly. Seeking an officer of proven managerial expertise to solve the most readily

⁷⁶ For the supply crisis of the winter of 1917-1918 and its many consequences, see Woodward, *The American Army and the First World War*, 134-143; Coffman, *The War to End All Wars*, 160-161; Kennedy, *Over Here*, 123-126.

⁷⁷ “Declares America Has Fallen Down in its War Work,” *New York Times*, January 20, 1918, 1.

apparent problems in a troubled mobilization, he advised President Wilson to recall Goethals from the retired list to serve as Acting Quartermaster General of the U.S. Army.⁷⁸

Coinciding with changes in leadership within the Ordnance and Coast Artillery Departments, this first step in a thorough shaking up and reorganization of the War Department met with widespread approval. As the agency responsible for supplying all of the basic items that an army needed to survive, the Quartermaster General shouldered much of the blame for the mounting supply crisis. Installing Goethals comforted the army and the general public alike. It was widely believed that if anyone could successfully organize supply efforts on behalf of the army, the “Czar of Panama” could. Shortly after hearing the news, Pershing wrote a congratulatory letter to Goethals. “If anything in our army needs rehabilitation by a man of ability and affairs,” he mused, “it is the Quartermaster’s Department, and we all look for great improvement in its management.” Not to be outdone, Theodore Roosevelt sent Goethals a brief note. With characteristic simplicity and enthusiasm, the former President wrote, “I congratulate you, and thrice over I congratulate the Country!”⁷⁹

Goethals maintained a modest, business-as-usual reaction to the news. “I notice by the morning paper,” he wrote his son, “that the order is to issue placing me on active duty and assigning me as Acting Quartermaster General, so I am cleaning up here so as to be ready to go to Washington.” Rather than dwell upon the news or the task ahead, he continued, “Among other things, I am sending out my Xmas remittances, so I am including yours, not knowing what

⁷⁸ See Beaver, *Newton D. Baker and the American War Effort, 1917-1919*, 79-95.

⁷⁹ Quotations from John J. Pershing to George W. Goethals, December 19, 1917 and Theodore Roosevelt to George W. Goethals, December 19, 1917, Box 40, George W. Goethals Papers, LC. See also “Wants Goethals to Supply Army,” *New York Times*, December 18, 1917, 1; and “Goethals to Head Army Supplies,” *New York Times*, December 19, 1917, 1.

my plans to be,” making sure to give specific instructions for his daughter-in-law to receive half of the money. In his reply to Pershing, Goethals claimed to “need condolences more than congratulations,” and went on to declare, “I am going to do the best I can and trust that we will succeed in keeping you supplied.”⁸⁰

Deep down, however, he was elated to be free from what he considered to have been an exile to a state of helpless and useless obscurity. He looked forward to 1918, enthusiastic that he would no longer merely mark time as a passive observer of the war. And he was hopeful that he could give new energy and efficiency to the American war effort, so that it too would no longer be stalled and marking time. From Washington, he wrote to Theodore Roosevelt with a determined air, “How long I am going to last here depends upon the support received and the lack of interference.”⁸¹ Bringing the same attitude and energy that sustained him through his years in Panama, Goethals would fundamentally reorganize U.S. Army logistics in 1918. In doing so, he helped not only to successfully sustain the AEF until the end of the war, but also to usher in a sea change in the army’s institutional culture.

The year 1917 proved nearly disastrous for the army. With heady optimism, the United States entered the war in April. By the end of the year, it had mobilized more soldiers than it could supply, and it had yet to deploy enough forces to the Western Front to make a substantial impact on the battlefield. Institutional dysfunction and poor strategic direction collectively brought the American war effort to the brink of failure. Civil boards composed of zealous

⁸⁰ George W. Goethals to “Dody” [George R. Goethals], December 19, 1917, Box 4, George W. Goethals Papers, LC; and George W. Goethals to John J. Pershing, December 31, 1917, Box 40, George W. Goethals Papers, LC.

⁸¹ George W. Goethals to Theodore Roosevelt, December 28, 1917, Box 40, George W. Goethals Papers, LC.

citizens of varying levels of qualification had failed to ameliorate the shortages of shipping and supplies that so plagued the war effort. Through it all, the army learned painfully and publicly that the habits and preferences deeply ingrained within the fabric of the institution were wholly unequal to the problems posed by modern industrial warfare.

The managerial revolution provided both the army and the American public with a conceptual framework to diagnose and attempt to repair the army's ills. Americans in and out of uniform believed that their war machine was malfunctioning because of poor management and faulty organization within the War Department. Accordingly, the War Department fell under intense scrutiny. Under mounting pressure and facing the distinct possibility of a failing war effort, Secretary of War Newton D. Baker made important changes in December 1917 to set conditions for a radical course correction in 1918. The most significant of those changes was the appointment of George W. Goethals as Acting Quartermaster General. In 1918, Goethals was at the forefront of those who challenged the old assumptions, systems, and processes that defined the army by implementing a series of short-term solutions meant to resolve crises immediately at hand. Accepting that change was necessary on the near term conditioned the institution to permanently abandon its anachronisms and adapt to meet twentieth-century challenges.

CHAPTER 6
Resolution:
Shifting the Paradigm in 1918

In late October and early November 1918, Major General George W. Goethals was anxious for the war to end. Exhausted and somewhat embittered from his experiences managing the War Department's massive logistics operation, Goethals knew that the American war effort would rest on an unstable foundation if the war continued into 1919. German offensives in the spring and summer had forced the army to expend enormous energy filling transports with more soldiers in an effort to help the Allies blunt the attacks and seize the initiative. They succeeded. American infantrymen and machine gunners crossed the Atlantic in unprecedented numbers in the summer and early fall of 1918. Hundreds of thousands of doughboys disembarking in French ports suggested to many that a powerful American war machine had finally kicked into high gear. But Goethals, while justifiably proud of the troop shipment program, worried much about what was missing as the doughboys disembarked in France. To build up its forces abroad more rapidly, the army curtailed its newly-inducted soldiers' training at home. More ominously, because the War Department had succeeded in increasing its troop shipments at the expense of cargo shipments, the American Expeditionary Forces began to register a gross imbalance between the number of troops it had in France and the supplies it had on hand to sustain their operations. To a discerning eye, all signs suggested a crippling supply crisis loomed in 1919.¹

¹ Goethals conveyed his concerns candidly to his oldest son in George W. Goethals to "Dody" [George R. Goethals], October 27, November 3, and November 10, 1918, Box 4, George W. Goethals Papers, LC.

Goethals's pessimism festered in a job that was both crucial and thankless. Although he longed for service in France, he remained tethered to a desk performing duties for which he felt ill-qualified. Having been appointed to serve as the Acting Quartermaster General in December 1917, he was promoted the following spring to Assistant Chief of Staff of the U.S. Army—the second-highest ranking officer in the War Department. Simultaneously appointed as Director of the newly-organized Purchase, Storage, and Traffic Division of the General Staff, he was responsible for repairing and managing War Department's logistics systems and operations in the midst of the largest war the U.S. Army had fought to that point. Expected to work magic, Goethals clearly and painfully understood that he was not a magician. His ability to repair broken and failed logistics systems was severely limited by resistance from within the War Department in Washington and changing requirements generated by the AEF General Headquarters in France.

Although critically important to both the U.S. Army's contribution to and the outcome of the war, Goethals's successes and achievements in 1918 seemed decidedly incomplete. Charged with shipping and sustaining millions of soldiers intended to participate in a massive offensive in 1919, Goethals was convinced by the armistice in November 1918 that the supply system would break down if the war continued. He had lobbied strenuously since July 1918 to make War Department logistics more rational, efficient, and economical by empowering a single staff entity to manage and coordinate all aspects of War Department logistics. But delays in action meant that his vision was only beginning to be realized when the war ended. Ultimately, Goethals's greatest contribution to the war effort was not in the final realization of his forward-thinking plans and recommendations, but in finding enough short-term solutions to allow the army to

move enough soldiers and supplies to France in 1918 to influence Germany's strategic calculus on how to wage the war and when to accept the terms of the armistice.²

Of greater significance to the U.S. Army, however, Goethals's service during the First World War helped the forces of cultural change within the U.S. Army achieve critical mass. The adaptations the army embraced in 1918 demonstrated a recognition that traditional systems and practices were antiquated and inadequate for the challenges modern industrialized warfare. That recognition was far from universal and there was some reactionary resistance to even the most sensible measures taken in 1918. Nevertheless, lessons learned and measures adopted in 1918 fueled a spirit of adaptation and innovation during the U.S. Army's interwar years that ultimately closed the gap between institution's culture and its structures that had been created by the Root reforms. Through his considerable efforts in 1918, Goethals played a prominent role in bringing to an end the long and somewhat tortured process of army reform that had begun in the late-nineteenth century.

Goethals's appointment as Acting Quartermaster General in December 1917 was the first of Newton Baker's moves to shake up the War Department. His appointment came with a clear expectation that he would lead the troubled Quartermaster Department in a new direction. When the United States entered the war, the department was responsible for paying the army and procuring and distributing its food, uniforms, and non-technical supplies and equipment. In

² This interpretation is fundamentally at odds with the conclusions presented in Phyllis A. Zimmerman, *The Neck of the Bottle: George W. Goethals and the Reorganization of the U.S. Army Supply System, 1917-1918* (College Station, TX: Texas A&M University Press, 1992). The book is an excellent factual resource—one upon which I have relied heavily for secondary material. However, Zimmerman concludes that Goethals did little more than unnecessarily complicate the bureaucracy of U.S. Army supply. I believe the evidence shows that Goethals's work in 1918 had a much more significant impact.

wartime, its portfolio swelled to include the construction of cantonments and training camps, shipping troops and supplies overseas, and partial responsibility for transporting supplies within the United States—a responsibility it shared with other bureaus. As the months passed, however, it was apparent to even the most casual observers that the Quartermaster Department was adrift and unable to meet its responsibilities.

Civilian agencies and War Department bureaus alike assumed responsibility for several quartermaster functions. Although the department retained a branch devoted to subsistence, purchasing food became the purview of a wartime civilian agency—the Food Administration. Similarly, the Council of National Defense divested the Quartermaster Department of much of the procurement of material for uniforms and non-technical equipment. The General Staff then sliced off the Transport Service, renamed it the Embarkation Service, and claimed ownership of it. Collectively, these changes further confused lines of authority and responsibility and led to considerable duplication of effort. Instead of relieving the burden, they caused the Quartermaster Department to flounder even more than it already had.³

A major part of the problem was that the traditional organization of the War Department was wholly inappropriate for modern industrialized warfare. While the industrial economy that produced the supplies the army needed was organized by commodities, the War Department was organized strictly by military function, with several bureaus independently responsible for the procurement and distribution of supplies related to their army functions. Theoretically, this made perfect sense. Ordnance officers were ideally suited to purchase weapons and munitions; quartermaster officers were experts on clothing and subsistence; engineers were experts on their

³ U.S. War Department, *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I (Washington, DC: Government Printing Office, 1919), 714-715.

specialized equipment; and medical officers knew best how to supply field hospitals. In practice, however, the bureaus competed for the same resources. For example, ordnance officers purchasing shoulder straps and ammunition carriers, medical officers gathering supplies for hospital tents, and quartermasters gathering material to clothe the army all drew upon the same cloth and leather markets.

Such overlapping demand existed for all commodities and many finished goods. Upon his arrival at the War Department, Goethals found “that the Quartermaster General was buying clothing; that the Signal Corps was buying clothing; that the Medical Department was buying some clothing; that the Ordnance Department was furnishing blankets, so that we were all competing with each other.” Continuing, he reported that the Quartermaster Department was “furnishing harness and saddles for mules, and also furnishing wagons; the Ordnance Department was furnishing saddles and harness for horses.”⁴ Similar competition existed for trucks. Although the Quartermaster Department had designed and started building Liberty Trucks, the Ordnance Department and Signal Corps were purchasing trucks and truck parts in bulk on the private market. Designed to operate independently, the supply bureaus’ lack of coordination made for a horribly inefficient procurement process characterized by a lack of standardization, system-wide shortages, delays, and artificially high costs resulting from significant competition over increasingly scarce resources.⁵

Leadership was another part of the problem. Throughout 1917, Henry G. Sharpe served as Quartermaster General. A member of the same West Point class as Goethals, Sharpe had

⁴ U.S. House of Representatives, *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1 (Washington: Government Printing Office, 1921), 522.

⁵ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 245-246. See also Zimmerman *The Neck of the Bottle*, 36 and 46.

spent over three decades in the Commissary and Quartermaster Departments. In fairness, this dedicated officer had some notable achievements in 1917, especially establishing a Warehousing Division within the Quartermaster Department and developing a standard truck for army service. But his shortcomings far outweighed his successes. He contributed to confusion in the logistics system by allowing key duties to be stripped from his purview and was slow to reorganize his department to address more efficiently those missions for which he continued to be responsible. Most importantly, he failed to centralize control over his bureau's procurement efforts. Under Sharpe's lax style management, individual department and depot quartermasters throughout the United States held considerable purchasing prerogatives with no oversight from Washington. This exacerbated the major problem inherent in the bureau system by fostering competition for resources within a bureau that already competed with other bureaus for the same resources.⁶

Sharpe had nothing to do with the final part of the problem. He had been seriously handicapped by personnel turnover among his headquarters staff. In the small peacetime army, much of the Quartermaster General's headquarters staff were long-serving civilians, not uniformed officers. As the army began to expand in 1917, Sharpe "commissioned a great many of the more efficient men in the department, with the expectation that they would remain in the department and perform their former functions." Inexplicably, however, Chief of Staff Bliss "decided that they should be transferred elsewhere." This ill-considered decision stripped the department of its most knowledgeable and experienced personnel, leaving it, in Goethals's estimation, "in bad condition as far as its organization was concerned."⁷

⁶ Steve R. Waddell, *United States Army Logistics from the American Revolution to 9/11* (Santa Barbara, CA: Praeger, 2010), 113-114; Zimmerman, *The Neck of the Bottle*, 34-37.

⁷ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 519-520.

From the day he arrived in the War Department, Goethals approached the work before him with the same managerial philosophy that had served him so well in Panama. He endeavored put the right organization, systems, and people in place to facilitate centralized authority and decentralized operations. He had considerable leeway to make whatever changes he deemed necessary. Despite his very public failure at the helm of the Emergency Fleet Corporation, Goethals was appointed Acting Quartermaster General with a clear mandate for change. “I went there with the understanding that I was to have a free hand,” he later told a Congressional committee. “It was accorded me throughout,” he added.⁸ Although this characterization was not entirely true—conservative factions within the War Department frustrated Goethals’s initiatives throughout 1918—he was considerably more empowered than his classmate and predecessor ever was. “When Goethals took over the work,” Sharpe later recalled, “he could do a great many things that no one else could do.”⁹

Taking advantage of this leverage, Goethals moved quickly to resolve the personnel problem in the Washington office. Absent a robust headquarters staff, he could not hope to affect positive change in the department at large, with its depots, warehouses, officers, and agents spread throughout the country busily conducting the bureau’s business. He leaned heavily on the private sector to furnish him with much-needed expertise and manpower. Understanding that he did not have the luxury of time to develop adequate expertise in expeditionary logistics and the industrial economy within the army, Goethals recruited successful civilian managers and executives to fill key positions within the department. He hired some in entirely civilian

⁸ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 522.

⁹ Quoted in Zimmerman, *The Neck of the Bottle*, 48.

capacities. Robert J. Thorne—formerly the head of Montgomery, Ward, and Company, one of the two largest mail-order and merchandising corporations in the country—was a “dollar-a-year man” who served in the War Department with neither a commission nor a salary whom Goethals appointed to serve as the Assistant Quartermaster General. Sometimes, Goethals arranged direct commissions for civilians to join his department, reasoning that “there was something about the uniform which when a man puts it on seems to change his entire attitude.”¹⁰

This tended to civilianize the Quartermaster Department. Such an outcome was not inadvertent. As an adherent to the principles and practices of the managerial revolution, Goethals believed that civilian businessmen and executives possessed the most relevant and applicable experience and expertise that he needed to inject into the Quartermaster Corps. More importantly, however, civilianizing the department was the opening gambit in a much more ambitious endeavor to consolidate War Department procurement under one responsible agency. He later explained that he hired so many civilians because the Quartermaster Department was “a large purchasing organization.” Still convinced of the experiential model of officer development, Goethals believed that the U.S. Army’s utter lack of relevant experience in large-scale procurement within an industrial economy meant that there were few, if any, officers competent to handle the work. Accordingly, he “thought it could be handled better by civilians than by military men.”¹¹

¹⁰ See *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 520; and Zimmerman, *The Neck of the Bottle*, 46-47. The quotation is from the former.

¹¹ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 520.

Goethals's characterization of the Quartermaster Department as "a large purchasing organization" reflected not the state of the department when he assumed control of it, but what he wanted it to become. Goethals abhorred the inefficient multi-bureau approach to purchasing military supplies. As early as January 1918, he met with Major General John Biddle—who served as the army's Acting Chief of Staff after Bliss went to Europe to serve on the Supreme War Council—to propose consolidating under the Quartermaster Department procurement of all supplies other than major parts and end items related to ordnance and aircraft. Biddle, who was not a particularly forceful personality, agreed in principle but refused to order it. Instead, he encouraged Goethals to build a consensus among the bureau chiefs "so that it might be worked out satisfactorily with them."¹² As Goethals's proposal did not significantly affect the Ordnance Department, he received that bureau's acquiescence. Aghast at the prospect of losing their traditional prerogatives, the other bureaus mounted a stiff resistance.

Parochialism and traditionalism motivated their opposition. Their arguments supporting the army's traditional multi-bureau procurement system were specious at best. The Medical Corps argued that Goethals and the Quartermaster Department were "not competent to buy medicines." "Neither were the doctors," retorted Goethals, as "they would have to get chemists, and I could get chemists to buy medicines the same as the doctors would have to do." Absurdly, the Corps of Engineers rejected Goethals's proposal on the grounds that he, as Acting Quartermaster General, lacked the requisite expertise to "buy the various varieties of rope" that army engineers required. Having become the most renowned army engineer of his generation through more than three decades of exemplary service and the successful completion of the

¹² *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 523.

Panama Canal, Goethals must have been surprised to learn that the Corps of Engineers held such doubts about his knowledge of rope and other material required for engineer work.¹³

Stymied in his campaign for immediate and wholesale change, Goethals adopted an incremental approach. He began with a functional reorganization of the Quartermaster Department intended to maximize its purchasing capabilities. Between January and April 1918, he adjusted the department's organization no less than nineteen times. He endeavored to centralize control over purchases within the Quartermaster General's office in Washington. At the same time, he decentralized operations related to the production and distribution of supplies, delegating these responsibilities to the various depot quartermasters stationed throughout the country. By doing so, Goethals created a much more effective organization. His office assessed requirements, prioritized the allocation of finite resources, approved contracts, and scheduled distribution of military supplies to all of the army's camps and cantonments. Depot quartermasters coordinated with contracted suppliers in their respective areas and oversaw the storage and distribution of supplies within their assigned regions.¹⁴ Reorganizing the Quartermaster Department along these lines was an indirect means of attacking the traditional bureau system. Having failed to generate momentum for his proposal to consolidate procurement under a single responsible entity, Goethals sought to make the Quartermaster Department the dominant purchasing agency in the War Department. He was not giving up on

¹³ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 524.

¹⁴ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 718-721; Zimmerman, *The Neck of the Bottle*, 54-55.

his proposal at all. Rather, he was attempting to position the Quartermaster Department as the nucleus of a future consolidated procurement agency.¹⁵

At the same time, Biddle had committed the War Department to an intermediate step. By agreeing in principle with Goethals's procurement proposal, Biddle acknowledged that the army's purchasing systems were inadequate for the war effort. Although he stopped short of creating an organization powerful enough to control and coordinate bureau activities, Biddle recognized that there were major problems in his supply operations that needed to be addressed. He also saw clearly that there were major problems in the movement of troops and supplies from divisional camps to ports, and ultimately overseas. To address these issues, Biddle created two new General Staff divisions: Purchases and Supply, and Storage and Traffic.¹⁶

The Storage and Traffic Division was born of the winter supply crisis in late 1917. Not only were the Quartermaster, Ordnance, Signal Corps, Engineers, and Medical Departments each purchasing their own supplies, but they were also independently shipping supplies to ports on the eastern seaboard and attempting to arrange for shipment of those supplies overseas. Thoroughly uncoordinated, their efforts created massive problems along rail lines, in warehouses, and at the ports, particularly around the ports of New York and New Orleans. There, the Quartermaster Department discovered food meant for shipment overseas was beginning to spoil, having sat in

¹⁵ See *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 531; and *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 720. Goethals found Biddle's successor, General Peyton C. March, to be extremely receptive to his ideas.

¹⁶ Zimmerman, *The Neck of the Bottle*, 68.

the warehouse for too long because the War Department had lost track of where much of its outbound supplies were while trying to clear the congestion on the railroads and at the ports.¹⁷

Such reports hit a nerve in a War Department sensitive to anything reminiscent of the scandals surrounding its mobilization for the War with Spain in 1898. As it noted in a postwar report, “The lack of an effective system of traffic control resulted in such a competition for transportation and in such a congestion of railroad equipment . . . as to result in rendering inoperative a large part of the available railroad equipment of the country.” The Chief of Staff reported that the massive congestion on the railroads contributed “to the fuel shortage which at one time threatened seriously to interfere with the sailing of our transports.” Of equal significance, it caused the misuse of valuable “storage facilities at the ports and piers,” which, in an effort to clear the congested railroads, were filled to capacity “with unessential materials,” preventing the timely “shipment of essential materials and supplies.” This was a complex problem that appeared to demand “a central controlling agency to control every shipment of materials and supplies from its point of origin in the United States” to ports in France.¹⁸

Having spent part of the fall and winter of 1917 as a consulting engineer for commissions developing the harbor in New York and exploring a Hudson River tunnel project, Goethals was intimately familiar with the problems related to congestion at the seaboard. They were, in fact, the first issues he took up with Biddle as Acting Quartermaster General. Shortly after these

¹⁷ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 530-531.

¹⁸ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 246-247.

discussions, Biddle organized the Division of Storage and Traffic, and assigned Goethals to lead it, granting him additional authority by appointing him as an Assistant Chief of Staff.¹⁹

The Storage and Traffic Division was meant to bring order to chaos on the railroads and at the ports. According to Goethals, “all transportation matters in the United States for the Army were concentrated in my hands.” The War Department quickly expanded that mandate “so that all shipments made to contractors and by contractors to the various bureaus” were also assigned to Goethals and the Storage and Traffic Division. Going further, the Chief of Staff attached the Embarkation Service as a subdivision of the Storage and Traffic Division, and gave Goethals the authority to construct and purchase warehouses and storage facilities at rail hubs and ports. Effectively, Goethals and the Storage and Traffic Division were responsible for moving troops and supplies from their points of origin—production centers or training camps—to France as expeditiously as possible.²⁰ This was no easy task, compounded by the fact that Goethals’s appointment as Director of Storage and Traffic did not bring relief from his already significant duties as Acting Quartermaster General.

In that capacity, at the same time that he was organizing the Storage and Traffic Division, Goethals was also working to resolve a critical shortage of uniforms. By January 1, 1918, the U.S. Army had swelled to a strength of 1,149,000 soldiers.²¹ Clothing them adequately placed enormous strain on both the War Department and the nation’s wool industry—in one revealing statistic, the army alone purchased more wool socks in 1918 than the total of number of wool

¹⁹ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 518. See also Zimmerman, *The Neck of the Bottle*, 68.

²⁰ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 518.

²¹ Leonard P. Ayres, *The War With Germany: A Statistical Summary* (Washington: Government Printing Office, 1919), 15.

socks produced in the United States in all of 1914.²² The Council of National Defense had stripped the struggling Quartermaster Department of responsibility for purchasing uniforms for the army in 1917, but had proven to be no more effective in getting the job done.

Goethals convinced the Council of National Defense to give responsibility for uniforms back to the Quartermaster Department. He then worked through that council to fix prices for cloth purchases and commandeer the nation's wool supply. The department then arranged contracts for uniform production with various plants throughout the country, moving to commandeer any plant that failed to produce the number of items for which it had contracted.²³ Going out on a limb, Goethals ordered triple the amount of supplies that he was authorized. The official army program adopted in 1917 called for raising 1.3 million soldiers. Goethals correctly anticipated that the program would expand dramatically in 1918, and planned for an army of 3 million in Quartermaster Department orders and contracts.²⁴ The combined effect of these measures resolved the army's clothing problem. Enough supplies made it to France so that the average AEF soldier could boast new blankets, shirts, and trousers every two months; a new overcoat every five months; a new underwear issue every month; and new socks every three weeks.²⁵

²² The army purchased 96,000,000 pairs of wool socks in 1918 while the country produced 61,000,000 pairs of wool socks in 1914. See Ayres, *The War with Germany*, 50.

²³ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 525-526.

²⁴ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 519 and 535.

²⁵ Ayres, *The War with Germany*, 61. Of course, any given doughboy's ability to receive these supplies depended upon the ability of the AEF Services of Supply to move and distribute supplies effectively, which became a problem in the summer and fall of 1918, as will be discussed later.

Goethals could not have resolved the clothing supply issue without concurrent progress on the problem of congestion on the railroads and at the ports. If the materials and supplies could not move to the ports, they could not be shipped to France. Once again, Goethals approached this problem as he approached the Panama Canal. He centralized control and decentralized operations. He sought the right people to put in charge of functional sub-divisions in the new organization and empowered them to take considerable initiative to meet his intent. He placed Colonel Briant Wells in charge of the Storage Division, giving him the responsibility of building and running a storage system based on a series of warehousing recommendations provided by an executive of the Western Electric Company. To manage War Department railroad transportation, he appointed Harry M. Adams, formerly a vice president of the Missouri Pacific Railroad, to serve as the Director of Inland Transportation. Charged with moving troops and supplies by rail to the ports, Adams quickly resolved many of the problems that had previously hampered War Department efforts. Army officers and railroad officials alike respected his authority and expertise and usually cooperated with his efforts. At the same time, Goethals placed the Embarkation service in the capable hands of Major Frank T. Hines, who had begun the war as an obscure captain of coast artillery. Hines succeeded in developing a much more efficient operation at the ports.

Synchronizing their efforts, Goethals had instituted a system by March 1918 that ensured adherence to planned priorities for the rail shipments to ports in which no War Department freight could move by rail without releases from both the Inland Transportation Service and the Embarkation Service. Further, he ensured that the Storage Division was tied into the process, storing goods and equipment by priority to more efficiently load and unload trains and ships.

This system ensured that the chaos wrought by uncoordinated shipments arranged by independent bureaus in 1917 would not be repeated in 1918.²⁶

Despite these improvements, the Storage and Traffic Division faced considerable complications and obstacles. It was an experimental organization conceived in the midst of crisis. As such, its authority was unclear in its first weeks, and Goethals had a difficult time compelling the bureau chiefs to cooperate. In their eyes, he was just another bureau chief who deserved no special deference. Their perception only became more negative when the Secretary of War endorsed War Department General Order 14 on February 9, 1918, making Goethals an Assistant Chief of Staff leading one of the General Staff's five divisions.²⁷ The bureau chiefs then saw him as part of an overactive General Staff encroaching upon their traditional prerogatives.

In the context of resistance from other bureau chiefs, Goethals's system of requiring releases from both the Inland Transportation Service and the Embarkation Service takes on a different light. It was not the product of consensus within the War Department over the best way forward. Rather, it was a last-resort measure meant to compel the cooperation of unwilling bureaus in his attempt to better coordinate the movement of troops and supplies to the seaboard. The bureaus had no choice but to cooperate. The Railway Administration, which administered the nation's railroads under the leadership of Treasury Secretary William G. McAdoo since President Wilson federalized the railroads on January 1, 1918, would not allow anything to move without the Storage and Traffic Division's documented approval.

²⁶ "The History of the Development of the Purchase, Storage, and Traffic Division, its Duties and Functions," pages 13-14, Box 1, Entry 444, RG 165, NARA II. See also Zimmerman, *The Neck of the Bottle*, 68-72.

²⁷ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 249.

Additionally, Goethals's efforts were sometimes delayed and frustrated not by the bureaus, but by civil boards and agencies that helped administer the war effort. A project that Goethals considered to be critically important was delayed for months by resistance from Bernard Baruch, first as a member of the Council of National Defense, and later from his position as chairman of the War Industries Board. Goethals wanted the army to purchase land and build a terminal and storage facility in South Brooklyn. He considered the location ideal because New York was the principal port of embarkation for troops and supplies bound for France. Baruch, however, strenuously objected. Baruch advocated instead for temporary storage facilities along New York's West Side. He assailed Goethals's proposal, questioning the size of the project, the materials needed to carry it out, the quality of the cement produced at the plant designated to support the project, the impact on steel production, and the ability of the railroads to carry enough construction material into Brooklyn to complete the project. Baruch's determined resistance lasted from February to June 1918, when Secretary Baker decided in Goethals's favor. It was a hollow victory—Baruch's prolonged resistance delayed construction so much that the project was not completed before the war ended.²⁸

Furthermore, persistent shipping shortages muted the effect of the Storage and Traffic Division's achievements. As early as January, Goethals "called attention to the fact that we were getting more men overseas than the available shipping at the disposal of the War Department would supply."²⁹ He raised the alarm again in February, this time convincing Secretary Baker to

²⁸ The topic dominates minutes of War Industries Board meetings in May 1918. See Minutes, Special Meeting of the War Industries Board, May 1, 1918; Minutes, Meeting of the War Industries Board, May 2, 1918; and Minutes, Meeting of the War Industries Board, May 21, 1918 in Volume 454, Bernard Baruch Papers, Seeley G. Mudd Manuscript Library, Princeton University, Princeton, NJ. See also Zimmerman, *The Neck of the Bottle*, 73-75.

²⁹ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 532.

appoint a Shipping Control Committee to work with the War Department to maximize the capacity of available tonnage.³⁰ Even so, nothing could change the fact that the U.S. entered the war with a fraction of the shipping it needed for the war, or that the U.S. Shipping Board's shipbuilding program was proceeding very slowly. As the War Department noted in its official report on the war effort, "The carrying capacity of the available ocean tonnage was at all times the neck of the bottle of supply."³¹

By the spring of 1918, then, the army had not yet found a solution to its logistics woes. From his position as Acting Quartermaster General and Director of Storage and Traffic, though, Goethals's options for improving the situation were limited. He could not argue his way out of jurisdictional disputes with the civil boards and committees involved in managing the war effort. And he certainly could not influence the pace of American shipbuilding. Goethals could, however, use his influence to push for further reform of War Department logistics systems and processes.

The Purchases and Supply Division's performance to that point lent weight to Goethals's argument for radical change. Organized at the same time as the Storage and Traffic Division, the Purchases and Supply Division was charged to "have cognizance and supervision of the purchase and production of all munitions and other supplies." It was also responsible for "the supervision and direction of all purchases, procurement and production activities of the several bureaus, corps, and other agencies of the War Department."³² The division failed on both fronts. While

³⁰ Goethals went so far as to defend the Shipping Control Committee from what he perceived to be limiting encroachments upon "functions properly belonging them." See Entry for March 1, 1918, Desk Diary No. 1, Box 1, George W. Goethals Papers, LC. For a general outline of the relationship between the Storage and Traffic Division and the Shipping Control Committee, see Zimmerman, *The Neck of the Bottle*, 70-71.

³¹ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 342.

³² *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 249.

the bureaus found the Storage and Traffic Division annoying, they saw the Purchases and Supply Division as a significant threat to their prerogatives. Viewing it with suspicion and hostility, they refused to cooperate and actively worked to undermine it.³³

With considerably less fame and force of personality than Goethals, Brigadier General Palmer Pierce was unable to create an organization strong enough to overcome resistance from the various bureau chiefs, who wedded themselves to the traditional model of independent production and procurement. According to a postwar analysis, the Purchases and Supply Division's authority was only "supervisory," giving it only "overhead functions with the power to interfere but not to remodel." It concluded that the division "gave rise to a great deal of duplication and complication."³⁴ Unlike congestion on the railroads and at the ports, production and procurement were problems that were at least as acute in the spring as they had been in the winter.³⁵

Once again, Goethals raised the issue of consolidating War Department logistics functions under one responsible agency in February and March 1918. Taking his supply apparatus in Panama as a model, Goethals argued that "there should be one central purchasing bureau which would get the supplies, and supplies would be shipped by that same agency to the seaboard, and then shipped from the seaboard overseas by the same agency." He reasoned that

³³ The problems and problematic nature of the Purchase and Supply Division are well laid out in Zimmerman, *The Neck of the Bottle*, 79-81.

³⁴ The War Department's official report stated simply that the Purchase and Supply Division's authority was "supervisory," with "overhead functions with the power to interfere but not remodel." Continuing, it noted, "This organization gave rise to a great deal of duplication and complication." See *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 720.

³⁵ See Charles R. Day, T.N. Perkins, and Hugh S. Johnson, "Report of the Committee Appointed by the Assistant Secretary of War to Plan an Organization for the Office of the Director of Purchase and Supplies," April 1918, Box 1, Entry 442, RG 165, NARA II. This memorandum is commonly referred to in secondary literature as the final report of the "Committee of Three."

under such a system, “there could not be any friction; there could not be any interference.”

Getting to the heart of the matter in terms similar to his arguments for centralized control in the Canal Zone, Goethals opined, “If you have a job to do, you want to give it to one man and let him do it.”³⁶ Reflecting the principles of the managerial revolution to which he subscribed and the practices of some of the largest trusts and corporations that dominated the Gilded Age and Progressive Era, Goethals was advocating for the vertical integration of War Department logistics. He firmly believed that the same organization should control army supply from the point of production to the point of delivery to the end user, in this case the AEF in France.³⁷

Goethals had a receptive audience in the new Chief of Staff, Major General Peyton C. March. Under pressure from Congress to revitalize a sluggish war effort, Baker cabled Pershing on January 26 to request March’s service. March had gone to France the previous summer as the commander of the 1st Infantry Division’s artillery brigade. In the meantime, he had been named Chief of AEF Artillery, and had organized a rigorous training program for all American artillery units arriving in France. Pershing was reluctant to give up such an effective commander, but saw the value in having an officer with a reputation for ruthless efficiency serving as Chief of Staff.³⁸

The War Department’s troubled performance in the first year of the American war effort was partially due to absentee and ineffective Chiefs of Staff. Officially, Hugh Scott was the Chief of Staff until he retired on September 22, 1917. But he was absent for the vast majority of

³⁶ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 526.

³⁷ On vertical integration, see Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Belknap Press, 1977), chapters 9 and 11.

³⁸ Fifty years after it was written, the definitive biography of Peyton C. March is still Edward M. Coffman, *The Hilt of the Sword: Peyton C. March* (Madison, WI: University of Wisconsin Press, 1966). Coffman outlines March’s path to Chief of Staff in chapter 4.

his wartime tenure because the Wilson administration elected to send him on a diplomatic mission to Russia from May through August of that year. Tasker Bliss filled the role in his absence, and officially became the Chief of Staff upon Scott's retirement. Bliss was a dedicated and talented officer, yet too detail-oriented to be an effective Chief of Staff. Often lost in minutiae, Bliss's plodding pace in sorting through official business delayed action on urgent matters and did considerable harm to the war effort. Furthermore, he was sent to France for six of the eight months that he was the Chief of Staff, leaving John Biddle to serve as Acting Chief of Staff. Prior to the war, Biddle had been the superintendent of West Point. He had no business leading the War Department, and his own awareness of that fact defined his approach to the job. Biddle considered himself a caretaker who was waiting for his replacement to arrive, and hesitated to make decisions of any significant weight.³⁹

March brought renewed focus and energy to the War Department. Some assumed that March and Goethals were too alike, and that their strong personalities would inevitably clash. Such assumptions were incorrect. Goethals and March knew each other not only from General Staff service more than a decade prior, but also from West Point, where Goethals had been one of March's engineering instructors. The two were on friendly terms prior to serving together in 1918, and became close friends during the war. March respected Goethals's abilities, considering him to be "one of the ablest officers of the Army." For his part, Goethals was thrilled to have a Chief of Staff who was attentive, decisive, and perfectly willing to upset old army traditions if he thought they were doing harm to the war effort.⁴⁰

³⁹ Coffman, *The Hilt of the Sword*, 40-44 and 53; Waddell, *United States Army Logistics from the American Revolution to 9/11*, 198n39.

⁴⁰ See Peyton C. March, *The Nation at War* (New York: Doubleday, Doran & Company, 1932), 187; Coffman, *Hilt of the Sword*, 52-54 and 62-63. On their friendship, see especially Peyton March to George W. Goethals, September

Intensely focused on improving the War Department's efficiency, March was keen to put an end to the division of authority in army logistics. He spent much of his first month in the War Department observing it in action. In the process, March confirmed his high opinion of Goethals, and concluded that Pierce "wasn't any good."⁴¹ On April 9, he called Goethals into his office to discuss dismissing Pierce and merging the two supply divisions of the General Staff into one. Surprisingly, Goethals demurred; he was concerned that he was too taxed to take on any more responsibility.

The previous month, March had also concluded that Goethals was overworked as both the Director of Storage and Traffic and the Acting Quartermaster General. He agreed to recall Robert E. Wood from service with the 42nd Division in France to relieve Goethals from his quartermaster duties. March had been deeply impressed with Wood while serving with the AEF and Goethals was excited to work once again with Wood, who had rendered excellent service in Panama as the Chief Quartermaster of the Isthmian Canal Commission. Wood's return had been delayed, however, and Goethals felt overburdened and unable to absorb the Purchase and Supply Division until Wood could take over the Quartermaster Department. March ended the meeting, assuring Goethals that he understood and that the two would discuss the matter further later. Later that week, and without the promised second meeting, Goethals was surprised to learn that March was pressing forward anyway.⁴²

18, 1919; George W. Goethals to Julius Kahn, September 19, 1919; George W. Goethals to Peyton C. March, March 24, 1923; and Peyton C. March to George W. Goethals, April 10, 1923, Box 40, George W. Goethals Papers, LC. March eventually served as an honorary pallbearer at Goethals's funeral. See "Goethals Buried Beside the Hudson," *New York Times*, January 25, 1928, 23.

⁴¹ See March, *A Nation at War*, 187 and George W. Goethals to "Dody" [George R. Goethals], April 14, 1918, Box 4, George W. Goethals Papers, LC, respectively.

⁴² George W. Goethals to "Dody" [George R. Goethals], April 14, 1918, Box 4, George W. Goethals Papers, LC; and George W. Goethals to S.E. Tillman, April 20, 1918, Box 40, George W. Goethals Papers, LC.

March acted with characteristic bluntness. He decided that Pierce would leave the War Department and devote “such abilities as he may have to the War Industries Board.” The War Council official given the unpleasant task of breaking the news to Pierce stayed up half the night “trying to paint a picture of gold, tinsel, and gold lace of his new duties with the War Industries Board.” He “was just starting in to paint it to Pierce,” when March walked by. Annoyed at seeing Pierce still in the War Department, the Chief of Staff snapped, “Pierce, I have cut your head off and ordered you out of the War Department.”⁴³ In an order that took effect on April 16, March merged the Pierce’s Purchase and Supply Division with Goethals’s Storage and Traffic Division, creating the new Division of Purchase, Storage, and Traffic. Appointing Goethals to lead it, his instructions to Goethals were simple and direct. “You are given complete charge of all matters of supply,” he told Goethals. “You can make any changes in personnel, methods, and general set-up necessary to get results, and don’t bother me with details,” he added. Pointedly, he also told the general, “I hold you responsible for results, and I will take all the responsibility for anything you have to do to get them.”⁴⁴

Thus began one of the most effective partnerships in the U.S. Army during the First World War. As March’s actions and instructions show, he and Goethals not only agreed upon what the major problem of the American war effort to that point had been—but also shared both a ruthless commitment to getting results and similar managerial philosophies and techniques in leading organizations to achieve those results. As March would recall years later, his

⁴³ George W. Goethals to “Dody” [George R. Goethals], April 14, 1918, Box 4, George W. Goethals Papers, LC; and George W. Goethals to S.E. Tillman, April 20, 1918, Box 40, George W. Goethals Papers, LC.

⁴⁴ March, *The Nation at War*, 188. For the order that created the Purchase, Storage, and Traffic Division, see War Department G.O. 36, April 16, 1918, File 639-204, Roll 2, Microform M1024, RG 165, NARA II.

instructions to Goethals in April 1918 served as the foundation upon which the two “worked together in utmost harmony.”⁴⁵

Notwithstanding March’s heady instructions and excellent working relationship with Goethals, the creation of the Purchase, Storage, and Traffic did not constitute a sharp break from past practices. Organizationally, the new agency looked much like the old Storage and Traffic Division, with Purchase and Supply appended as a new subdivision rather than as a separate and distinct division of the General Staff. Additionally, the nascent Purchase, Storage, and Traffic Division was not empowered to control bureau procurement. As with Pierce’s Purchase and Supply Division, Goethals held only supervisory and coordinating authority, while the bureaus maintained executive and operating control over their own functionally-divided lines of procurement. The War Department did not permit wholesale reorganization in the spring of 1918 because it feared that drastic measures risked interrupting the flow of troops and supplies to France.⁴⁶ Therefore, while the April 1918 reorganization of the War Department certainly sprang from a recognition that the existing system was inadequate, it did little immediate harm to the bureau system.

Rather, the creation of the Purchase, Storage, and Traffic Division in April 1918 was another intermediate step in the evolution of the War Department. Goethals found his new position to be confusing and frustrating. Divided lines of authority meant that he answered to the Chief of Staff for all matters related specifically to the military, but reported to Assistant Secretary of War Benedict Crowell for commercial and industrial issues. More frustratingly,

⁴⁵ March, *The Nation at War*, 188.

⁴⁶ “The History of the Development of the Purchase, Storage, and Traffic Division, its Duties and Functions,” pages 22-23, Box 1, Entry 444, RG 165, NARA II.

Goethals was surrounded by agencies and people—with March being the notable exception—who challenged his ability to do anything. The bureaus jealously guarded their traditional prerogatives and resisted, to varying degrees of success, Goethals's attempts to coordinate stateside logistics. Crowell was a bureaucratic empire builder who believed that logistics and mobilization should be managed by civilian officials and businessmen, not military officers. Furthermore, the newly reorganized and empowered War Industries Board, now under the capable chairmanship of Bernard S. Baruch, aggressively asserted itself in Purchase, Storage, and Traffic business. By the end of May, Goethals admitted to former Secretary of War Henry L. Stimson that although he had entered the job with a mental "picture of a smooth-running machine," he had "gotten to that pessimistic state" in which he doubted "if this ideal will be even be even approached, let alone realized." Fearing that Goethals was thinking of resigning, Stimson urged in his reply, "However that may be, you simply must hold yourself in and hold on, no matter what your discouragements."⁴⁷

While Goethals was discouraged, he was certainly hanging on. He had encountered similar organizational and bureaucratic challenges in Panama. Unsurprisingly, he turned to familiar practices and techniques to overcome them, endeavoring first to put his division on a sound organizational footing. He sought reliable subordinates and demanded that they rise to the occasion. Wood's assumption of duties as Acting Quartermaster General in early May helped in no small measure by not only relieving Goethals of a job he considered "the most vexatious one I have ever tackled," but also giving Goethals an energetic, capable, and loyal chief in the bureau

⁴⁷ George W. Goethals to Henry L. Stimson, May 29, 1918 and Henry L. Stimson to George W. Goethals, June 28, 1918, Box 40, George W. Goethals Papers, LC. See also Zimmerman, *The Neck of the Bottle*, 92.

most intricately connected to the Purchase, Storage, and Traffic Division.⁴⁸ Goethals retained the energetic services of the heads of Storage, Inland Traffic, and Embarkation whom he had installed while leading the Storage and Traffic Division. He also brought in the very capable Brigadier General Hugh S. Johnson to rebuild and lead Pierce's old Purchases and Supply Division. Johnson admired and respected Goethals, and the sentiments became mutual. He quickly became Goethals's most important uniformed subordinate.⁴⁹ Finally, Goethals appointed Gerard Swope, formerly an executive with Western Electric, to serve as his civilian assistant. He came to rely just as heavily as he relied upon Johnson.⁵⁰

Next, arranging an effective working relationship with the War Industries Board was imperative. Goethals's efforts on this issue were uncharacteristically ambivalent. Partially because of his ongoing clash with Baruch over storage facilities in Brooklyn, and partially because of the profound mistrust of committee-rule over large projects that he had nurtured since his first year in Panama, Goethals did not trust the War Industries Board. Like March and many others in the War Department, Goethals believed the board inappropriately asserted itself in military matters.⁵¹ While he recognized that the War Department must have representation on the War Industries Board, he did everything he could to avoid being the representative. He proposed that Second Assistant Secretary of War Edward R. Stettinius be sent to serve as both a

⁴⁸ Goethals's characterization of the work in the Quartermaster Department is in George W. Goethals to S.E. Tillman April 19, 1918, Box 40, George W. Goethals Papers, LC.

⁴⁹ See Hugh S. Johnson, *The Blue Eagle: From Egg to Earth* (New York: Doubleday, 1935), 88-96. Additionally, Johnson's voluminous official correspondence as Director of Purchase and Supply under Goethals is in Entry 445, RG 165, NARA II.

⁵⁰ Swope was indispensable in matters relating to industry, shipping, and munitions. His extensive notes and correspondence are in Entry 443, RG 165, NARA II.

⁵¹ Early in his tenure, March did not hide his distaste for the WIB, once declining to invite Baruch to sit down at all during a meeting in the War Department. Later that summer, the two worked out their differences to form a reasonably effective working relationship. See Bernard M. Baruch, *The Public Years: My Own Story* (New York: Holt, Rinehart, and Winston, 1960), 57-58.

liaison and a buffer between the War Industries Board and the army.⁵² In early May, March informed Goethals that because Palmer Pierce had been assigned to lead a brigade bound for France, he had recommended that Goethals replace Pierce as the army's representative to the War Industries Board. "I didn't thank March for this because it's a duty which doesn't appeal to me, and I had expressed myself very strongly against it some days ago when he approached me on the subject," Goethals remarked. Fully aware that Baruch and Goethals had already clashed over facilities in Brooklyn, and remembering the Goethals-Denman fiasco, the President rejected March's recommendation. Delighted, Goethals remarked sardonically, "So I have escaped a job for which I am even less fitted than the one which I have now."⁵³

Instead, Hugh Johnson became the War Department's representative on the War Industries Board. This was entirely fitting, as Johnson's work as the Director of Purchase and Supply necessarily brought him into the most contact with Baruch and the WIB. It was also in keeping with the recommendations of a General Staff study of problems associated with the Purchase and Storage Division.⁵⁴ Johnson was an excellent choice. He quickly established a much closer and more effective relationship with Baruch than Goethals ever could, and ensured that the WIB's work with industry aligned as closely as possible with the army's requirements and priorities. As Baruch recalled, "When General Hugh Johnson began to sit in for Goethals, things improved considerably—as they always did where Johnson was involved."⁵⁵ Together,

⁵² See entries for April 13, and 16, Desk Diary No. 1, and April 18, 1918, Desk Diary No. 2, Box 1, George W. Goethals Papers, LC.

⁵³ George W. Goethals to "Dody" [George R. Goethals], May 4, 1918 and May 10, 1918, George W. Goethals Papers, LC.

⁵⁴ Charles R. Day, T.N. Perkins, and Hugh S. Johnson, "Report of the Committee Appointed by the Assistant Secretary of War to Plan an Organization for the Office of the Director of Purchase and Supplies," April 1918, Box 1, Entry 442, RG 165, NARA II.

⁵⁵ Baruch, *The Public Years*, 57.

the two did much to synchronize army procurement with industrial production for the anticipated campaign of 1919. The relationship was so effective that it smoothed over some of the tensions between Goethals and Baruch, to the extent that the Wall Street financier occasionally attended postwar reunions of Goethals's Purchase, Storage, and Traffic Division.⁵⁶

At the same time, Goethals focused on making the War Department's internal procurement processes more rational and efficient. To that end, the Overman Act allowed Goethals to begin to establish an inter-bureau procurement system in May. Signed into law on May 21, the Overman Act gave the administration discretionary authority to reorganize executive agencies to better support the war effort without seeking Congressional approval.⁵⁷ This had profound implications for Goethals and his vision for a consolidated supply agency within the War Department. Fundamental changes were now possible if he could persuade March that a change needed to be made, and March could then persuade the Secretary of War. At least until months after the war's conclusion, the Overman Act denied the bureau chiefs redress to their most important patrons, negating the influence of Congressional politics that had done so much to facilitate bureau resistance to the Root reforms since 1903. Only after the passage of the Overman Act could the Purchase, Storage, and Traffic Division take any concrete measures to consolidate War Department procurement.⁵⁸

⁵⁶ Johnson, *The Blue Eagle from Egg to Earth*, 93-95; and Gerard Swope to George W. Goethals, April 7, 1927, Box 40, George W. Goethals Papers, LC. It is worth noting, however, that much of the WIB's considerable efforts were for naught. It succeeded in getting American industry synchronized with the needs of the war effort, but only in mid- and late-1918. Thus, even when the war ended in November 1918, the AEF still relied almost exclusively on ordnance, munitions, and major end items such as trucks, tanks, and airplanes produced by Britain and France. Johnson notes as much on page 92 of his memoir. Historians may have overstated the practical importance of the WIB to the war effort, as the fruits of its work could not possibly have been apparent until 1919, and even then continuing shipping shortages would have hampered efforts to transport the massive industrial output overseas.

⁵⁷ See Kennedy, *Over Here*, 125-126.

⁵⁸ *War Expenditures: Hearings before the Select Committee on Expenditures in the War Department*, 66th Congress, 1st-3rd sess., serial 1, 524 and 529.

The first measures were necessarily cautious and incremental. Even with the Overman Act, Goethals could not change War Department logistics by fiat. He still had neither executive nor operating authority in procurement. He had only supervisory and coordinating authority—the bureaus were still the operative agencies in War Department procurement. To minimize competition and inefficiency, Goethals and Johnson worked to consolidate procurement processes “article by article as a conscious and deliberate preparation for the more drastic unification which was later affected.”⁵⁹ First, they established a clearance process in which no bureau supply request could go to the War Industries Board or to a private contractor without going through the Purchase, Storage, and Traffic Division. Then, they set up an inter-bureau procurement system meant to eliminate unnecessary competition between bureaus.⁶⁰

The inter-bureau procurement system resolved some of the problems created by competitive bureau purchasing. In the new system, bureaus had to submit to Goethals’s division their requirements for commodities or items that multiple bureaus needed. The Purchase, Storage, and Traffic staff then identified the bureau that required the greatest quantity of any given commodity or item and assigned it the responsibility of purchasing in sufficient bulk to account for all bureaus’ needs. Goethals’s division would then apportion to each bureau its share of the commodity or item. Gradually, this took a relatively cautious approach to procurement

⁵⁹ “The History of the Development of the Purchase, Storage, and Traffic Division, its Duties and Functions,” page 23, Box 1, Entry 444, RG 165, NARA II. See also *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 353.

⁶⁰ See George W. Goethals, Supply Circular No. 1, April 24, 1918, and Supply Circular No. 2, May 8, 1918, Box 208, Entry 441, RG 165, NARA II. See also Zimmerman, *The Neck of the Bottle*, 103.

reform that centralized procurement of individual articles within individual agencies while stopping short of centralizing procurement of all supplies within any one agency.⁶¹

Goethals took this cautious approach to avoid alienating the bureaus. He attempted to assuage bureau concerns by granting exceptions to the inter-bureau procurement system for items and commodities that the bureaus considered technical or specialized. For example, although he assigned procurement and distribution of cotton and products derived from it to the Quartermaster Corps, he allowed the Signal Corps to continue purchasing cloth for airplanes and balloons and aviators' uniforms. He also consented to the Medical Department retaining responsibility for purchasing and distributing material for surgical dressings and gas masks.⁶²

His proposals and actions alienated the bureaus anyway. As Hugh Johnson recalled well after the war, the inter-bureau procurement system generated “agonized writhings and enmities, some of which have never entirely disappeared.”⁶³ Writing to his son in France at the end of May, Goethals noted that he was making progress in procurement reform, but reported that “opposition crops out on the part of the bureaus at every attempt to consolidate purchases.”⁶⁴ In his own postwar report, March accurately noted that “there were many complaints,” and that “the inter-bureau procurement requisition [process] became a point of complaint around which could center the widespread opposition to the general process of supervision and centralization that

⁶¹ George W. Goethals, Supply Circular No. 2, May 8, 1918, Box 208, Entry 441, RG 165, NARA II. The Quartermaster Corps became the dominant purchasing bureau, responsible for more than eighty percent of bureau purchases for commodities including cotton, wool, leather, and silk. To Ordnance, Goethals gave purchasing responsibility for cartridges, carriers, and flashlights. The Construction Division retained responsibility for construction materials—cement, sand, gravel, and electrical equipment. The Corps of Engineers purchased steam shovels, cranes, and railroad equipment. The Signal Corps purchased telephones, electrical wire, and cable, etc. See Supply Circulars 3 – 14, each issued between May 11 and May 24, 1918, Box 208, Entry 441, RG 165, NARA II.

⁶² George W. Goethals, Supply Circular No. 3, May 11, 1918, Box 208, Entry 441, RG 165, NARA II.

⁶³ Johnson, *The Blue Egg from Egg to Earth*, 91.

⁶⁴ George W. Goethals to “Dody” [George R. Goethals], May 31, 1918, Box 4, George W. Goethals Papers, LC.

was going on.”⁶⁵ Nevertheless, in the wake of the Overman Act, this amounted to nothing more than sour grapes. As long as Goethals maintained March’s support—which he did—the bureaus could complain but not effectively resist.

Although pleased with the progress he had made, Goethals was not satisfied with the state of army logistics. He still envisioned a single War Department agency responsible for all army procurement, and all army logistics in general. Every measure he took was meant to serve as an incremental step toward that goal. He put it plainly in a letter to his son while in the midst of establishing the inter-bureau procurement system. “What I am arriving at,” he wrote, “is what I believe should be brought about, a single purchasing agency for the War Dept.”⁶⁶ The course of the war in France, however, interrupted his patient and persistent campaign for procurement reform and consolidation of responsibility for War Department logistics.

Although fully aware of the problems hindering the American war effort, the German high command saw that the United States was a vast reservoir of manpower that could eventually tip the military balance on the Western Front in favor of the Allies. The German high command opted to launch a series of bold offensives against the French and British in 1918 in an attempt to conclude the war before the AEF grew and developed enough to ensure the war would end in an Allied victory. Using innovative new assault tactics, the Germans launched their first offensive on March 21, overrunning nearly one hundred square miles of territory that day alone. This was the first of five significant German offensives between March and July. In reality, however, the German army was impaling itself, expending critical manpower and resources that it could not do without later that fall. But in the moment, the Germans saw great opportunity and the Allies

⁶⁵ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 373.

⁶⁶ George W. Goethals to “Dody” [George R. Goethals], May 31, 1918, Box 4, George W. Goethals Papers, LC.

perceived a severe crisis as both Paris and critical rail lines were threatened by the German onslaughts. Scrambling to blunt the offensives and contain German gains to a few large salients, the Allies rushed reserves to the front—including untried American divisions in the AEF's first experiences with major combat.⁶⁷ They also called for the United States to send more troops, specifically infantrymen and machine gunners. Given the perceived emergency, the Secretary of War agreed to increase the pace of troop shipments, and to devote a disproportionately greater amount of shipping tonnage to infantrymen and machine gunners than to support personnel and supplies.⁶⁸

In the late spring and early summer, then, troop shipments became the Purchase, Storage, and Traffic Division's main effort. Succinctly summarizing the War Department's priorities, Goethals announced in early May, "We must get men over as rapidly as possible and everything must give way to this." Accordingly, Goethals devoted more and more of his time to moving troops to the seaboard and shipping them to France. While he continued to give some attention to procurement reform, it necessarily took a back seat to ferrying troops to France.⁶⁹

Procurement reform received less emphasis because increasing the rate of American soldiers to France consumed every subdivision of the Purchase, Storage, and Traffic Division except for Johnson's Purchase and Supply Division. Much of the burden rested on Brigadier General Frank T. Hines, Goethals's energetic and able chief of the Embarkation Service. Hines

⁶⁷ David F. Trask, *The AEF and Coalition Warmaking, 1917-1918* (Lawrence, KS: University Press of Kansas, 1993), 43-89; and Hew Strachan, *The First World War* (New York: Penguin, 2003), 293-299.

⁶⁸ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 571-574; *USAWW* 2:257-259 and 261-262; Woodward, *The American Army and the First World War*, 169-171; Smythe, *Pershing: General of the Armies*, 99-104;

⁶⁹ George W. Goethals to "Dody," [George R. Goethals], May 4, May 10, May 18, and May 31, 1918, Box 4, George W. Goethals Papers, LC. The quotation is from the letter written on May 4.

and his subordinates worked wonders. They ripped out the cabin walls from the interior of ships and placed tiered bunks in all berths, doubling passenger capacity in some ships. Going further, they refined dockside procedures and fashioned double-deck gangplanks to speed up the process of boarding transports, reducing the time it took to board 10,000 soldiers onto a single transport to less than two hours. They became so efficient that on August 31, 1918, the Embarkation Service personnel at Hoboken embarked 51,356 soldiers—more than two divisions worth—on seventeen ships in a single day.⁷⁰

With the Embarkation Service operating at maximum capacity, an additional burden was placed on the Inland Traffic and Storage subdivisions. Coordinating the movement to the seaboard of supplies and entire divisions of troops to and from production centers, storage facilities, camps, and mobilization centers all across the country effectively enough to avoid traffic jams on the rail lines and delays at the ports was an enormous undertaking. Like an orchestra conductor, Goethals had to synchronize the disparate efforts of all of his subdivisions to prevent a replication of the confusion and congestion from the previous winter. Having done that on a large scale years earlier in Panama, Goethals was well equipped to handle the job.⁷¹

Goethals and the Purchase, Storage, and Traffic Division were astoundingly successful in revitalizing the American troop shipment program. In March 1918, some 85,000 troops sailed to France, most of whom departing prior to the opening of the German spring and summer offensives on March 21. In April, the Embarkation Service placed 118,642 soldiers on transports bound for France, a forty percent increase. In May, 245,945 doughboys sailed across the

⁷⁰ David C. Shanks, *As They Passed Through the Port* (Washington: Carey Publishing Co., 1927), 154-155 and 181-187; and Woodward, *The American Army and the First World War*, 170.

⁷¹ March, *The Nation at War*, 192-193; Zimmerman, *The Neck of the Bottle*, 121-124.

Atlantic. The Purchase, Storage, and Traffic Division's greatest output came in August 1918, when it shipped 306,350 soldiers to Pershing and the AEF. Altogether, 1.5 million of the approximately two million American soldiers who served in France during the First World War made the journey in the last six months of the war. This was not the outcome the Germans had intended. Ironically, offensives designed to force an end to the war before the United States could field a sizable army in France caused that army's most significant growth. But the rapid expansion of the AEF revealed cracks in the foundation of the American war effort.⁷²

Despite its considerable achievements, Goethals saw systemic weaknesses in the troop shipment program. He correctly noted that the increased numbers of outbound troops correlated with a decrease in the amount of training those troops received prior to embarkation.

"Manpower is needed, but untrained manpower is not desired, and just herein lies our weakness," he noted. Further, he accurately observed that the massive increase in troop shipments was largely dependent upon "British ships placed at our disposal for the purpose, and we're bragging about this to such an extent that there is bound to be disappointment later."⁷³

Critical shipping shortages continued to hobble the American war effort. While the Purchase, Storage, and Traffic Division more than tripled the War Department's troop shipment rates, approximately forty-eight percent of those troops sailed on British tonnage. Goethals knew that if the British saw cause to be less generous—which they did later that fall—the army's designs for the anticipated campaign of 1919 would be at grave risk. Finally, the War Department's

⁷² Ayres, *The War with Germany*, 15 and 87. At the time of the armistice, 1,971,000 American soldiers were serving in France.

⁷³ George W. Goethals to "Dody" [George R. Goethals], May 31, 1918, Box 4, George W. Goethals Papers, LC.

capacity to ship cargo to France did not increase proportionally to its capacity to ship troops, setting conditions for significant logistical problems in the AEF later in the year.⁷⁴

Before he could address these issues, Goethals became mired in a controversy rooted in the nagging and unanswered questions about the proper relationship between March as the Chief of Staff and Pershing as a field army commander. March rightly believed that the Chief of Staff led the entire U.S. Army, and that a field army commander led only a part of it. Pershing, on the other hand, believed that everything and everyone was subordinate to the commander in the field. Although he recognized that he was subordinate to the Secretary of War, he viewed the War Department as an auxiliary organization that had no responsibility other than to adhere strictly to his requests and recommendations.⁷⁵ The tension inherent in these conflicting views came to a head in the summer of 1918 over issues related to army logistics and administration.

Goethals's successes in increasing the monthly totals of soldiers and supplies bound for Europe in response to Germany's offensives exposed a critical weakness in the AEF's logistics organization, the Services of Supply. Operating eleven ports, hundreds of miles of railroads, and dozens of depots and distribution centers, the Services of Supply had an enormous mission that was only getting larger as the revitalized troop shipment program swelled the ranks of the AEF. As spring turned to summer, the War Department had actually outpaced the AEF's ability to receive men and materiel. Ships arriving at AEF ports in France waited an over two weeks to be

⁷⁴ Smythe, *Pershing: General of the Armies*, 171 and 206-208.

⁷⁵ Pershing's and March's competing interpretations of the relationship between the Chief of Staff and a field army commander are treated most succinctly and effectively in Donald Smythe, *Pershing: General of the Armies* (Bloomington, IN: Indiana University Press, 1986), 88-89. These matters, and the relationship between March and Pershing more generally, receive excellent treatment in Coffman, *The Hilt of the Sword*, 104-118 Brian Neumann, "A Question of Authority: Reassessing the March-Pershing Feud in the First World War," *Journal of Military History* 73, No. 4 (October 2009): 1117-1142; and Woodward, *The American Army and the First World War*, 181-185.

unloaded and sent back across the Atlantic. Supplies piled up on the docks awaiting movement to forward depots. Units at the front and in training behind the lines began to experience supply shortages that were simply inexcusable given the amount of supplies that had already been shipped to France.⁷⁶

As reports of such conditions made it back to Washington, there was a growing consensus among key decision makers that something must be done. It had already occurred to some that Pershing was overburdened. This had influenced, in part, the decision to send Bliss to France that winter to represent the United States on the Supreme Allied War Council, relieving Pershing of some diplomatic responsibilities. Logistics problems in France suggested to some that Pershing's job was too big for one person. On June 3, the President's close friend and advisor Edward M. House proposed that Pershing "be relieved from all responsibility except the training and fighting of our troops."⁷⁷ March had come to the same conclusion, and felt that the best possible solution was to separate the Services of Supply from the AEF and send Goethals to France to lead it, making Goethals a coordinate authority to Pershing who answered directly to the War Department, rather than a subordinate of Pershing's in the AEF.⁷⁸

Increasingly confident in his position as Chief of Staff, March assumed this plan would be accepted, and acted accordingly. He discussed the matter with Baker, who in turn briefed the President. Both agreed that it would be best to postpone a decision until Pershing could be consulted. March wrote Pershing in on July 5, informing him that "the Administration is very

⁷⁶ Smythe, *Pershing: General of the Armies*, 27-29 and 161-162; Woodward, *The American Army and the First World War*, 185-186; Waddell, *United States Army Logistics from the American Revolution to 9/11*, 120-121

⁷⁷ Quoted in Smythe, *Pershing: General of the Armies*, 162.

⁷⁸ George W. Goethals to "Dody" [George R. Goethals], June 9, 1918, Box 4, George W. Goethals Papers, LC; Coffman, *The Hilt of the Sword*, 106-107; Neumann, "A Question of Authority: Reassessing the March-Pershing Feud in the First World War," 1131-1132; Smythe, *Pershing: General of the Armies*, 162.

much concerned about the responsibilities that have hitherto been put on your shoulders,” and that it was “inevitable that a subdivision of your work must be made in the near future.”⁷⁹

Pershing, however, wanted nothing of it. Justifiably, he was disturbed by the notion of losing control over his own lines of communication. It would have been difficult to find a good field army commander who would accept such a scheme. Moreover, urged on by James G. Harbord—a fiercely loyal subordinate who began the war as the AEF Chief of Staff and had since advanced to command the 2nd Division—Pershing interpreted the proposal as an opening gambit in what he assumed was a deliberate campaign by March to seize control of the AEF. In letters and cables to Baker, Pershing opposed Goethals’s transfer to the AEF Services of Supply in the strongest possible terms. To address problems that invited scrutiny in the first place, Pershing relieved the commander of the Services of Supply and replaced him with Harbord, who promptly and effectively breathed new life into that organization. This satisfied Baker and Wilson, and averted the divorce of the Services of Supply from the AEF. By the first week of August, it was a dead issue. Goethals would remain in Washington.⁸⁰

But March and Goethals had been operating under the assumption that the War Department’s chief logistician would soon sail for France. In a letter to his son on June 9, Goethals wrote, “March sent for me and said he thought he had arranged matters so that he could send me over, if the reorganization he has in mind could be put through.” The prospect of

⁷⁹ Quoted in Neumann, “A Question of Authority: Reassessing the March-Pershing Feud in the First World War,” 1132.

⁸⁰ John J. Pershing, *My Experiences in the World War*, vol. 2 (New York: Frederick A. Stokes Company, 1932), 179-191; James G. Harbord, *The American Army in France* (Boston, MA: Little, Brown, and Company, 1936), 350-355; Woodward, *The American Army and the First World War*, 189-190; Coffman, *The Hilt of the Sword*, 108-110; Neumann, “A Question of Authority: Reassessing the March-Pershing Feud in the First World War,” 1132-1134; Smythe, *Pershing: General of the Armies*, 163-168.

service abroad excited Goethals. “I do hope that there is going to be no slip up,” he mused, “for a desk job isn’t to my liking when I know I can do useful work over there along lines which I feel competent to handle.”⁸¹ March was certain enough that the transfer and reorganization of the Services of Supply would be approved that he designated a successor to lead the Purchase, Storage, and Traffic Division and ordered him to shadow Goethals in his remaining days in the War Department to ensure the transition went smoothly.

By the end of June, however, Goethals found his uncertain prospects for service in France to be painfully distracting. “Another week has gone by with no new developments, my matters resting in status quo, much to my disgust and to the detriment of my patience and nervous system,” Goethals wrote. He reported that he had been “advised that it’s coming out all right though this gives no relief from the strain that uncertainty always imposes on me.” While he kept working to hasten troop shipments, proudly noting that the rapid expansion of the troop shipment program had swelled the AEF ranks to over 900,000, Goethals delayed any further actions related to procurement reform, focusing instead on morale issues in the Services of Supply that he felt he would have to address. “I gather that there is considerable discontent among the Q.M.’s [quartermasters] over there due to a feeling that they haven’t received the recognition in the way of promotion they feel they merit,” he reported. Echoing ideas he put into practice in Panama, he remarked, “I am sorry to hear it, for a disgruntled force isn’t an efficient one,” and resolved that “there will have to be a change in this respect.”⁸²

⁸¹ George W. Goethals to “Dody” [George R. Goethals], June 9, 1918, Box 4, George W. Goethals Papers, LC.

⁸² George W. Goethals to “Dody” [George R. Goethals], June 23, 1918, Box 4, George W. Goethals Papers, LC; Johnson, *The Blue Eagle from Egg to Earth*, 92.

Although March considered the matter an open question until its definitive resolution in early August, Goethals gave up hope of service in France in mid-July. Told that his orders to sail for France were imminent, Goethals packed his field equipment and let Hugh Johnson know that he expected to be gone any day. Shortly afterwards, however, he was told to wait until the President and the Secretary of War heard from Pershing. At this point, Goethals lost hope. As Pershing had turned down his requests for service in the AEF in 1917, he saw no reason to expect a different response in 1918, especially since the proposal involved making Goethals and the Services of Supply independent of Pershing's control. He attempted to once again focus completely on Purchase, Storage, and Traffic, but was hampered by the constant and awkwardly distracting presence of his replacement. "Now I have lapsed back and am trying to take up my work," he wrote, "but it's a difficult thing to do with a successor at my elbow ready to take it up, but who may not care to follow along the lines I am laying down."⁸³

Goethals was dejected. He described the whole affair as "a great and bitter disappointment." Venting to his son about the way the matter was handled, he wrote, "I had not been looking forward to anything of the kind, it came out of a clear sky, and I wish now that March hadn't mentioned the subject at all until it was consummated."⁸⁴ While he certainly grasped the importance of his work in the War Department, Goethals believed that he could render more important service abroad. Such a reaction was representative of his generation's broader struggle to grasp the realities, demands, and implications of modern industrialized warfare. Old and deeply-ingrained values proved remarkably resilient. Throughout the war, he

⁸³ George W. Goethals to "Dody" [George R. Goethals], July 14, 1918, Box 4, George W. Goethals Papers, LC.

⁸⁴ George W. Goethals to "Dody" [George R. Goethals], July 29 and August 5, 1918, Box 4, George W. Goethals Papers, LC.

remained partially blind to the importance of his work, denigrating it because it took place in the United States, not in France.⁸⁵

Despite his disappointment, Goethals saw that there was “nothing to do but grin and bear it,” and resolved to re-focus solely the Purchase, Storage, and Traffic Division.⁸⁶ The War Department had kicked into high gear after the German offensives in the spring, but it still did not run smoothly. Lingering questions over the proper relationship between the General Staff and the bureaus continued to slow and even threaten the American war effort. On July 18, Goethals submitted a lengthy memorandum to the Chief of Staff urging another reorganization of the U.S. Army supply system.⁸⁷ Summarizing his principle justification for another reorganization, Goethals argued, “The present system is organically unsound in sufficient degree to render it doubtful, or at least uncertain, whether it can carry the load a year hence.” Goethals’s long and detailed memo contained a strong indictment of the organization and operation of War Department logistics and a well-considered proposal for a new supply organization intended to place the army on a better footing for the anticipated climatic campaign of 1919.⁸⁸

Although the establishment of the Purchase, Storage, and Traffic Division was a step in the right direction, Goethals believed the weaknesses remaining within the army supply system were so significant that they threatened the system itself. His memo offered a twelve-point

⁸⁵ Such sentiment affected even the Chief of Staff of the Army, who wrote in his memoirs, “The decision not to send him abroad was a great blow to Goethals. Like all other Army officers, with one or two marked exceptions, he was eager to serve in France, and I sympathized with that feeling.” See March, *The Nation at War*, 196.

⁸⁶ George W. Goethals to “Dody” [George R. Goethals], July 29, 1918, Box 4, George W. Goethals Papers, LC.

⁸⁷ George W. Goethals to “Dody” [George R. Goethals], July 21, 1918, Box 4, George W. Goethals Papers, LC.

⁸⁸ George W. Goethals, Memorandum for the Chief of Staff, July 18, 1918, Box 1, Entry 442, RG 165, NARA II. Quotation from page 1.

critique of the existing system. Even after the limited consolidation of supply as the Purchase, Storage, and Traffic Division was established, Goethals argued that the War Department still treated supply as “divided and subsidiary functions” of the bureaus rather than as a major task requiring the attention of a single “grand division” of the War Department. More problematically, the War Department continued to organize its logistics operations by end-user function, despite the fact that the industrial base upon which it relied was organized by commodity. This led to the same duplication of effort, competition between the several purchasing and procurement agencies within the War Department, and artificially high prices due to competitive non-bulk orders by these agencies that had plagued the department earlier.⁸⁹

Furthermore, Goethals argued that although the Purchase, Storage, and Traffic Division had been granted supervisory and coordinating authority, the existing system could not be supervised or coordinated effectively. By that point in the war, he counted nine different agencies with some degree of responsibility for supplying the army and pointed out that this had generated nine distinct systems of generating requirements, procurement, distribution, and accounting of both finances and property. Additionally, Goethals assessed that there were “at least five independent conduits of supply reaching from primary sources to ultimate points of use, so completely segregated that there can be no certainty of synchronization although they furnish articles of related use.” Anticipating bureaus’ objections, Goethals wrote, “The theory on which the technical supply bureaus were built (to supply highly technical material for technical troops) is lost in practice since we find each of them procuring some supplies for the Army as a whole,” and that even small units “must look to each of the bureaus for some necessary part of

⁸⁹ George W. Goethals, Memorandum for the Chief of Staff, July 18, 1918, Box 1, Entry 442, RG 165, NARA II. Goethals’s critique of the existing system is on pages 6-9. The quotations are from page 6.

its equipment.” Finally, Goethals argued that granting the Purchase, Storage, and Traffic Division supervisory authority over a system with such pronounced divisions of responsibility “duplicate[d] executive control” and caused “conflicts of authority” between himself and the bureau chiefs.⁹⁰

To remedy these problems, Goethals proposed that the Chief of Staff grant the Director of Purchase, Storage, and Traffic Division “executive—not supervisory” authority over army supply. He argued that the War Department had two chief functions—operations and supply—and that all other War Department tasks were subsidiary to one of these two primary functions. According to Goethals, those managing operations should generate requirements. Except for purchasing and inspecting ordnance systems and aircraft, the consolidated supply division would take it from there. In practical terms, this proposal required no major reorganization of the Purchase, Storage, and Traffic Division beyond adding a Facilities Division to manage all U.S. Army real estate and a more robust Accounts Division to manage War Department finances. Goethals believed he could accomplish the reorganization by October 1 if March expeditiously reviewed and approved the proposal. More importantly, though, Goethals’s proposal required a paradigm shift that entirely removed most bureaus—all bureaus except than Quartermaster, Ordnance, and Aircraft—from the army supply system.⁹¹

To Goethals’s mounting frustration, March was extremely slow to make a decision on the recommendation. Just over a week after submitting the memo, Goethals complained that “the

⁹⁰ George W. Goethals, Memorandum for the Chief of Staff, July 18, 1918, Box 1, Entry 442, RG 165, NARA II. Quotations from pages 7, 8, and 9. All underlines are in the original.

⁹¹ George W. Goethals, Memorandum for the Chief of Staff, July 18, 1918, Box 1, Entry 442, RG 165, NARA II. Goethals’s detailed proposal for consolidating all supply processes under the Purchase, Storage, and Traffic Division can be found on pages 10-24. Quotations are from page 10. Underlines are in the original.

wills of the Gods certainly grind exceeding slow,” and that he was growing “impatient over the delays in getting action.” One month later, he was still waiting. On August 18, he reported to his son, “March said he would let me go ahead and would write me a letter ‘tomorrow’ but as it hasn’t yet come, I presume ‘tomorrow’ is still in the future.” Exasperated, he vented that he felt he was “just sawing wood.” In another letter written one week later, Goethals was hopeful that a cable from Pershing sounding the alarm over urgent supply requests going unfilled would spur action on his recommended reorganization.⁹²

It is difficult to explain March’s uncharacteristic indecisiveness on Goethals’s proposed reorganization of War Department logistics. Possibly, he did not agree with the proposal in the first place. This may have been the issue to which March referred when he wrote in his memoir, “I could not see my way clear to approve certain of his [Goethals’s] proposed schemes, but we thrashed them out amicably, and my disapproval made no difference in our relations.”⁹³ In August, March sent the proposal to the bureau chiefs for their recommendations, knowing full well that they would recommend disapproval. Unsurprisingly, the bureau chiefs reactions “were, in the main, strongly adverse,” with the Chief of Engineers “being particularly vigorous in opposition.”⁹⁴ March had a reputation for decisiveness, and was not afraid to make significant decisions without first building consensus. He was, according to one of his subordinates in the

⁹² George W. Goethals to “Dody,” [George R. Goethals], August 18 and August 25, 1918, Box 4, George W. Goethals Papers, LC.

⁹³ March, *The Nation at War*, 188.

⁹⁴ “The History of the Development of the Purchase, Storage, and Traffic Division, its Duties and Functions,” page 23, Box 1, Entry 444, RG 165, NARA II. See also George W. Goethals to “Dody” [George R. Goethals], August 11, 1918, Box 4, George W. Goethals Papers, LC.

War Department, “a twentieth-century Richelieu.”⁹⁵ By sending the proposal to the bureau chiefs, March may have hoped to kill it.

It is also entirely possible that March was too overburdened to give the proposal due attention. In June, Pershing radically revised his projections for the ultimate size of the AEF, upending all assumptions that had informed the War Department’s program. Since the spring of 1918, the War Department had planned on sending a total of 54 divisions to France by the end of 1919. On June 19, Pershing cabled the War Department that his minimum requirement would be 66 divisions in France by May 1919. Four days later, he cabled the War Department to revise those numbers, calling for 100 divisions by July 1919. To those managing mobilization in the War Department, the resources required to raise and sustain an army of that strength were mind-boggling. March needed time to assess whether or not the program was possible.⁹⁶

Goethals and Swope studied Pershing’s proposal and found it to be completely unrealistic. They believed the War Department could definitely raise and sustain sixty divisions, and possibly eighty divisions. Shipping remained the critical limiting factor. Even at eighty divisions, Goethals and Swope forecasted significant deficiencies in cargo tonnage. They could move the soldiers the program demanded, but not the supplies the soldiers needed.⁹⁷ March and Baker weighed these concerns, and adopted the eighty-division plan as the army’s new program. Understanding that there would be cargo deficiencies, March revised sustainment requirements

⁹⁵ Johnson, *The Blue Eagle from Egg to Earth*, 90.

⁹⁶ Cable P-1342-S, June 19, 1918, *USAWW* 2:476-479 and Cable P-1369-S, June 25, 1918, *USAWW* 2:482-483. See also Smythe, *Pershing: General of the Armies*, 146; and Zimmerman, *The Neck of the Bottle*, 114-115.

⁹⁷ Scrap Notes re: 100 Division Program and 80 Division Program, Box 1, Entry 443, RG165, NARA II; Woodward, *The American Army and the First World War*, 193; March, *The Nation at War*, 100-101; Zimmerman *The Neck of the Bottle*, 118. Significantly, however, even these estimates were based upon unrealistic expectations of American ship production.

so that the Purchase, Storage, and Traffic Division would ship an average of thirty pounds of supplies per AEF soldier per day, down from approximately fifty pounds per soldier per day.⁹⁸

The process by which the army adopted the eighty-division program showed that the General Staff was just beginning to function according to Elihu Root's original conception of it. Despite resistance from the bureaus and from Pershing himself, the Chief of Staff and parts of the General Staff had received a plan from a field army commander, performed an analysis, revised the plan to a more reasonable—if still overly optimistic—assessment of resources and infrastructure available to carry out the plan, and made it the U.S. Army's official program. Nevertheless, resistance to the Chief of Staff and his General Staff was still significant. The bureaus continued to resist any perceived encroachment onto their traditional prerogatives, seeing Goethals's proposed reorganization army of supply as the latest threat. Furthermore, Pershing refused to accept that his 100-division program could be overruled by March, and continued to develop plans for an AEF that would be 100-divisions strong in 1919.⁹⁹

As time passed, March saw a connection between such resistance and lingering problems in the American war effort. By producing plans based on an anticipated 100-divisions, Pershing was generating requirements that did not match the official army program, disrupting plans set according to priorities set by the War Department based on the eighty-division program. Furthermore, the inefficient bureau system struggled, and failed in some areas, to meet even the requirements generated by the more limited 54-division program that informed the War Department's efforts earlier in the summer. Hearing reports in August that the AEF's supply

⁹⁸ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 240-241; Cable No. 74, July 23, 1918, *USAWW* 2:544.

⁹⁹ Neumann, "A Question of Authority: Reassessing the March-Pershing Feud in the First World War," 1137-1138; Smythe, *Pershing: General of the Armies*, 210.

situation was gradually getting worse, not better, March assessed that the traditional bureau system was not up to the task of sustaining a seemingly ever-increasing war effort. He concluded that the Chief of Staff and the General Staff required more explicit authority to formulate and execute army programs and missions.¹⁰⁰

On August 26, 1918, March acted. With Baker's approval, he issued War Department General Order 80, which stated, in part, "The Chief of the General Staff is the immediate advisor of the Secretary of War on all matters relating to the Military Establishment, and is charged by the Secretary of War with the planning, development, and execution of the Army program." Going a step further, the order stipulated that the Chief of Staff "takes rank and precedence over all officers of the Army," and was charged with ensuring "that the policies of the War Department are harmoniously executed by the several corps, bureaus, and other agencies of the Military Establishment and that the Army program is carried out speedily and efficiently."¹⁰¹ This clarification of authority was the paradigm shift that was necessary for Goethals's proposed reorganization to be approved. It is no coincidence that on the same day that March issued General Order 80, he approved the reorganization of army supply proposed by Goethals nearly six weeks earlier.¹⁰²

Goethals dedicated himself completely to the reorganization. His weekly letters to his eldest son lapsed for an entire month after March finally gave his approval.¹⁰³ He focused on

¹⁰⁰ *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 471-472; George W. Goethals to "Dody" [George R. Goethals], August 25, 1918.

¹⁰¹ This portion of the order is reprinted in March, *The Nation at War*, 49-50.

¹⁰² *War Department Annual Reports*, 66th Congress, 2nd sess., 1919, House Document 426, vol. I, 354; Peyton C. March, Memorandum, August 26, 1918, Box 1, Entry 442, RG 165, NARA II.

¹⁰³ Goethals wrote no letters to his son George between August 25 and September 29, 1918. See Box 4, George W. Goethals Papers, LC.

little else, perhaps because it seemed to be the only part of the war effort he could definitively control and influence. By the fall, Goethals no longer believed he could fix what he perceived to be significant, perhaps fatal flaws in the war effort. Compounded by Allied calls in the spring and summer to send only infantrymen and machine gunners and the upward revision of the army program to eighty divisions, there was a gross imbalance between troops and supplies shipped to France in the last months of the war. As the British withdrew some of the tonnage they had dedicated to American troop and supply shipments in the critical summer months, Goethals scrambled to find enough shipping to sustain the war effort into 1919, but found that the Shipping Board was nowhere near to meeting the levels of ship production it had promised. By late October, Goethals felt as though he was minding a dam that would burst if the war continued. In a strikingly pessimistic letter to his son on October 27, Goethals admitted, “We are hustling men over while the cargo end gets worse and worse . . . I shouldn’t be surprised to see the whole shipping situation collapse.”¹⁰⁴

Unable to do anything about shipping shortages, Goethals set about refashioning the Purchase, Storage, and Traffic as the War Department’s central supply agency. He moved deliberately, first addressing organizational adjustments to prepare the division for its expanded scope and responsibilities, including creating a new subdivision for finances. Next, he consolidated the storage activities of those bureaus that had retained independent storage authority under the old system. He then ordered the transfer of procurement functions from the Corps of Engineers, Signal Corps, and Medical Department to the Purchase, Storage, and Traffic Division, effective November 1, 5, and 15, respectively. Concurrently, Goethals issued a

¹⁰⁴ George W. Goethals to “Dody,” [George R. Goethals], October 27, 1918, Box 4, George W. Goethals Papers, LC.

directive on November 7 formally announcing that “the function of the Director of Purchase, Storage, and Traffic is executive and not supervisory only,” and that “the Director is in command of the supply organizations of the Army.”¹⁰⁵

The armistice of November 11, 1918 halted his efforts. With the war over, Secretary of War Baker suspended any further reorganization of the War Department. Acknowledging that the Overman Act gave blanket authority to reorganize executive agencies during the war, Baker thought it was best to delay any further reorganization until Congress passed legislation on the size and structure of the postwar U.S. Army. Thus interrupted, Goethals’s efforts to make army logistics more rational and efficient, much like his efforts set the American war effort on a stable logistical foundation to sustain an anticipated campaign in 1919, were incomplete.

All in all, Goethals’s work was resoundingly successful. The major shortcomings that Goethals correctly identified at various points in 1918 were not his own. Instead, they were related to a shortage in shipping that he could not affect, and to an obsolete War Department organization that he ultimately helped to overturn, although too late to have any practical impact on the war. While those who went abroad received considerably more publicity for their service, many of those who were in a position to have observed what Goethals had achieved strongly praised his performance. Several argued that the significance of Goethals’s contributions to the

¹⁰⁵ Quotations from “The History of the Development of the Purchase, Storage, and Traffic Division, its Duties and Functions,” page 25, Box 1, Entry 444, RG 165, NARA II. On Goethals’s reorganization activities in September and October, see George W. Goethals, Memoranda to the Chief of Staff, September 29 and October 8, 18, and 29, 1918, Box 1, Entry 442, RG 165, NARA II; and George W. Goethals to “Dody” [George R. Goethals], November 3, 1918.

American war effort was equal to or greater than his accomplishments at the Panama Canal.¹⁰⁶ Peyton March was particularly in awe of what Goethals had done with the Purchase, Storage, and Traffic Division. In a letter to Goethals five years after the war ended, he wrote, “I was asked by some responsible people what my solution would be of the problem of putting Austria on its feet, and I replied that I would make you the General Manager of Austria, under whatever title they pleased, at your own price, and give you carte blanche.”¹⁰⁷

Within the context of the war, the most important achievement of Goethals’s Purchase, Storage, and Traffic Division was its impressive troop shipment program in the summer and fall of 1918. The rapid buildup of American troops on the continent affected German decisions at both the operational and strategic levels of war. Ultimately, estimates of American troop shipments bore some influence upon the German decision to seek an armistice in 1918 rather than remain on the defensive into 1919.¹⁰⁸ Although Goethals had not succeeded in setting up a logistics system that could sustain the anticipated climatic campaign of 1919, he had done much to help end the war in 1918 before the system could fail.

In the larger context of army reform, however, the achievements of Goethals and the Purchase, Storage, Traffic Division were of immense significance. They helped complete a cultural shift within the U.S. Army that bridged the divide between the army’s institutional

¹⁰⁶ See, for example, Charles M. Schwab to George W. Goethals, July 29, 1919, Box 40, George W. Goethals Papers, LC; March, *The Nation at War*, 196; and Donald Wilhelm, “The Master of Mobilization,” *The Independent* 95 (September 7, 1918): 316 and 333.

¹⁰⁷ Peyton C. March to George W. Goethals, April 10, 1923, Box 40, George W. Goethals Papers, LC.

¹⁰⁸ Erich von Ludendorff, Quartermaster General of the German army, wrote that in 1918, the American troops shipment program “weighed heavily in the balance against us.” He described it as an issue “of the greatest importance,” before stating categorically, “It was for this reason that America became the deciding factor in the war.” See Erich von Ludendorff, *Ludendorff’s Own Story, August 1914–November 1918: The Great War from the Siege of Liege to the Signing of the Armistice as viewed from the Grand Headquarters of the German Army*, vol. 2 (New York: Harper & Brothers, 1919), 276.

culture and its structures that were created by the Root Reforms. But such change was not immediate. Although Goethals and March agreed that the reorganized Purchase, Storage, and Traffic Division should be a permanent feature of an army led by a powerful Chief of Staff and a robust General Staff, theirs was a minority opinion within the War Department at the end of the war. The general sense of emergency vanished when the war ended, taking with it the immediate impetus for change. Goethals's generation of officers succumbed once again to the appeal of comfortable tradition. When Goethals retired from the service on March 1, 1919, his replacement—a career quartermaster officer—immediately rolled back the most important features of the fall 1918 reorganization of army supply by resurrecting bureau autonomy and restoring the division's earlier status as a coordinating agency rather than an executive one.

As the Overman Act expired six months after the end of the war, bureau chiefs attacked Goethals's methods in Congressional hearings. Major General Clarence C. Williams of the Ordnance Department testified that “not one single constructive thing has come out of the Purchase, Storage, and Traffic Division.” The Chief of Engineers reported to Congress that it was “providential” that Goethals's reorganization had not fully matured until the first week of November, and therefore was “not actually tested by war,” insisting that such a test would have revealed that the reorganization had merely broken a well-functioning system. Other bureau chiefs echoed similar sentiments, arguing that Goethals and the Purchase, Storage, and Traffic Division were unwanted interlocutors in their domains, and that the reorganized postwar army

should confine the Purchase, Storage, and Traffic Division—and any division of the General Staff, for that matter—to a purely supervisory and coordinating role.¹⁰⁹

Such pushback was a function of the larger debate over the role of the Chief of Staff and General Staff. Among career officers, two points of view were most prevalent. One school of thought held that the Chief of Staff and the General Staff assumed too much power in the summer and fall of 1918. Another argued that a strong CSA and empowered General Staff divisions like Goethals's were far superior to old methods and were the way of the future. Those most publicly and vociferously participating in the debate were the army's senior leaders, the long-serving stalwarts of Goethals's generation. In effect, then, this generation of officers was at war with itself over the future of the army. A failure to achieve consensus, budgetary shortfalls, and a sharp postwar reduction of forces tipped the scales in favor of the more traditionalist view. The National Defense Act of 1920 limited the General Staff to a Chief of Staff, four assistants, and 88 other officers—less than a third of the amount advocated by March and other advocates for a robust General Staff—and defined its role as a planning and coordinating agency.¹¹⁰

That regressive turn, however, proved temporary. The fact that it was contested within a generation of officers that had, throughout their careers, tended to instinctively embrace nineteenth century traditions revealed cracks in the foundation of traditionalism. As the last holdouts of Goethals's generation left the ranks, and officers from the generation that experienced the First World War at more middling ranks were promoted to positions of

¹⁰⁹ See U.S. House of Representatives, *Army Reorganization Hearings before the Committee on Military Affairs*, 66th Cong., 1st Sess., 1919, vol. I (Washington: Government Printing Office, 1919). Quotations on pages 493 and 765, respectively.

¹¹⁰ John D. Milet, *The Army Service Forces: The Organization and Role of the Army Service Forces*, United States Army in World War II Series (Washington, DC: U.S. Army Center of Military History, 1985), 13-16.

significant responsibility, traditional forms and practices began to hold a considerably less robust appeal. The next generation rising to lead the institution believed that their experiences in the war had confirmed the value of formal training and education, and the need for a powerful and active Chief of Staff and General Staff.¹¹¹

Accordingly, the army's interwar years were marked by adaptation and innovation, despite the necessarily limited resources of the Depression years. Ultimately, Goethals won the argument. U.S. Army Chief of Staff George C. Marshall overhauled the War Department in early 1942 to organize a robust and active General Staff and Service Organizations imbued with nearly total authority over all parts of the army. Bureau chiefs filled important roles, but were clearly subordinate to the Army Service Forces, whose leader was granted not only executive authority, but also command authority. Revealing that the pendulum had swung largely because of his generation's experiences in the First World War, Marshall created the Army Service Forces in the Purchase, Storage, and Traffic Division's image, organizing it to serve as the single executive agency responsible for managing army logistics. With some important modifications that significantly expanded the scope of its mission, the Army Service Forces functioned almost exactly as Goethals had envisioned, providing invaluable service throughout the Second World War.¹¹² It had taken nearly forty years, but the U.S. Army's institutional culture had finally caught up to its structures.

¹¹¹ J.P. Clark, *Preparing for War: The Emergence of the Modern U.S. Army, 1815-1917* (Cambridge, MA: Harvard University Press, 2017), 269-272.

¹¹² For a complete history of the Army Service Forces, see Millett, *The Army Service Forces: The Organization and Role of the Army Service Forces*. That Goethals's Purchase, Storage, and Traffic Division was the antecedent of the Army Service Forces is also shown in James E. Hewes, Jr., *From Root to McNamara, Army Organization and Administration, 1900-1963* (Washington, DC: U.S. Army Center of Military History, 1975), 90.

CONCLUSION

Goethals never saw the impact he had on the U.S. Army. After retiring from the service in March 1919, he returned to private engineering business, opening a firm of his own. Reluctant to use his name and fame for profit, however, Goethals's firm was never very successful. After the war, he was at his best when pulled into public service. He served quite effectively as New York's coal administrator, helping the state manage its shortage of coal caused by the anthracite coal miners' strike of 1922. Never a successful business venture, his firm dissolved in 1923. Afterwards, Goethals worked alone as a consulting engineer, providing particularly useful service to the Port of New York Authority in several bridge, tunnel, and harbor improvement projects. With a variable work schedule, Goethals kept an apartment in New York at which he lived when working out of his office in Lower Manhattan. When not working, he went to the house he built decades earlier on Martha's Vineyard, where he spent much of his leisure time gardening, admiring the ocean views from his front porch, or taking long walks around the island, frequently joined by a growing brood of grandchildren.¹

A chain-smoker since his time at the Panama Canal, Goethals grew ill in 1927. He had developed a powerful addiction to cigarettes as a way of dealing with the stress of his work in

¹ "Gen. Goethals Dies After Long Illness," *New York Times*, January 22, 1928, 30; Author's interview with the late Thomas R. Goethals, Jr., December 21, 2012, Vineyard Haven, MA. For more on Goethals's postwar work, see J. Joseph Bucklin Bishop and Farnham Bishop, *Goethals: Genius of the Panama Canal* (New York: Harper & Brothers, 1930), 402-441.

Panama. Unaware of its health risks, he maintained the habit for the rest of his life. In the summer of 1917, he gave his public endorsement to a campaign to raise money to ship tobacco and cigarettes to American soldiers in France, declaring, “Tobacco will be the greatest solace during the long vigils of trench warfare, and it is almost as essential, in many cases, as food itself.”² A year later, a journalist observed Goethals at work in the War Department making “such short shift of obstacles, callers, cigarettes, lunch, and other incidentals” while intensely focused on his work in the War Department. After nagging illnesses kept him inactive for most of the year, Goethals finally followed his son Tom’s advice and went in for a full medical examination in September 1927. The examination revealed that he was suffering from lung cancer, and it was terminal. Nevertheless, Goethals decided to fight the illness. He moved into his New York apartment to have access to more specialized care, undergoing experimental treatment when opportunities were presented to him. Nothing worked. Goethals died in his apartment on January 21, 1928, surrounded by his wife and two sons.³

Obituaries understandably focused on and celebrated his achievements at the Panama Canal.⁴ Some officers, however, suggested that his service during the First World War was of equal or greater significance. Major General Charles P. Summerall, then serving the army’s Chief of Staff, remarked that Goethals’s “epochal achievement in completing the waterways which unites the Atlantic and Pacific Oceans at the Isthmus of Panama has obscured the brilliance of many similar accomplishments throughout a period of over forty years as a military

² George W. Goethals to S.M. Reynolds, July 5, 1917, Box 40, George W. Goethals Papers, LC; Donald Wilhelm, “The Master of Mobilization,” *The Independent* 95 (September 7, 1918): 316.

³ “Gen. Goethals Dies After Long Illness,” *New York Times*, January 22, 1928, 1 and 30; Bishop and Bishop, *Goethals: Genius of the Panama Canal*, 442-460.

⁴ See, for example, “George W. Goethals,” *The Nation* 126, February 1, 1928, 111; “When Goethals Made the Dirt Fly,” *The Literary Digest* 96, February 11, 1928, 45-52; and “Gen. Goethals Dies After Long Illness,” *New York Times*, January 22, 1928, 1 and 30.

engineer, military supply officer and military administrator.”⁵ One of the honorary pallbearers at Goethals’s funeral, General Peyton C. March, went even further. In his memoir, March wrote, “The work that he did as the virtual Chief of Supply of the Army far transcended in magnitude, and certainly equaled in importance in its effect on world history, the construction of the Panama Canal.”⁶

In weighing Goethals’s influence on the nation and even the world, such sentiments seem hyperbolic. But in assessing Goethals’s lasting impact upon United States Army, Summerall and March were correct. Goethals’s work in Panama was a feather in the army’s cap, but did little to influence the institution. Through his service during the First World War, however, Goethals played a substantial role in bringing to a conclusion a decades-long process of military reform that stretched from late-nineteenth century experiments with postgraduate military education, through the Root Reforms, and to the ultimate realization of the potential of those reforms immediately before and during World War II. It is because of his interactions with and influence upon the U.S. Army that Goethals’s story is more than just an individual narrative.

Goethals’s experiences in the U.S. Army closely reflect, in a general sense, the collective experiences of his generation of officers. Attending West Point when it was stagnant as an educational institution, he was introduced to the military profession. Deliberately designed to reflect traditional modes of education and interpretations of professionalism, West Point sparked his ambition and inspired a deep, personal commitment to the army. Due to its small size and frontier disposition, the army was inclined to ignore the consensus emerging in American society that favored formal training and education as an important component of occupational and

⁵ “Army Men Pay Tribute,” *New York Times*, January 22, 1928, 30.

⁶ Peyton C. March, *The Nation at War* (New York: Doubleday, Doran, and Company, 1932), 196.

professional specialization. Accordingly, his years at West Point were one of the last periods of time the army took pains to deliberately train and educate him.

Thereafter, he served in an army that expected him to learn and develop through experience from his various duty assignments. At the same time, the army took few measures to standardize its assignments process to ensure that it systematically exposed him to jobs that offered enriching experiences. Meandering through an unsystematic process of assignments and officer development, he came upon and took advantage of several excellent opportunities to learn and excel as he advanced through the ranks. In the process, he earned a reputation as one of his generation's best and brightest officers. Although he was attuned to and willing to subscribe to some of the changes taking place in society at large—especially modern theories and practices of management—he generally perceived his own success to be a validation of traditional systems of thought and practice in the army, even well after the conditions that made them necessary ceased to exist. Because of the problems he observed and experienced in the War with Spain in 1898, he tolerated the new institutional structures imposed by the Root Reforms, but continued to cling and adhere to comfortably traditional norms, values, and behaviors.

In the crucible of the First World War, however, severe crises in the American war effort shook his faith in tradition. As a senior army leader, he responded to crises by deviating from tradition to create and implement short-term solutions to problems immediately at hand. It worked, but only because the war ended in 1918. From his vantage point, he knew that the American war effort would be in jeopardy in 1919. And in that knowledge lay at last a tacit recognition of the inadequacy and obsolescence of the systems and practices of the nineteenth-century U.S. Army.

This description of Goethals's career could be applied with equal accuracy to summarize the careers of Tasker H. Bliss, John J. Pershing, Hunter Liggett, Peyton C. March, and many others from that generation. The only significant point of variance for individual members of that generation is in the conclusions drawn from the experience of the First World War. On this point, Goethals's generation was deeply divided. Ultimately, the army's institutional culture changed after the war because the next generation of officers achieved a consensus about the war's implications that Goethals's generation could not.

The collective experience of Goethals's generation of officers reveals a long-neglected aspect of military reform in the late-nineteenth and early-twentieth centuries: the slow shift in the army's institutional culture. Turn-of-the-century military reform is too often treated solely as the story of the Elihu Root's program of reforms and the efforts of a few exceptionally dedicated military thinkers. Such a narrative oversimplifies and drastically shortens the process of institutional change, which was and is equal parts structural and cultural. In the case of army reform as the nineteenth century gave way to the twentieth, the structural changes wrought by the Root Reforms happened relatively quickly, from 1899-1903. But the pace of cultural change was much slower. It took more than three decades and a world war to change the army's institutional culture to such an extent that it realigned with the army's institutional structures.

The dynamics of cultural change in the U.S. Army during this period are instructive. They offer four general and interconnected implications about cultural change in any human organization or institution, military or civil. First, the army's experience of cultural change suggests that it happens slowly within large institutions because the conditions that shape human institutions change faster than the institutions themselves can change. Practices born of necessity become enshrined as tradition and outlive the conditions that made them necessary, as

the realization that a given value, belief, or practice is outdated almost inevitably comes long after the point at which it is no longer relevant. The army's passive reliance upon experiential learning was rooted in its traditionally small size, mission, and frontier disposition. When the frontier vanished, the need for the army to be dispersed in small-unit outposts scattered throughout the American West similarly disappeared. As larger units consolidated on larger posts, the army fell into a true peacetime routine during which it was not in constant operational use. This held enormous possibilities for the emergence of more robust systems of training and education. Despite the occurrence of some large-unit maneuvers, those possibilities were largely unrealized as officers clung to traditional, but now outmoded beliefs about training and education. That perception, and the practices derived from it, had long outlived the conditions that made them necessary.

Stemming from this, the second implication is that cultural change happens slowly in human institutions because people have a tendency to resist change. Goethals's story shows that even an agent of change can still resist change. The gap between the army's institutional culture and its structures closed when the army and its officer corps fully embraced both a rigorous military education system and an active General Staff. Goethals resisted both until the last year of his career. In the end, he only supported the latter half of that equation. Even as late as 1922, he extolled the virtues of experiential learning as superior to formal, classroom-oriented education. Goethals's embrace of only part change was the mirror image of Pershing's. As Chief of Staff of the U.S. Army from 1921-1924, Pershing did much to foster the growth of the army's educational system. At the same time, he confined the General Staff to administration, allowed the bureau chiefs to reign supreme in logistics, and attempted to redefine the role of the Chief of Staff in the image of the nineteenth-century Commanding General. In their belated and

half-hearted embrace of change, Goethals and Pershing were closely aligned with their generation's response to the Root Reforms. Uncomfortably new structures that departed from tradition inspired resistance through the First World War. Although the war provided ample evidence that traditional systems and practices were inadequate for modern warfare, this generation of officers moved only from resistance to ambivalence. After decades of service, the force of tradition was too powerful to overcome.⁷

Third, changes in organizational and institutional culture are not simply generational. The mere existence of generations and transitions between generations do not necessarily mean that cultural change will occur. Goethals's peers and colleagues idealized the Civil War generation that came before them. They borrowed much and deviated little from the values and practices bequeathed to them by their predecessors. Furthermore, officers of the generation that succeeded Goethals's did not complete the army's slow process of cultural change simply because they were a new generation. They did so because the experience of the First World War had fundamentally altered their perceptions at a point in time when they were still relative newcomers to the institution, and therefore less deeply attached to its traditional norms, values, and behaviors.

Finally, and related to the point above, crisis is the most important and reliable stimulus for shifts in organizational and institutional culture. The force and effect of crisis far outweighs possibilities presented by generational transition alone. Absent the troubled mobilization for the

⁷ See Samuel Crowther, "Don't Fear to Attempt a Thing Just Because it Looks Big," *American Magazine*, January 1922, 16 for Goethals's views on training and education in 1922. Pershing's Chief of Staff years are covered in Donald Smythe, *Pershing: General of the Armies* (Bloomington, IN: Indiana University Press, 1986), 275-280. Although in a more technological context, this type of resistance to change is a major theme in Elting E. Morrison, *Men, Machines, and Modern Times* (Cambridge, MA: M.I.T. Press, 1966). See especially pages 37-44 and 76 for Morrison's best treatment of resistance to change.

War with Spain in 1898, it is unlikely that Goethals's generation would have tolerated the new institutional structures imposed by the Root Reforms. They may not have even had to, as it is equally unlikely that the legislation that enacted the reforms would have passed through Congress without the scandals surrounding mobilization in 1898. Two decades later, it was the crisis of a stalled and strained war effort in 1917-1918 that broke the traditional consensus among Goethals's generation and set the conditions needed for real change in the army's institutional culture.

George W. Goethals dedicated his entire adult life to the United States Army and the improvement and efficiency of vast organizations. It is entirely fitting, then, that his life reveals so much about both the army he served and the dynamics of organizational and institutional change.

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