NOT FALLEN, BUT FLOODED:
THE WAR DEPARTMENT SUPPLY BUREAUS IN 1917.

DISSERTATION

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ABSTRACT

By the declaration of the armistice on November 11, 1918, the United States had mobilized and deployed millions of soldiers to France helping to break German resistance and end the war. The expansion of American capabilities that contributed to the decision on the Western Front was astounding. The agencies responsible for equipping and supplying forces had increased their operations several hundred-fold as the army expanded from 290,000 to over four million men in 19 months. However, for all its achievements, the American mobilization had been a close run thing. For a time, the obstacles seemed so great that many doubted whether the United States would propel sufficient force overseas to contribute to the war before German victory in Russia or Franco-British exhaustion led to Allied defeat. In the winter of 1917, a crisis arose that led Congress to investigate and the administration to reorganize the War Department.

This work examines the targets of the investigations and public distress: the five War Department supply bureaus. The Engineer, Medical, Ordnance, Quartermaster and Signal Departments were the nucleus of the system to support the troops in the field, develop equipment, and purchase necessary items for the Army. These bureaus, which reported to the Secretary of War and assisted his administration of the Army, provided the resources that allowed the Infantry and Artillery to operate in peace and war.

Critics at the time pointed to the five supply bureaus as the cause of the War Department's inability to manage the mobilization effort.

What caused the near collapse of the United States' mobilization program in 1917? In their analyses of the War Department's supply bureaus, nearly every historian attributes the collapse of the Army's industrial mobilization effort to some combination of four fatal flaws. They suggest that the bureaus and their chiefs opposed coordination that endangered their autonomy, regularly went around the War Department hierarchy to secure support for their programs, consciously competed with each other for scarce resources, and avoided the most advanced business systems.

The emphasis on bureau culpability is misdirected. While incidents related to the four flaws did occur, they were ultimately symptoms of a larger problem. This dissertation will show that the bureaus failed in 1917 because their organizational system was designed for financially accountable and economical purchase in support of a small peacetime force, not operationally efficient high volume procurement at an accelerated tempo for a large force overseas. The real culprit proved to be a major change in American national security strategy that placed more pressure on the organizational structure of the military establishment than its designers had intended it to bear. With the commitment to send a mass army to France, the managerial form of the War Department no longer matched its function. As the scale and scope of responsibilities increased, the supply bureaus did not fall, but were flooded by the requirements of an unprecedented and unanticipated mission.

The story of 1917 is one of an administrative system striving to adapt to rapid growth. Within the span of eight months, American plans changed from a strategy of

mobile defense of U.S. coasts and territories to the deployment of millions across the ocean to fight a war of attrition in France. Although the bureaus were viable institutions before the war, the existing bureau form proved incompatible with this evolving wartime function. After they had analyzed events in Europe, bureau leaders decided to utilize the existing forms and structures to manage the new functions and strategies. Because it initially appeared that many of the pre-war assumptions about the operating tempo and size of the army would remain valid, it seemed this moderate approach would succeed. But as the realization of the depth and breadth of the commitment to the Allied coalition clarified, the stresses on the existing system increased. Progress in many areas (the bureaus found sources of supply, brought in thousands of new personnel, and adjusted their internal systems) was not enough to retain the confidence of civilian leaders. Overall bureau performance reveals the incompatibility of an existing system with a new mission rather than some conspiracy, general incompetence, or internal power struggle.

The United States got more than it bargained for when it declared war on Germany in 1917: it faced an enemy that was far from beaten and faced it with allies who were close to defeat. The amorphous and unpredictable nature of war proved to be the greatest influence on American political economy, not only in 1917, but also for the entire period of the war. By orienting the causes of the crisis away from ignorance and toward the tension that has always existed in America over the resourcing and control of national defense, one can better understand the real challenges facing the army in 1917.

To the memory of my father.

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Maintaining a balance between the personal, professional, and intellectual spheres of my life in the completion of this work has been a rewarding challenge. I could not have done any of it without the support and encouragement of many. There are some who deserve special thanks:

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INTRODUCTION

OVERWHELMING

By the declaration of the Armistice on November 11, 1918, over 850,000 Americans had participated in the Meuse-Argonne offensive, a campaign that helped break German resistance and end the First World War. These numbers represented only a fraction of the 2.1 million soldiers whom the United States had mobilized and deployed to France. Ample evidence illustrates the effectiveness that the volume of American manpower had on the opposing German soldier. German memoirs record the despair of seeing fresh, well-fed troops supported by ever-increasing numbers of artillery and tanks bearing down on their exhausted, starving, under-equipped remnants. "With more than a million fresh, young, ardent Americans pressing forward into battle, the result was inevitable…" General Erich Ludendorff was quoted as saying after the war. In the German view, it did not matter that the Kaiser's forces had fought better; mass and materiel prevailed over élan and soldierly skill. American manpower and industry provided a decisive edge in this grinding war of attrition.[1]

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[1] There were over a million more troops completing mobilization in America in November 1918; see Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the U.S. Army, 1775-1945* (Washington, D.C.: Department of the Army, 1955), 307. Ernst Jünger, *The Storm of Steel: from the Diary of a German Storm-troop Officer on the Western Front* (New York: H. Fertig, 1996), Herman Sulzbach, *With the German Guns: Four Years on the Western Front, 1914-1918*, Trans. Richard Thonger (London: Leo Cooper, 1973), Erwin Rommel, *Infantry Attacks* (Novato, Calif.: Presidio Press,

The expansion of American capabilities that contributed to the decision on the Western Front was astounding. An Ordnance Department that conducted roughly $10 million worth of business annually before 1917 spent over $4 billion in the 19 months of the war – 250 times the average prewar volume. Some figures show Quartermaster Department expenditures rising from $3.5 million in 1916 to $3 billion in 1918 alone, a rate of growth even more massive than Ordnance's. The leaders of the Army had no idea that appropriations for the period from July 1, 1917 to June 30, 1918 would increase to 500 times the level for the same period a year before. The volume of money allocated for the Army outpaced even its overall enlargement from 290,000 to over four million men in 19 months.[2]

For all its achievements, the American mobilization had been a close run thing. The impact of the multitude finally sent to France was proportional to the difficulties of raising such an Army. Ten months before this triumph it had been the Allies, not the Germans, who despaired. The obstacles seemed so great that many doubted whether the United States would propel sufficient force overseas to contribute to the war before German victory in Russia or Franco-British exhaustion led to Allied defeat. Nine months after voicing their support for President Wilson's declaration of war on Germany, members of Congress were indignant that the nation faced such a

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1990), and Ernst Udet, *Ace of the Iron Cross*, ed. Stanley M. Ulanoff and trans. Richard K. Riehn (Garden City, N.Y: Doubleday, 1970), are among those who attribute their defeat to the *Materialschlacht,* or battle of materiel in World War I. Ludendorff is quoted in *The Two Battles of the Marne; the Stories of Marshal Joffre, General von Ludendorff, Marshal Foch, Crown Prince Wilhelm* (New York: Cosmopolitan Book Corporation, 1927), 227-228.

[2] Stuart D. Brandes, *Warhogs: A History of War Profits in America* (Lexington: University Press of Kentucky, 1997), 146; U.S. War Department, *Annual Report, 1918* (Washington: Government Printing Office, 1919), 143; Kreidberg and Henry, *History of Military Mobilization*, 247.

crisis. A critical moment occurred on January 24, 1918, when Senator George E. Chamberlain, Democrat of Oregon, addressed the Senate. Chamberlain explained that he wanted to elaborate on remarks, made a few days earlier, which had stirred up a hornet's nest of controversy. In dramatic language, he reminded those present of his credentials and commented on the traditional military policy of the government. Despite his loyalty to the President and his party, he believed that, as the chairman of the Senate Military Affairs Committee, he had to give his honest opinion to the American people:

> Let me say that the military establishment of America has fallen down. There is no use to be optimistic about a thing that does not exist. It has almost stopped functioning. Why? Because of inefficiency in every bureau and in every department of the Government of the United States.

Those in attendance, both Congressmen and visitors, endorsed Chamberlain's remarks with overwhelming applause. With great emotion, he proceeded to attack the Wilson administration's conduct of the war. He mesmerized his audience as he described the reasons for his statements, President Wilson's response to his concerns, and the deficiencies of the agencies responsible for the administration of the war. He asked rhetorically: "What has the Ordnance Department been doing since 1914? Nothing (but) lying supinely on its back!" In the case of the Quartermaster Department, he declared, " you would conclude from statements in the press that 'everything is lovely,' but get on the ground and you will find the conclusion is wrong!" From his inquiries, the Senator wondered if the Secretary of War knew the "facts of the situation facing the Army" and accused him of favoring contractors from his home district. Chamberlain continued his assault on these and other targets,

including the Medical Corps and the Council of National Defense, citing reports from camps across the country and heartfelt letters from families of servicemen who suffered horribly while still within their own peaceful borders. The situation was intolerable; someone had to take action and he was willing to do so.[3]

In most observers' minds, the problem was clear. Those agencies in Washington responsible to the troops in the field had failed again, as they had in support of operations against Spain in 1898 and for the Mexican Expedition in 1916. This time the failure affected more than regional expeditions against the isolated forces of second-rate powers. In 1917, the difficulties in mobilization threatened the success of America and her allies against a most formidable enemy in a war of survival fought on battlefields thousands of miles from the country's shores.

MILITARY MOBILIZATION AND SUPPLIES

On April 6, 1917, the United States declared war on Germany. Eight months later, despite government establishment of new programs and the expenditure of hundreds of millions of dollars for building an army, the effort to mobilize the nation for war seemed on the verge of collapse. Many items the country had produced sat in rail cars on sidings from the Midwest to the East Coast awaiting space on ships for transport to Europe. The few vessels that had managed to load cargo could not leave the harbor for lack of coal. Adequate quantities of coal could not reach the ports because cars loaded full of cargo awaiting shipment overseas blocked the rail lines. In addition to this mess, the government had inducted over one million men into military

[3] *Congressional Record*, 65th Cong., 1st sess., 1918, 56, pt. 12:1194-1208.

service, placed them in camps, fed them, and tried to train them, but could not clothe them. Families feared that increases in illness and death among their sons and husbands stemmed from the conditions in these camps, just as had occurred in 1898. Adding to these problems, it appeared that war profiteers in business and industries were exploiting the situation, driving up costs and diverting production.

In response to popular demands for action, committees of both Houses of Congress conducted investigations into the way President Wilson, through the Navy and War Departments, was managing the war effort. From December 1917 to March 1918, these committees sought to identify the source of the problems. Public outcry and pressure from Congress persuaded President Wilson and his subordinates to remove some people, create new agencies, give more power to existing ones, take control of the railroads, and redouble efforts to effectively manage the war. By the armistice in November 1918, the United States had sent over two million men overseas. The output of military equipment increased, foreshadowing the country's role twenty-five years later as the "Arsenal of Democracy." The supplies from the United States that reached France contributed to American and Allied efforts to end the war.

This work examines the targets of the investigations and public distress from late 1917 to early 1918: the five War Department supply bureaus. The Engineer, Medical, Ordnance, Quartermaster and Signal Departments were the nucleus of the system to support the troops in the field, develop equipment, and purchase necessary items for the Army. With offices in the State, War and Navy building in Washington, D.C., these agencies reported to the Secretary of War, responsible for the administration of the Army. They also managed the technicians such as mapmakers, doctors,

mechanics, supply officers, and telegraph operators that helped run the Army. The bureaus were a critical element of the system that allowed the combat arms (Infantry, Cavalry, and Artillery) to operate in peace and war. Critics at the time pointed to the five supply bureaus as the cause of the War Department's inability to mobilize.

THE HISTORIOGRAPHY OF AMERICAN MOBILIZATION

In the twentieth century, military mobilization proved to involve much more than bringing together a segment of the population, giving them weapons, and pointing them toward the enemy. Those men available for the ranks were selected, inducted, and trained for battle. The supply of an expanding military force became a complex task that demanded close coordination between government and industry in order to obtain the greatest time-urgent productivity. Cooperative business and labor relations were crucial for this process, which included the identification and allocation of raw materials, conversion of plants from civilian to military production, procurement of well-designed items that functioned properly, and the transportation of these items the users. The military establishment of a state centrally linked the policy of the government, the production capacity of the country, and the armed forces. It acted on the goals of political leaders, managed the creation of the tools of war, directed the forces in the field, and made mobilization a contributor to victory. [4]

As specialized military technology played a greater role in success on the battlefield, the necessity to plan and coordinate industrial efforts grew as well. The

[4] Mobilization is "the assembling and organizing of troops, materiel and equipment for active military service in time of war or other national emergency; it is the basic factor on which depends the successful prosecution of any war." Kreidberg and Henry, *History of Military Mobilization*, v.

experience of the French Revolution was an early example of the increasing need to unite manpower with production for war. As they struggled to keep the armies of France in the field, the revolutionary government, led by men such as Lazare Carnot, went to the extreme measures of the *levée en masse* to provide the soldiers with emergency arms, ammunition, food, and clothing. In the United States, the first large-scale marriage of production with performance in the field occurred during the Civil War. General Montgomery C. Meigs, the Quartermaster General, wrestled with the monumental task of keeping the Union armies supplied, and his performance contributed directly to the eventual victory over the Confederacy. In the twentieth century, American military and industry unified sufficiently during the Second World War to field over 16 million people who fought in multiple theaters around the world while factories in the United States supported them and every other allied nation. This mastery, although not without its problems, later fueled concerns about a "Military Industrial Complex" that could threaten the democratic institutions of the country. The experience of mobilization for the First World War served as an important break from the traditions of the nineteenth century to the requirements of the twentieth.[5]

This study focuses attention on matters of industrial or "economic" mobilization, specifically army procurement, and leaves the topic of military manpower to others. Advances in manpower mobilization during World War I centered on the

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[5] Howard G. Brown, *War, Revolution, and the Bureaucratic State: Politics and Army Administration in France, 1791-1799* (Oxford: Clarendon Press, 1995); Russell F. Weigley, *Quartermaster General of the Union Army; a Biography of M.C. Meigs* (New York: Columbia University Press, 1959); John K. Ohl, *Supplying the Troops; General Somervell and American Logistics in WW II* (De Kalb, IL: Northern Illinois University Press, 1994), and Donald M. Nelson, *The Arsenal of Democracy: The Story of American War Production* (New York: Harcourt, Brace and Company, 1946); President Dwight D. Eisenhower's Farewell Address, January 17, 1961 accessed in April 2003 at

Selective Service Act and were highly successful by almost every measure. The government brought four million men into service with minimal turmoil to society or the production program. There were no draft riots (as in 1863-4); the deferment and exemption program ensured that those who needed to remain home in crucial jobs did so while every class and region bore a fair share of the burden. Judge Advocate General Enoch H. Crowder's work and the legislation that sprang from it was a model of administrative success. In fact, I would argue that it was ultimately too efficient and that the War Department took risks by bringing in men before the material program could support them.[6]

People look at the United States mobilization for World War I from an atrophied perspective that still observes the events of 1917 through the eyes of those who took over after the crisis. Among the first to record and interpret the events, these participants sought to share their personal experiences and perspectives--to identify their critical place in the Great War. Most had very strong opinions about the role of the War Department and the bureaus. Some authors - often preparedness advocates, pro-line and pro-general staff officers, and business progressives - tended to agree that the organizations involved in mobilization were poorly prepared for the tremendous task before them. From such chronicles come varied images of a military establishment and business community overwhelmed. The causes cited for the situation range from

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http://www.eisenhower.utexas.edu/farewell.htm.

[6] For the stories of two key participants, see David A. Lockmiller, *Enoch H. Crowder: Soldier, Lawyer, and Statesman* (Columbia: University of Missouri Press, 1955) and John K. Ohl, "'Old Iron Pants': The Wartime Career of General Hugh S. Johnson," Ph.D. dissertation, University of Cincinnati, 1971.

corruption or self-serving parochialism to simple inefficiency or poor organization. Observers and analysts in the years since the war have rarely modified these themes.[7]

Historians have examined important aspects of the mobilization program and many of the people in it, but they have not devoted study to the bureaus. In general, the role of the bureaus within the mobilization program has served as "strawmen" in their analysis. As these authors have produced the history of an organization or institution, written a biography, or presented narratives of the war, they have portrayed the bureaus as antagonists to their subject. For some, such as Erna Risch, Rebecca Raines, Mary C. Gillett, and James A. Huston, the events of 1917 were part of much broader accounts of the history of an organization. They do not devote great detail to what was happening within the bureaus during this period, except to fit it in to the larger account of their subject's development over time. Others, including Paul A. C. Koistinen and Otto Nelson, portray the bureaus as a foil for the study subject of their subject. Phyllis A. Zimmerman and Frederick Palmer are among the biographers who examined mobilization during the First World War only as the backdrop for the study of their main subject. In broader histories (for example, Edward M. Coffman's history of the war and the works by John Patrick Finnegan and James L. Abrahamson on the

[7] There are a multitude of autobiographical works available pertaining to World War I. Some of those in the bibliography that are more pertinent to this topic include selections by Newton D. Baker, Bernard M. Baruch, Tasker Bliss, Robert L. Bullard, Benedict Crowell, William Crozier, Johnson Hagood, Peyton C. March, John J. Pershing, Hugh L. Scott, George O. Squier, and Henry G. Sharpe. One should avoid taking these accounts too literally. Many of the authors felt they had scores to settle or sought to use this forum to advocate policy after the war. In addition to personal accounts there were a number of official or semi-official histories that applauded American performance such as Henri Requin, *America's Race to Victory;* William B. Williams, *History of the Manufacture of Explosives for the Great War*; George A. B. Dewar, *The Great Munition Feat, 1914-1918;* Charles Lynch, Frank W. Weed, and Loy McAfee, *The Medical Department of the United States Army in the World War. Volume I: The Surgeon General's Office*.

Preparedness Movement), authors have generally perpetuated the original perceptions of the bureaus as a swamp of incompetence.[8]

Many historians have perceived the War Department supply bureaus as a primary cause of the mobilization problems in 1917-18, describing them as outdated, inefficient organizations that nearly managed to cripple the United States' war effort. In this view, bureau leaders were more concerned with their narrow organizational missions than they were with the success of the whole program. The department heads resisted consolidation and control of supply mechanisms, refusing to relinquish their independent operations. Observers concluded that, at the brink of total collapse, strong personalities with foresight and will, such as George W. Goethals (Director of the Purchase, Storage and Transportation Department) and Peyton C. March (Army Chief of Staff) after February 1918, arrived to salvage the wreckage with immediate centralization. Only then did mobilization achieve success and the nation's armies prevail.[9]

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[8] These works are: Erna Risch, *Quartermaster Support of the Army: A History of the Corps, 1775-1939* (Washington, D.C.: Government Printing Office, 1962); Rebecca Raines, *Getting the Message Through: a Branch History of the U. S. Army Signal Corps* (Washington, D.C.: Center of Military History, 1996); Mary C. Gillett, *The Army Medical Department, 1865-1917* (Washington, D.C.: Center of Military History, 1995); James A. Huston, *The Sinews of War: American Logistics, 1775-1953* (Washington, D.C.: Department of the Army, 1966); Paul A. C. Koistinen, *Mobilizing for Modern War* (Lawrence, KS: University of Kansas Press, 1997); Otto Nelson, *National Security and the General Staff* (Washington, D.C: Infantry Journal Press, 1946); 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); Frederick Palmer, *Bliss, Peacemaker: The Life and Letters of General Tasker Howard Bliss* (New York: Dodd & Mead, 1934); Edward M. Coffman, *The War to End All Wars: the American Military Experience in World War I.* (New York: Oxford University Press, 1968); John Patrick Finnegan, *Against the Specter of a Dragon: the Campaign for American Military Preparedness, 1914-1917* (Westport, CT: Greenwood Press, 1974); and James L. Abrahamson, *America Arms for a New Century: the Making of a Great Military Power* (New York: The Free Press, 1981).

[9] T. Harry Williams, *Americans at War: the Development of the American Military System* (New York: Collier, 1962), 128.

Business arises as the hero in most versions of America's mobilization program during 1917. Accounts by Robert D. Cuff, Bernard Baruch, Grosvenor Clarkson, and Benedict Crowell depict the captains of America's industry and those promoting modern rational management practices as the holders of the keys to success. They assume that if the military had procured supplies in a deliberate, centralized way like large businesses did, then there would not have been the deep problems of the winter. Overcoming resistance by clever maneuver, advisory boards, culminating in the War Industries Board, were able to make the purchasing program more efficient and save the military from itself.[10]

One final category of historians that merits discussion are those who examine the development of the nation and its political system. In the process of analyzing the trends of the American experience during this period, they see the problems and solutions of the mobilization program as indicative of the stresses on a United States coping with industrialization. While the bureaus remain a secondary or even tertiary topic in their analysis, the struggle the military experienced while marrying production with people underscores the authors' perceptions of the evolution of American society.[11]

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[10] Robert D. Cuff, The War Industries Board: Business-Government Relations during WWI (Baltimore: Johns Hopkins University Press, 1973); Bernard M. Baruch, *American Industry in the War; A Report of the War Industries Board* (New York: Prentice Hall, 1941); Grosvenor B. Clarkson, *Industrial America in the World War: The Strategy Behind the Lines, 1917-1918* (Boston: Houghton Mifflin, 1923); Benedict Crowell, *The Armies of Industry; Our Nation's Manufacture of Munitions for a World in Arms, 1917-1918* (New Haven, Yale University Press, 1921).

[11] Frederic L. Paxson, *America at War, 1917-1918* (Boston: Houghton Mifflin, 1939); David M. Kennedy, *Over Here; The First World War and American Society* (New York: Oxford University Press, 1980); Ronald Schaffer, *America in the Great War: The Rise of the War Welfare State* (Oxford: University Press, 1991); Louis Smith, *American Democracy and Military Power* (New York: Arno Press, 1979); Robert H. Wiebe, *The Search for Order, 1877-1920* (New York: Hill and Wang, 1967); Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities,*

In their analyses of the War Department's supply bureaus, nearly every historian attributes the collapse of the Army's procurement and distribution effort to some combination of four fatal flaws. The first suggests that the bureaus and their chiefs were only interested in the needs of their individual organizations and opposed coordination that endangered their autonomy. In the second, the bureau chiefs, " adept at relations with Congress," regularly went around the War Department hierarchy to secure support for their programs and defend their interests. The third was that the bureaus consciously competed with each other for scarce resources, hampering the success of the military, government, and industry when more cooperation would have helped them all get the job done. The final reason is that the bureaus avoided the most advanced business organization or methods at the time and were more content to conduct operations as they had always done, even as everything collapsed around them.[12]

Although the historiography of the United States has matured since the end of World War I, the picture of bureau performance and military mobilization for the war has not. Our understanding of this event is still dominated by the perceptions of those who first told the tale. The relative success of World War II and the rise of the United States to superpower status color the context of the mobilization. There is little, if any, concerted discussion of important attitudes that affected events, the essential role of Congress in military policy decisions, and the entirely unprecedented scale of this

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1877-1920 (Cambridge: University Press, 1982); Robert H. Ferrell, *Woodrow Wilson and WWI, 1917-1921* (New York: Harper and Row, 1985).

[12] Zimmerman, *Neck of the Bottle,* 25.

mobilization. The lack of an analysis of the performance of the War Department supply bureaus in 1917 prevents us from realizing the depth and breadth of the challenge facing an industrial nation state mobilizing for general war and the. We also fail to learn from the successes the supply bureaus did have in military procurement.

NOT FALLEN, BUT FLOODED

This study seeks to revise our appreciation of the difficulties facing a state adjusting to war. If the four flaws outlined above were not responsible, what caused the near collapse of the war effort in 1917? Why was the United States unable to smoothly move its economy from peace to war? Why were the armies of industry not prepared to march side-by-side with soldiers on the path to victory? Why was there a crisis, real or imagined, in the winter of 1917?

While incidents related to the four flaws did occur, they were ultimately symptoms of a larger problem. The analysis presented in this dissertation will show that the bureaus experienced difficulty mobilizing in 1917 because could not adapt their peacetime methods quickly enough to meet the exponential increase in requirements that came with the war. Their organizational system was designed to support a small peacetime force in a way that was financially accountable and economical; no one ever expected it to conduct operationally efficient high-volume procurement at an accelerated tempo to supply a large force overseas. The real culprit proved to be the major change in American national security strategy that came with the declaration of war and made the existing organizational structure of the military establishment inappropriate for the task before it. The difficulty with the acquisition of equipment

and supplies for the war did not arise from personality alone, attitude alone, effort alone, or organization alone. With the commitment to send a mass army to France, the managerial form of the War Department no longer matched its function. As the scale and scope of responsibilities increased, the supply bureaus did not fall, but were flooded by the requirements of an unprecedented and unanticipated task: to form an army of millions and send it to France - quickly.

Although they were a lightning rod for criticism concerning the ineffective attempt to field an independent army for overseas operations, this emphasis on bureau culpability is misdirected. The greatest obstacles to success in 1917 lay in the traditional policies and attitudes of the entire government before the United States entered the war. The principal barriers to the rapid creation of a mass army were in the national military establishment's vision of the defense needs of the nation before the war. From the President to the cabinet to Congress, acting in what they perceived was the best interest of the country, civilian leaders had developed security policy designed for counter-invasion continental defense. Even after the President's request for a declaration of war, many in the United States had no intention of doing anything more than sending the Navy and a small token force to support the Allies while supplementing their industrial output. As the decision evolved to send millions of men to Europe as soon as possible, the available industrial capability and institutional framework proved unable to respond to the surge in demand.[13]

[13] Timothy K. Nenninger, "American Military Effectiveness in the First World War," in Allan R. Millett and Williamson Murray, eds., *Military Effectiveness* (Boston: Unwin Hyman, 1988), 116-123.

Despite bringing immense potential to the Allied war effort in 1917, the effective employment of its economic power would force American leaders to further transform U.S. institutions from those of an isolated agrarian nation to forms more suitable for an international industrial power. The president could no longer avoid the reality of the foreign policy environment. Congress lost the ability to order the bureaus to closely oversee peacetime fiscal control in order to sustain government economy and check the power of the executive. The Secretary of War and the General Staff had to administer an immense project of undefined scale and scope. The supply bureaus needed to change from agencies designed to support small, dispersed military forces operating in circumscribed areas to offices able to procure large quantities of equipment in short periods of time for mass armies projected thousands of miles away. Businesses were increasingly hard-pressed to maintain their independence from government control. Such challenges were part of the crises, conflicts, and compromises that occurred on a national scale in the early twentieth century as the nation adjusted to industrialization, but the reality of war made them much more acute. The effort to mobilize the Army for World War I required at least one of three things: an administrative organization designed for rapid mass mobilization, a reserve of supplies to meet critical demands for materiel, or time to arrange and build stocks of critical items in anticipation of a large army. As events unfolded in 1917, none of these precautionary policies were in place. The war's demands rapidly flooded the War Department supply bureaus threatening the nation's ability to pursue and achieve its political goals.

A revised interpretation of the performance of the War Department supply bureaus corrects our understanding of the challenges facing the army at the time. It is not useful to primarily attribute the problems of 1917 to ignorance or pettiness; intelligent and dedicated people err too. The analysis herein provides a better comprehension of the connection between military policy, strategy, and administration within the political economy of the United States. This research will expand the knowledge of how organizations cope with change and affirm an important truth: mobilization for general war takes time. True preparedness - sufficient stockpiles and trained reserves - can certainly reduce the time required but risk the kind of garrison state against which President Dwight Eisenhower warned. In land force policy, the political leaders of the United States continued to choose economy over security even as involvement in the European war loomed. Their decision would probably have been sufficient for American interests in almost every scenario except the one that actually occurred.

This work augments our understanding of a number of different themes in history. First and foremost, as a work in military history, it shows the challenges of a nation preparing for war. It reveals much about the nature of organizations that business historians may find useful. The complex interaction between business and government sheds light on the nature of the Progressive Era. Finally, those seeking to gain a better appreciation for the political economy of warfare in U.S. history will find many interesting ideas here.

I have based my analysis on bureau correspondence, operating manuals, and other procedural documents. I have worked with memoranda pertaining to purchase activities in 1917 found (using the War Department Decimal Classification System) in the records of the Bureaus and the War Department at the National Archives. I have also examined bureau manuals, policies, and plans to compare their expectations to the reality that followed. These volumes, usually regulations and procedures for purchase and production or War College Plans, were available at the United States Army Military History Institute, Carlisle Barracks. The current historiography looks at 1917 primarily through the eyes of those in business and in the armed forces who took over after the crisis; I wanted to look beyond their simple, oft-repeated accusations of incompetence. To do so, I reviewed contemporary writing concerning the bureaus' efforts, business management doctrine, national policy, and military strategy to find a context which revealed that the bureau structure was logical in the eyes of many observers given the anticipated requirements of the time. The greatest limitation of my research is the lack of adequate personal papers of the participants, however, when validating my thesis, I believe the evidence from other sources compensates for this inadequacy. Individuals' attitudes, actions, and agency are important variables, but I want to avoid personal politics as much as possible in order to concentrate more on the process and system of the bureaus.

The ideas proposed by Alfred D. Chandler and Mansel G. Blackford provided a method to compare the bureaus to contemporary organizations of similar size and function. Chandler's emphasis on the relation between an institution, its purpose, and its arrangement for accomplishing that purpose has been essential. His books on

business history illustrate the connection between the function of an enterprise and the form of its organization. In addition, his work provided useful ways to understand how expanding businesses adjusted their managerial structure to better control the volume and area of their concern. Blackford underscores the critical relation between managerial structures and business strategy by examining the continued success of owner-operated firms in a world of large corporations with managerial hierarchies. He shows that even though the big companies may follow a particular structure, smaller enterprises must adapt to the reality of their particular scale, scope, function, and strategy. Using concepts from the business world to assess the bureaus is particularly valid since the actions of the War Department were frequently measured against such a standard during this period.[14]

The focus on all five of the supply bureaus presents a more complete picture of the situation facing the Army and the War Department in 1917. I ask the reader to be patient as devote the first three chapters to some background necessary to establish the environment in which the bureaus operated and to present some pertinent conclusions on their role in the military establishment. In the first chapter, I re-examine a watershed event for the bureaus – the Spanish American War and the reforms that flowed from it. Next, I examine the organization and procedures of the bureaus to compare their efficiency with that of civilian business at the time. This is followed by a discussion of the policy and strategy that provide immediate context for the war. Chapters four and five describe the bureaus efforts to adapt to the rapid increase in volume during the first

[14] Alfred D. Chandler *The Visible Hand, Strategy and Structure, and Scale and Scope*; Mansel G. Blackford, *The History of Small Business in America* (New York: Twayne Publishers, 1991).

sixth months of the war in order to analyze those problems which arose from poor decisions, those which stemmed from inappropriate organization, and to show instances in which the existing structure actually worked. In the final chapter, we will see bureau efforts as the bottleneck formed, the congressional investigations, and their results. The conclusion will briefly compare the experience of 1917 to that of 1918 to analyze the efficacy of the reforms and provide context for what actually happened.

CHAPTER 1

1898-1914: CATALYST, CONTINUITY, AND CHANGE

Senator Chamberlain's public criticism of the War Department undoubtedly resonated with his audience that January day in 1918, reminding them of the last American war in which actual events had also seemed to belie the initial favorable perceptions. The problems of the Spanish American War- the fiasco at the port of Tampa, needless disease and deaths in camps, gallant volunteers without uniforms or weapons, embalmed beef – remained symbols of the inefficiency of the military establishment. Did the actual events in the war with Spain warrant this negative reputation? The adjudged failures had motivated important reform and brought the Army closer to the quality that a first-rate nation deserved, but how much did the Army actually change in the generation between that "splendid little war" and the Great War?

The events of the Spanish American War reveal what happens when there is too great an imbalance between the strategy pursued (war aims) and the existing structure of the military establishment (military capability). The Army was simply unprepared for the scale and scope of operations in 1898. When called upon in such an emergency, the military establishment, like any institution placed in similar circumstances, had a difficult time meeting the challenge of rapid expansion. After the war, reformers, including many within the bureaus, sought ways to more effectively structure the

military according to accepted theories and practical lessons learned. Facing difficulties inside and outside the War Department, their efforts to anticipate future requirements by reforming the structure and function of the Army were steps, not leaps, toward the ability to mobilize for general industrial warfare. The form of War Department administration remained inappropriate for a large-scale hasty mobilization. This chapter outlines the Spanish American War and the reforms that follow to provide some context for 1917. It will establish a pattern which illustrates that many of the conditions and events leading to the Winter Crisis were more normal in the past than is generally recognized.

THE SPANISH-AMERICAN WAR

There are a number of fascinating parallels in the hallmark military event that preceded the U.S. involvement in World War One. A general reluctance to maintain a large army coupled with civilian political leaders unready to entrust the bulk of military administration to uniformed professionals influenced debate over the correct course for the future of military policy. Until very near the break in diplomatic relations, hopes for a favorable resolution of differences delayed active military preparations. Once the war started, a radical turn from prewar policy and strategy forced the supply bureaus to adapt and improvise quickly. Poor coordination resulted in botched support missions while inexperienced individuals operating at greatly increased tempo retarded the performance of entire departments. Cries of corruption led to an investigation by the Dodge Commission that fostered change. The Spanish American War was both a

prologue to the experience of the bureaus in 1917 and a catalyst that reshaped them before the Great War began.

Although staffed by competent officers who had taken general steps to prepare the post-frontier Army for war, the bureaus and the War Department were not ready administratively or logistically to support the size of the force that President William H. McKinley requested for operations against Spain in April 1898. Upon the passage of the Fifty Million Bill the month before, the War Department spent most of the $19 million it received to upgrade coastal fortifications that had, in previous years, received from Congress only 10% of the funds generally believed necessary for their upkeep. This decision to counter potentially devastating attacks from the sea reflected the fact that the Spanish Navy was the most dangerous threat to the nation's interests. The analysis of the situation indicated that the Army would at most expand from 25,000 to 50,000 men for what would be primarily a naval campaign. As relations with Spain worsened, the supply bureaus used their allocation of the money to improve equipment stock levels that had been neglected by paltry peacetime appropriations. The leaders of Ordnance, Quartermaster, and Medical Departments warned manufacturers of coming increases in orders. Given that the War Department at the end of March was not planning for a massive invasion of Cuba, Army leaders believed that their preparations were prudently balanced with the task at hand.[15]

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[15] Miles to Alger, April 18, 1898, *Correspondence Relating to the War with Spain* (Washington, D.C.: Center of Military History, 1993); Senate *Doc.* No. 221, 56th Cong., 1st sess., "Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain," (8 vols., Washington: Government Printing Office, 1900), I, 172. This report is hereafter cited as Dodge Commission *Report*. Graham A. Cosmas, *An Army for Empire: The United States Army in the Spanish-American War* (Columbia, MO.: University of Missouri Press, 1971), 75-92; David F. Trask, *The War with Spain in 1898* (Lincoln, NE: University of Nebraska Press, 1996) 148.

Imagine these officers' chagrin at the changes that occurred with the declaration of war on April 25, 1898, when the President, bowing to domestic political pressure, called for 125,000 men, more than twice the number forecasted. This sudden change in strategy, which quadrupled the size of the army, transformed an acute shortage of supplies into a critical concern and drove the War Department's haste to procure needed items for the burgeoning forces. Organized and facilitated by the states and localities, manpower mobilization proceeded more quickly than logistics and for a time overwhelmed the Army's supply apparatus. It only made matters worse that many National Guard units did not bring their authorized equipment, compelling the bureaus to reach even further to remedy the deficiencies. These problems, although arguably to be expected when building such a relatively large army so quickly, were exacerbated by the lack of detailed contingency plans. The War Department had systematically planned and prepared for a limited campaign in a stable strategic situation, but government objectives seemed to swell weekly. There was little coordination between political goals, operational objectives, and logistics capabilities. McKinley and his advisors, especially Secretary of War Russell A. Alger and Adjutant General Henry C. Corbin, rarely consulted the military staffs, despite the officers' pleas to be included in the process. As a result, those who had to plan and execute the support operations were reduced to hunting down information, discovering requirements late, and then scrambling to meet them. Despite these difficulties, the bureau staffs worked

unselfishly, brought most problems under control within three months, and eventually succeeded in deploying and sustaining multiple expeditions to opposite ends of world.[16]

In the years before President McKinley's declaration, the organizational form of the supply departments in 1898 had been structured to prevent fraud and enforce spending limits, not to equip thousands of National Guardsmen and send them overseas. Recurring problems in procuring quality items and the absence of a pressing threat had motivated a drive to control procurement from Washington. Those advocating more centralized control of administration never anticipated a mobilization of the scale, scope, and speed experienced in 1898. Before the war, Quartermaster officers often had to circumvent legislation in order to accumulate even the most basic supplies. Surgeon General George M. Sternberg had been prohibited from purchasing new supplies until war was a certainty.

Regardless of the fact that their organizations were not designed to support large forces, the bureaus had to clothe, equip, protect the health, and transport an army that would increase tenfold (to 275,000 men) in a few months. Although regular units and special volunteer organizations had up-to-date rifles, the Ordnance Department could only equip new troops with old, black powder muskets because Congress had not appropriated money for reserve stocks of new weapons. It took Chief of Ordnance Daniel W. Flagler's department until August to acquire enough equipment for the whole Army. Even with advance warning that spring, companies needed time to re-tool factories for military contracts and were hesitant to do so until certain that they would

[16] Cosmas, *Army for Empire,* 137-153.

receive orders. Officers were not afraid to innovate wherever possible and managed by unregulated, rapid purchase of all available items to compensate for initial shortages with minimum confusion and waste. The Quartermaster and Medical Departments successfully went outside normal channels to get whatever they could from local civilian producers. Fortunately, shortly after the commencement of hostilities, Congress had authorized additional funds to do the job. After the war was over, the Signal Corps received an additional $609,000 for expenses to augment the $800 it had on hand for contingencies at the outbreak of the war. The Subsistence Department procured more than ample supplies of food, utilizing all available technology to provide a variety and quantity to the soldiers. With time, improvisation and dedication overcame the initial disparity between prewar expectations and actual events.[17]

In spite of the friction between strategic plans and reality, the War Department adapted to obtain the necessary supplies in a relatively short amount of time. Secretary Alger and Adjutant General Corbin, seeking to streamline purchase procedures, received congressional support to allow the Quartermaster and Ordnance to discard the time-consuming contract system (which mandated competitive bidding in order to hold costs down) when emergencies required rapid purchase. The Medical, Quartermaster, and Engineer Departments increased the authority of officers outside Washington to make purchases. In response to the rise in demand, the Ordnance Department added

[17] Erna Risch, *Quartermaster Support of the Army: A History of the Corps, 1775-1939* (Washington, D.C.: Government Printing Office, 1962), 515-556; Rebecca Raines, *Getting the Message Through: a Branch History of the U. S. Army Signal Corps* (Washington, D.C.: Center of Military History, 1996), 88; Mary C. Gillett, *The Army Medical Department, 1865-1917* (Washington, D.C.: Center of Military History, 1995), 117-118. In reply to questions from the Dodge Commission, the Quartermaster assessed that his department could have handled an army that doubled in size, but not one that expanded tenfold to fight campaigns overseas. See Dodge Commission *Report*, I, 436.

shifts in arsenals and pressured shell contractors to speed up deliveries so that it had enough equipment to outfit the entire Army. The military may have paid inflated prices for some goods it needed on short notice, but had little choice after being consistently denied funding for peacetime stocks intended to prevent such panic buying. While most of these early problems were remedied within three months, the war did not last much longer than that denying the bureaus the opportunity to correct the initial negative impressions.[18]

Transportation was the one of the most notorious challenges. At its nadir, many of the items shipped forward for operations in the Caribbean were lost or backed up on rails from South Carolina to the port at Tampa. After the Ordnance Department successfully procured equipment, slow deliveries caused complaints. The bureaus had no proven systems for packing, invoicing, prioritizing, or requiring performance from the railroads in an operation of a magnitude unseen since 1865. While troops traveled efficiently and well-provisioned, their equipment was often lost in transit. Because of the hasty nature of the Cuban operation, the Quartermaster Department only managed with great difficulty to get forces and supplies from around the country to the embarkation point and on to the island. The port of Tampa, despite its limited capabilities, was much closer to Cuba and hence remained the primary marshalling point over other more-developed sites such as the Engineer Depot at Mobile and the

[18] Cosmas, *Army for Empire*, 77, 140; Dodge Commission *Report*, I, 198. At the end of four months, the staff at Rock Island Arsenal had grown from 400 to 2,900 and produced 6,000 sets of infantry equipment per day.

port of Jacksonville. Such were the compromises experienced when surging from peacetime routine to operational demands in a short period of time.[19]

The mission to Cuba could not wait for logistics. The expedition departed while the support problems remained unresolved and the force suffered more than it should have from inappropriate uniforms, dearth of medicines, poor weapons, lack of maps, and unpalatable rations. An absence of Engineer support made the landings at Daiquiri almost as problematic as the departure. Signal Corps officers had to improvise communication between V Corps and Washington, but made the most of their capabilities intercepting useful information about the Spanish. Arguments between Commanding General Nelson A. Miles and Secretary of War Alger added to confused leadership among General William R. Shafter's forces and further weakened the logistics effort. Fortunately, the Spanish Army was in even poorer shape materially and the Americans were able to capitalize on their great élan and shorter lines of communication to occupy Cuba.[20]

In stark contrast to the chaotic deficiencies of the Cuban operation, supply bureau efforts to support General Wesley Merritt's expedition to the Philippines were a success. Thanks to detailed planning, adequate infrastructure based around the depot at San Francisco, and a well-coordinated effort on the part of Alger, Quartermaster General Marshall I. Ludington, Surgeon General Sternberg, Chief of Signal Adolphus W. Greely, and General Merritt, the operation went well. The Army shipped across the

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[19] Miles to Alger, June 4, 1898, *Correspondence Relating to the War with Spain*, 24.

[20] Part of the reason V Corps left so early was fear that the Spanish fleet might escape Cuba and attack the transports at sea. Cosmas, *Army for Empire,* 186-188; Gillet, *Medical Department*, 124-130.

ocean more than 10,000 men and their supplies with signal support (capturing the island of Guam along the way) to successfully besiege Manila. Strong leadership, prudent decisions, sufficient time, and line - staff cooperation brought victory in the Pacific even as chaos reigned in the Caribbean.[21]

In mid-July, General Miles seized Puerto Rico with 3,400 men, initially assigned to operations in Cuba. Other troops embarked from better quality ports in Charleston, Newport News, and the now-organized Tampa. Engineer, Signal, and Medical personnel accompanied the force providing specialized support and equipment. Supply was not an issue during the campaign because by this time quartermasters had organized sufficient transportation as well as equipment. Miles' forces easily took the island. When given time, the War Department system proved up to the task of supporting expeditionary operations.[22]

Another problem that remained notorious for many years was the number of deaths from disease. Given the initial scarcity of supplies, mobilized soldiers in stateside camps experienced no small hardship. Poorly sited camps, poorly prepared rations, and the poor sanitation practices of undisciplined citizen soldiers led by inexperienced officers contributed to outbreaks of disease. The medical profession lacked the authority to prevent poorly trained personnel from staffing hospitals that did little to help the suffering. Even the acknowledged credentials of Surgeon General

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[21] Risch, *Quartermaster Support,* 539-555; Gillett, *Medical Department*, 133; Cosmas, *Army for Empire,* 192-193.

[22] Dodge Commission *Report*, I, 443.

Sternberg and his doctors failed to enhance the ability of the Medical Department to improve standards. Poor distribution initially plagued medical supplies as well.[23]

The perceived horror of the camps was best exemplified in the debacle at Montauk Point, New York after the fighting ended. Originally intended as a rest and recovery site for returning soldiers, increasing rates of yellow fever among V Corps troops still in Cuba changed the camp's mission overnight. To avoid losing the entire corps to disease, the President and Secretary Alger allowed General Shafter to bring the troops home to a facility whose construction had just begun. The confusion that accompanied the soldiers' premature return wound up being nearly as great as it had been at their departure. The dispatch of additional troops designed to speed camp construction only added to the chaos and taxed a support system already so overburdened that soldiers slept on the ground and lived on half rations. Sick men lacked decent medical care from understaffed hospitals that, in an effort to ease crowding, released seemingly recuperated patients only to see some collapse in the streets of New York City. The commanders went to great lengths to ameliorate conditions, but the very public fiasco occurring next door to the nation's largest city left an indelible impression on many Americans.

Although the administration had enjoyed a public relations holiday into June, reports of initial mobilization problems and subsequent scandals caused an outrage. When reviewing the struggle to overcome the low state of readiness, the public did not see a heroic victory over the peacetime neglect of the military or even simple

[23] Cosmas, *Army for Empire*, 248-250.

inefficiency on the part of the War Department. Rather, many suspected criminal activity. Sanitary problems in the stateside training camps and tropical diseases that ravaged the deployed troops were responsible for over 90% of the wartime deaths. Use of the latest technology in provisioning troops could not prevent turmoil over rations. Published reports and statements by disgruntled soldiers incited a national outcry that motivated the President to act to silence public agitation before it jeopardized his party in the coming congressional elections.[24]

In September, McKinley appointed a body of distinguished citizens to investigate the various accusations. Headed by Civil War general, engineer, and railroad executive Grenville Dodge, the group was directed to seek out any wrongdoing but was not supposed to recommend change. The commission explored every detail of Army administration (except, interestingly enough, its relation to policy and strategy) finding no evidence of criminal negligence, obstruction, or any other maliciousness. However, their report did point out that the organizational structure of the War Department was ineffective, that its administration produced too much paperwork, and that Alger's lack of leadership had contributed to the problem. Commission members endorsed the end of authority divided between the Secretary and Commanding General by quoting former Commanding General, Lieutenant General John M. Schofield that it should be the role of the senior military officer to "abandon entirely...all pretense of being commanding general and to content (oneself) with acting as the chief of staff of

[24] Cosmas, *Army for Empire*, 283.

the Army under the Secretary of War and the President." Regardless of McKinley's intentions, these pronouncements gave ammunition to those interested in reform.[25]

The Dodge Commission's analysis revealed a number of truths about priorities in the War Department. Officers operated under a system that was designed for making contracts and regulating funds in peacetime rather than supporting a swift mobilization in the event of hostilities. At the height of the crisis, leaders remained as concerned about costs and fiscal accountability as they were about victory. Trying to employ some of the hard lessons of the Civil War and frontier campaigns, purchasers had remained "most vigilant" to avoid items of inferior quality, even if it took a more time to acquire essential items. For all the talk of the power of the bureaus, line officers and civilian businesses had pretty much done what they wanted to, especially in sanitation and transportation. The only problem with the canned beef had been that it did not stand up well in tropical heat, but it is unlikely that anyone had anticipated operations in such conditions. The War Department, for all its triumphs, had ultimately been unable to shed an organizational approach designed for economy and oversight of a small force, even when it needed to field and support a tenfold increase in three months.[26]

Many bureau officers clearly took the commissions findings to heart, learning from their mistakes. Some lessons were more applicable than others were. One bureau chief later went so far as to break the law based on recommendations to do so by the

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[25] Dodge Commission *Report*, I, 113-116*;* Paul Y. Hammond, *Organizing for Defense; The American Military Establishment in the Twentieth Century* (Princeton New Jersey: Princeton University Press, 1961), 11.

[26] Letter from Chief of Engineers, April 3, 1898 in Dodge Commission *Report*, I, 193; Cosmas, *Army for Empire*, 136; Trask, *War with Spain*, 159; "Reply of Quartermaster General" 439 and "Report of Commission,"188 in Dodge *Report*, Correspondence between Ludington and Bellinger, June 14-15, 1898 in Dodge Commission *Report*, 524.

report. The War Department gained endorsement for a long-neglected project when the commission advised that "coast defenses of the country must be provided for before an emergency arises." The report did not suggest a change in the relationship with business, especially since there had not really been any problems obtaining industrial support. The Ordnance Department learned it could turn to powder manufacturers on short notice and expect them to increase plant capacity or subcontract to meet Army demands.[27]

While the investigation did succeed in muting discontent, it could not soothe all the bad memories of the war. Thanks in large part to General Miles' personal campaign of revenge, the turmoil continued well in to 1899. It took a second board of inquiry to finally silence Miles, but the controversy over the "embalmed beef," although largely fabricated, left an "ineradicable stain upon the prestige of the service." Not only would the odor of rotten beef hang over the history of the war with Spain, but that same smell quickly rekindled memories of perceived bureau incompetence in 1917.[28]

REFORMS

The scandal surrounding the Spanish-American War and the findings of the Dodge Commission created an atmosphere favorable for correcting deficiencies in the

[27] Ibid., 127: General Ludington had decided in April to obey the regulation that prohibited purchase without approved appropriation, delaying procurement of a number of items needed by mobilizing soldiers. The committee suggested that he should have broken the law by declaring "possibly someone else (as the Quartermaster General) would have gone into the market earlier, anticipating approval of his acts in case war was declared and the army increased..." While such expediency may have helped, it entailed certain risks. See chapter 4 for a description of what Sharpe does when Congress adjourns in May 1917 without appropriating money for the war. He would later be made to regret his decision. Dodge Commission *Report*, 196.

[28] Cosmas, *Army for Empire*, 294.

structure of the Army. Alger's successor as Secretary of War, Elihu Root, negotiated the most notable and groundbreaking of these reforms. His efforts opened the door to a process of almost constant redirection and change that still was not complete by the time the nation declared war on Germany. Any attempt to revise the military establishment faced challenges from competing visions as to the best course, traditionalism, legitimate concerns of constitutionality, and personal politics. Some adjustments were incomplete, some were imperfect, but all were critical steps in the army's search for order in a new era. Unfortunately, while these reforms certainly corrected many of the identified deficiencies of 1898, they could not sufficiently anticipate the significantly greater challenges of 1917.

The first and possibly greatest change affecting supply organizations was the adoption of a system in which the Secretary of War supervised the bureaus and the rest of the Army through a Chief of Staff and a General Staff. Prior to this time, the supply bureaus and other staff had reported directly to the Secretary while the senior military officer, the Commanding General, sat on the outside of the administrative structure, usually advising the President, occasionally commanding troops, but effectively not much more than that. This system firmly kept the management of the military in civilian hands, separating the support function from the operational arena, but it exacerbated the discontinuity between supply and strategy that had caused so much trouble in the early phases of the Spanish American War.

From 1899-1903, Root initiated a series of bills that broke ground for a great restructuring of the War Department along more business-like lines that promised to alleviate the discord. He used a deliberate, gradualist approach to shepherd the General

Staff initiatives through congressional resistance. Intending to enhance the effectiveness of the role of the Secretary of War in the War Department, Root sought to improve the relationship between the senior military officer of the army and the Secretary. He had no desire to eliminate congressional powers over military affairs, wanting primarily to strengthen executive administration under the president as commander in chief. In this structure, some suggested that the supply bureaus should now be fully consolidated under the military Chief, effectively uniting the purse and the sword within the War Department.

However, associating the reforms with the German General Staff model (in which the military often sided with the Emperor against parliamentary control) did not give Congressmen, concerned about their constitutional prerogatives, much comfort about Root's intentions. As a result, the intent of Root's reforms did not fully take hold. The supply bureaus now fell under the Chief of Staff to ensure they were integrated into planning and policy, but they remained firmly under the authority of the civilian Secretary of War. This continued separation facilitated Congress' constitutional mandate to raise and support armies by keeping War Department expenditures exposed and not buried under the office of the Chief of Staff.[29]

The Chief of Staff and General Staff were indeed to be "the brains of the army," developing plans and processing intelligence under the uniformed Chief's direction, but the civilian secretary still provided the controlling hand. By officially placing the bureaus under the Chief of Staff, the War Department could hope to avoid the split of

[29] Hammond, *Organizing for Defense*, 14-16; Russell F. Weigley, *History of the United States Army* (Bloomington, IN: Indiana University Press, 1984), 313-325.

1898 in which the bureaus were often the last to know the strategic directions that the nation's leaders pursued. The bureaus had suffered under that previous arrangement and were willing to collaborate with the General Staff to better synchronize policy with supply. The separation of purse and sword had gone too far in the years before the Spanish American War. Placing the bureaus in a closer relationship with the policy making portion of the War Department bridged some of that gap.[30]

The incumbent influence over military supply still rested with the Secretary and Congress. Like the Founders, Congress "did not want public treasure squandered on the military establishment that was larger than it needed to be nor as efficient as it might be." At the same time elected representatives could not risk losing authority in the name of the same efficiency. So although they recognized the need for a standing army and a central planning staff, the nation's legislators sought one incapable of threatening civil liberty. This meant keeping "control of the professional army in politically responsible hands." In other words, Congress retained power specifically through its authority in administration and funding. During the early Twentieth Century, activist Congresses designed the administrative and fiscal instructions to reduce cost, be in accord with social trends, and supervise the executive. The bureau system provided adequate unity of effort that would not undergo any further structural unification because of continued fears that centralized purchase in public institutions risked "gross and serious abuses of power." Civilian control meant more than simple legal mastery; it also included effective administration, policy determination, and the

[30] John Dickinson, *The Building of an Army: A Detailed Account of Legislation, Administration, and Opinion in the United States, 1915-1920* (New York: The Century Co., 1922), 262-263.

coordination of military power with the goals of the civil government. Establishing a military staff organization that could interpose itself between civilian leadership and the armed forces faced significant resistance.[31]

There were many competing interests vying to determine a suitable military organization for the United States. The introduction of the General Staff, intended to improve the efficiency of the military establishment, met with legitimate resistance. Instead of streamlining authority and coordination, the War Department spent the next fifteen years clarifying the incomplete and ill-defined structure. It would take another emergency to demonstrate how far reforms still needed to go.[32]

BUREAU REFORMERS

Those in favor of a stronger general staff did not hold a monopoly on reform initiatives after the Spanish-American War. Contrary to the generally accepted view, the officers who would lead the bureaus in 1917 also exemplified the Progressive impulse to make things more efficient and were in favor of reform. Their efforts after 1898 met with the same mixed success as those who sought a centralized controlling agency of the army. In the period between America's first imperial conflict and its first

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[31] Elias Huzar, *The Purse and the Sword: Control of the Army by Congress through Military Appropriations, 1933-1950* (Westport, CT: Greenwood Press, 1974). Huzar's introduction does a good job of explaining the relationship between the army and Congress from the founding to the 20th Century. Allan R. Millett, "The American Political and Civilian Control of the Military: A Historical Perspective," *Mershon Center Papers in the Political Sciences,* 4 (Columbus, OH: Mershon Center, 1979),11-18; Charles S. Rindsfoos, *Purchasing* (New York: McGraw-Hill, 1915), 88; Penn Borden, *Civilian Indoctrination of the Military: World War I and the Future Implications for the Military Industrial Complex* (New York: Greenwood Press, 1989), ix.

[32] The difficulties experienced in sorting out these reforms and this new structure were definitely not unusual. In business, it frequently took several years to clarify relationships between the chief executive and the various departments after mergers occurred. See Louis Galambos and Joseph Pratt, *The Rise of the Corporate Commonwealth: U. S. Business and Public Policy in the Twentieth Century* (New York: Basic Books, 1988), 11 for a discussion of this phenomenon.

European war, the actions of these men were not those of entrenched functionaries selfishly pursuing their own narrow goals. They compare favorably to their peers for they had the backing of recognized progressive leaders and used this support to pursue reform. All were students of their profession and aimed to make the Army better prepared for war. They were ultimately people of their time, trying to balance what they believed the Army needed with what they knew they could achieve in the challenging environment of compromise present in the American governmental process. Fixing the bureau chiefs as the prime cause for the crisis in 1917 ignores their impressive résumés and notable contributions to the nation and its security.

If reforms were to last in the War Department, it was imperative that officers who would support change remained in positions to continue the process. One of the initiatives to fix the Army begun by McKinley and continued by Root and President Theodore Roosevelt occurred in the selection of general officers. The President and his Secretaries of War (Root's successor, William H. Taft, continued the practice) pushed for the advancement of a number of younger officers over more senior candidates from 1901 to 1909. John J. Pershing was one of the more notable beneficiaries of this patronage, jumping over 862 others to become a brigadier general. But this aggrandizement was not exclusive to line officers. Tasker Bliss went from being a major in the Subsistence Department to a general of the line on his way to Chief of Staff. Henry G. Sharpe, Quartermaster General from 1916 to December 1917, and his predecessor, James B. Aleshire, benefited based on their potential as supporters of reform. Root prodded the Senate Military Affairs Committee to promote his protégé and future Chief of Ordnance, William Crozier, to general. Later with endorsement

from Leonard Wood, a grateful Congress advanced wartime Surgeon General of the Army, William C. Gorgas, after he gained a favorable reputation battling mindless economy measures on the way to defeating Yellow Fever. Wood also had positive connections with William M. Black, who had been his Chief Engineer while he administered Cuba. These men justified the faith of key figures in the reforms of the period by acting whenever and wherever they could to make the Army more efficient.[33]

All five of the wartime bureau chiefs supported reforms of one form or another during the period before World War I. Sharpe was a motive force behind the bureau consolidation of 1912 even though it eliminated his position as Chief of Subsistence. He worked tirelessly to improve the quality and efficiency of quartermaster support based on the lessons of 1898, earning the respect of Secretary of War Henry L. Stimson along the way. Chief of Engineers, William M. Black, encouraged efficiency initiatives in the Corps and modernized qualifications for all Engineer officers. George O. Squier, later Chief of the Signal Corps, experimented with communications before taking over

[33] John M. Gibson, *Physician to the World: the Life of General William C. Gorgas* (Tuscaloosa, AL: University of Alabama Press, 1989, original volume by Duke University Press, 1950), 166. This period also witnessed steps to resolve the issue of patronage which analysts cite as an advantage that allowed bureau chiefs "adept at relations with Congress," a greater degree of influence than line officers. The example of Adjutant General Ainsworth clearly shows that some officers enjoyed an inordinate amount of prestige. But to single out bureau chiefs as the only recipients of support from civilian politicians is an incomplete assessment. Many officers benefited from the favors of individuals or groups of civilian leaders in the executive and legislative branches. In fact, some saw such influence as enhancing the civilian control of the military. Undoubtedly, Pershing proved he had the skill to go with the favoritism he received, but nonetheless, he was not demonstrably any more exceptional than many of his peers. Hugh Scott became Chief of Staff because Woodrow Wilson knew his brother while at Princeton. On the reverse side, three Major Generals of the regular army signed testimonials attesting to Theodore Roosevelt's fitness for command before the war started. Many other men who served as generals in World War I had been benefactors of such obvious sponsorship until Secretary of War Lindley Garrison finally quashed it in 1915. Seward W. Livermore, *Politics is Adjourned: Woodrow Wilson and the War Congress, 1916-1918* (Middleton, CT: Wesleyan University Press, 1966), 23 and James W. Pohl, "The General Staff and American Military Policy; The Formative Period, 1898-1917" (Ph.D. diss., University of Texas, 1967), 211 provide some insight into the issue of patronage.

the Aviation Section in 1916 to fix serious problems there. Gorgas campaigned vigorously for improved public sanitation as part of his efforts to eradicate disease. But arguably most impressive of all was Crozier, who supported the eight-hour workday long before it became the national standard and ardently strove to implement the programs of efficiency expert Frederick Taylor in government arsenals. These officers exhibited as much of the Progressive impulse as any of their time.[34]

The intellectual reputations of these staff officers further refute perceptions of entrenchment. Squier was one of the first in the army to earn a Ph.D. and was accepted as a member of the National Research Council. Sharpe traveled abroad at his own expense in 1907 to study the logistics systems of the European powers and published extensively on supply operations. Crozier, a recognized technical expert, produced articles on ballistics and gun construction as well as designing a disappearing gun carriage used in coast artillery forts that remained the standard for twenty years. Before becoming Surgeon General, Gorgas had been elected President of the American Medical Association in recognition of his distinguished reputation. William M. Black served as a leading member of the National Engineer Association and wrote treatises on fortifications.

Most of these bureau leaders focused their efforts on making the Army more ready for war. To counter the problems experienced during 1898 in preparing rations, Sharpe initiated training schools for military cooks and bakers. Learning from his service on the frontier, in the Philippines, and as Chief Ordnance Officer for the Peking

[34] "Personnel Records," Office of Chief of Engineers, RG 77, Entry 106, Box 1.

Relief expedition, Crozier reduced line-staff friction by institutionalizing the participation of the combat arms in the selection of weapons and equipment. Leonard Wood made him President of the Army War College where he supervised the landmark deliberations over the *Organization of the Land Forces of the United States*. Gorgas encouraged close connections between the military and civilian medical communities, which helped to unify high standards and promised a pool of doctors of a much higher quality than the volunteers who had offered their services in 1898. Black, who had been Chief Engineer of Third and Fifth Corps in 1898, later pursued similar civil-military connections for the Engineer Department. Squier served as military attaché to London from August 1914 to May 1916 sending critical reports back to the General Staff based on his discussion with senior British leaders and clandestine tours to the Western Front.[35]

Finally, the accusation of bureau collusion with congressional patrons must be laid to rest once and for all. The bureau chiefs did stay in close contact with members of congress, but it was usually the congressmen who initiated the correspondence. Many other senior officers, Wood in Cuba for instance, also contacted Congressmen with reports or recommendations. By 1915, Secretary of War Lindley Garrison had recognized the necessity of these presentations and authorized them. The bureau leaders followed his instructions, coordinating with the Chief of Staff or informing the Adjutant General of contacts. Given the critical role that Congress played in the

[35] Ronald J. Barr, *The Progressive Army: U.S. Army Command and Administration, 1870-1914* (New York: St. Martin's Press, 1998), 18; David A. Armstrong, *Bullets and Bureaucrats the Machine Gun and the United States Army, 1861-1916* (Westport, CT: Greenwood Press, 1982), 132; George O. Squier papers, Military History Institute, Carlisle Barracks, PA.

administration of the army, such interaction was essential if the military hoped to obtain any of the things it believed it needed.[36]

By and large, these officers were progressive professionals who realized the changes going on around them and sought to make the best of the existing system. They were not entrenched narrow-minded functionaries worried more about their prerogatives than about the success of the organization. Ultimately, the wide range of personalities at the highest echelons of the Army makes it much too difficult to declare that line officers favored reform while bureau leaders did not.

BUREAU DEVELOPMENTS 1900-1914

The creation of the General Staff was not the only change affecting the War Department's supply apparatus. In addition to those who would lead the bureaus in the next emergency, others addressed the lessons of 1898, met new challenges, and looked toward war using the findings of the Dodge Commission as guideposts to reform. Such developments never occurred without friction from competing priorities, political realities, or lack of information regarding what the future would hold. While the structure and form did evolve, a limited national strategy combined with functions that remained oriented to maintaining economy and civilian oversight curtailed any revolution in War Department administration.

In 1901, with the support of reform-oriented bureau officers, Secretary Root had petitioned Congress to consolidate the supply bureaus and replace civilian employees

[36] Gibson, *Physician to the World*, 93. Gibson quotes a letter from Wood to Senator Edmund W. Pettus praising Gorgas's performance in Cuba. Garrison to Chief of Staff, December 15, 1915, Office of the Quartermaster General, RG 92, Entry 1888, Box 29.

with soldiers. As was too often the case, congressmen combined this initiative with riders that actually reduced the number of officers serving on the War Department staff. Given the existing shortage of officers, this diminution threatened to seriously hinder the benefits of consolidation. It was not until August 1912 that compromise legislation combined the Subsistence, Pay and Quartermaster Departments to create a Quartermaster Corps and thus achieved one of Root's primary goals. Although this bill did reduce overall officer authorizations in the new organization, by permitting specialties such as teamsters, blacksmiths, and clerks to now be military and not civilian, it ensured more effective administration and control of support operations. While Congress sanctioned this creation a more unified supply structure, it remained unwilling to allow the complete unity of purchase under a uniformed head.

The difficulty of shipping supplies in 1898 inspired changes in transportation. To better manage the movement of troops and supplies across water to the reaches of the new American Empire, the Quartermaster created the Army Transport Service. Successful missions from the U.S. to the Philippines and support to Peking Expedition appeared to correct the deficiencies experienced in the Caribbean. The Quartermaster Department streamlined its procedures with the railroads and tried to improve control of shipments by centralizing the disbursing of payments in Washington rather than at the depots. The American Railway Association promised to establish a branch office in the capital to assist in the expeditious operation of troop and supply trains. To address the congestion of troops and supplies experienced at Tampa, both organizations agreed to allow railroads to manage shipments of war supplies through use of cards placed on the

side of a railcar. These placards would serve as a bill of lading that would inform forwarding agents of the car's contents, destination, and priority. The Signal Corps incorporated this card system into its basic contract through a clause under which the business arranged the shipment of completed products on a government bill of lading without the active involvement of a military supply officer. The Medical Department arranged for officers to serve as detail quartermasters to coordinate the transport of supplies and assigned soldiers to accompany shipments of medical supplies. In 1911, the General Staff and the Quartermaster transportation section accumulated data on a number of ports and terminal facilities at likely concentration sites to complete preparations for railroad use in the event of mobilization. Such coordination promised to put the managerial experience of the railroads at the disposal of the War Department in time of crisis.[37]

Possibly the most vexing issue of the period concerned the balance between centralizing control and decentralizing execution of procurement. The over-centralization of purchase had been a major difficulty in 1898. For although keeping purchases in Washington maintained the regimentation necessary to maximize economy and minimize corruption, it lacked the responsiveness needed for mobilization and often provided supplies based more on fiscal assessments than on the specific requests from units. At the end of the Nineteenth Century, the bureaus had usually balanced soldier needs against recognized congressional support with the soldier often losing out the process because goods were too slow to arrive and of dubious utility.

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[37] Signal Corps, United States Army, *General Property and Disbursing Regulations* (Washington, D. C.: Government Printing Office, 1915), 73.

Out of touch with the troops and their leaders, the bureaus had done little to earn the trust of the men on the line. The situation had begun to improve after 1898, but there was still a need for greater flexibility. The Ordnance Department's use of boards (which included line officers to select machine guns and artillery) decentralized decision making while helping build within the army the support needed for congressional funding. The Medical Department gave its officers assigned to units more initiative when requesting supplies believing this would allow the department to expand to meet wartime needs without encumbering the Surgeon General in details. The Engineers continued the practice of giving local officers greater autonomy over purchase. In 1907, Quartermaster General Aleshire presented the Secretary of War with a proposal to decentralize purchase operations. To better respond to the needs of the soldiers in the field, he delegated authority to the chief quartermasters who, with their department commander's approval, would requisition from designated depots or directly contract to purchase the equipment needed by soldiers in the field and in garrison. The main control would be limits on their requests based on the funds allotted to their organization.[38]

There were many benefits to the reduced dependence on centralized procurement. Besides dispersing responsibility to the users, the new system provided

[38] Robert D. Miewald, "The Stability of Military Managerial Doctrine, 1866-1941" (Ph.D. diss., University of Colorado, 1966), 114-128. There is much ambiguity in both the literature of the period and later histories about the issue of centralized versus decentralized activities. Some writers identify the centralized control of the bureaus as a reason for the predicament in 1898; others cite the absence of centralized control as a cause of the problems in 1917. The issue is ultimately one of responsiveness versus coordination. In more current terms, the commentators and officers of the bureaus were seeking a balance of centralized control with decentralized execution. In the ideal situation an organization has adequate unity of effort to avoid waste and duplication while simultaneously retaining enough flexibility to respond effectively to needs in changing situations. The differing analysis and descriptions of the

quartermasters peacetime experience in wartime supply duties. It would be more responsive, save on transportation costs, and relieve the bureau staffs in Washington of administrative minutiae, thereby allowing them to concentrate on larger issues. The practice promised to enforce economy in issue, care, and protection of supplies by forbidding excess expenditures, while fostering competition between departments pushing each to be the most efficient. Finally, it would assist in reducing the accumulation and waste of surplus by keeping inventories moving. Procedural controls provided by detailed reports helped keep control and avoid overstocking, fraud, or waste while decentralizing execution. Duplication of purchase and competition for resources were not factors given the low volume of military purchase in relation to the overall economy. These increasingly decentralized purchase operations allowed officers at depots to flexibly respond to the broad geographic scope of their mission without having to constantly consult with the main offices in Washington.[39]

Some reformers who pursued concentration of authority in the General Staff sought simultaneously to counter the consolidation of power by "experts" in the bureaus. Accompanying the General Staff reforms in 1903 was an ill-advised attempt to further improve responsiveness to the needs of the line. New legislation reduced the number of full-time bureau officers and instead placed line officers into the supply departments for a four-year temporary assignment after which they would return to

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varied manifestations of centralization and decentralization offer a revealing look at the process of administrative evolution. Gillett, *Medical Department*, 316.

[39] Office of the Quartermaster General, *Instructions Governing the Procurement of Supplies and Engagement of Services* (Washington, D.C.: Government Printing Office, 1909), 59; War Department, *Annual Reports, 1912* (Washington, D.C.: Government Printing Office, 1913), 279. By mid 1908, the same system applied to services as well and continued to be applied when the bureaus merged in 1912.

service with troops. This short detail system, designed to eliminate inefficiencies stemming from the perceived problem of entrenched staff officers out of touch with soldiers, actually risked creating friction by reducing the level of expertise required to handle many of the procurement functions. The skill requisite for contracting, bidding, and dealing with producers in an age of increasing specialization in the commercial world could not be mastered in a short time. Attempts to ensure that detail officers adhered to the complex of laws governing purchase contributed to some of the continued "red tape" and the tendency of bureau manuals to be extremely exacting but did not improve the overall effectiveness of decentralized purchases. There were quantitative concerns with the detail system as well. The Signal Corps suffered because it could not recruit a sufficient number of officers from the line. Many believed that the short detail system would not last past a declaration of war, since detached officers would naturally return to their line units and leave the bureaus essentially denuded of qualified personnel just when they were most needed. Bureau resistance to this measure is understandable given the recognized requirement for knowledgeable purchase officers. The bureau chiefs were still striving to reverse the program when the United States entered World War I.[40]

The bureaus sought to improve their operations even as they met new challenges in organization. The Signal Corps gained approval to place companies in the administrative divisions of the expanding army while various Surgeon Generals

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Chief of Staff, General Wood praised its efficiency and recommended it for application to other departments as well.

[40] The comparison regarding specialization was the opinion of Quartermaster General Charles F. Humphrey as recorded in Risch, *Quartermaster Support,* 560. A number of business books of the time also emphasize the importance of purchase officers knowing their job. See Rindsfoos, *Purchasing*, 40.

convinced Congress of the need to increase medical support for these larger organizations. The Quartermaster Department struggled to improve the quality of uniforms and rations. Its officers responded to increased construction demand and worked to develop motorized transportation for military use. The Ordnance Department endeavored to improve the output of its arsenals and bring their management in line with the most up-to-date methods. Arsenal commanders revised purchase, personnel, and property management methods within their commands even before Crozier invited Frederick Taylor to study operations at Watertown, New York. In order to avoid the difficulties it had experienced in 1898, the Medical Department received approval to place an officer on the General Staff, incorporated improved doctrine for evacuating the wounded into *Field Service Regulations,* tested procedures for disease prevention at National Guard summer training camps, and pushed for a reserve corps of trained physicians and other medical personnel. Although at the forefront of developing wireless communications, the Signal Corps struggled under the burden of developing and procuring aviation. Bureau leaders worked with the General Staff and Chief of Staff Leonard Wood to create a reserve of supplies. All five bureaus cooperated or coordinated with civilian counterparts as they provided support to civil or domestic missions in the Philippines, in San Francisco during the earthquake of 1906, in response to major floods, in Cuba, for the Panama canal, and in Alaska while continuing the river and harbor mission of the Engineers. These initiatives, characteristic of the institutional dynamism of the Progressive Era, brought more changes to the bureaus from 1898 to 1917 than had occurred in the period dating back

to the War of 1812. Unfortunately, some of these refinements would prove fallacious when the bureaus faced their next hasty expansion.[41]

THE REALITY OF REFORM

After the Spanish American War, there were numerous corrections made to the form and structure of the War Department. The path that would have led the Army to greater readiness for World War I can only be clear in retrospect. Just as there were differing visions and competing interests in the general reforms associated with the Progressive Era, so the military establishment experienced its own discord as it sought to chart a course to a more efficient organization.

Although Progressive Army officers gave impetus to some successful reform in policy and administration, the people and their representatives justifiably only wanted the level of military forces that they deemed truly necessary. Congress and various administrations used their prerogatives to take advantage of the low threat environment by choosing immediate economy over potential security in military policy. The legislative houses controlled cost by keeping the Army's size and the expenditures at an absolute minimum, reflecting the absence of forces within the Western Hemisphere large enough to threaten the existence of the republic. The "Era of Free Security" had allowed the United States to pursue such peacetime economy as a norm despite the

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[41] Hugh G. J. Aitken, *Scientific Management in Action: Taylorism at Watertown Arsenal, 1908-1915* (Princeton: University Press, 1985), 88-98; Gillett, *Medical Department*, 332-335. One of the ablest reformers in the bureaus at this time was George H. Torney. Based on his success responding to the 1906 San Francisco earthquake, he had been promoted to Surgeon General over Gorgas. He served two terms in recognition of his efforts to prepare the Medical Department for war. Raines, *Getting the Message Through*, 165-167; Risch, *Quartermaster Support,* 557-598; Raines, 121; Daniel Beaver, "The Problem of American Military Supply," in *War, Business, and American Society,* edited by Benjamin Franklin Cooling (Port Washington, NY: Kennikat Press, 1977), 75.

inefficiency experienced if the nation had to surge to mobilize for crises. People accepted this short-term security risk in return for the long-term economic gains. They wanted an army capable of performing a myriad of basic tasks in support of the new American Empire, but not one that in any way challenged the economic or political status quo.[42]

In this environment, Congressmen took very seriously their obligations with regards to military affairs, realizing that this meant not only national defense but also the protection of civil society from the burdens of militarism. Lacking a well-defined threat, legislators opted for economy and accountability. This decision was not intended to ignore the nation's security; on the contrary, the domestic threat inherent in too powerful or expensive an army presented just as great a risk to the safety of the Republic. On March 17, 1916, after more than eighteen months of war in Europe, Representative Thomas S. Crago of Pennsylvania stood before the House and summed up these conventional sentiments that had governed the period between the wars:

> We value to the full extent the advice and counsel of (the Chief of Staff and Bureau Chiefs), ... but... (it) is for the legislative branch of this government, representing, as they should endeavor to represent, the people, who must provide the means.... It has been well said that inefficiency is a part of the price that democracy pays for the blessing of individual freedom and personal liberty, and we are not yet willing to admit that they are not worth the price. It is (Congress') duty, however, to make the price as small as possible, and to that end we must work for the greatest efficiency possible harmonizing with our principles of government.[43]

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[42] Louis Smith, *American Democracy and Military Power* (New York: Arno Press, 1979), 12.
[43] *Congressional Record*, 64th Cong., 1st sess., 1916, 53, pt. 5: 4344.

Crago's goal notwithstanding, the bureaus' struggle to balance principles of peacetime economy with efficiency and readiness was often less than harmonious. Despite proven effectiveness, the Army Transport Service weathered attacks that it was not economical. To save money in 1907, the War Department had to reduce the annual allowance of machine gun ammunition to 1,000 rounds per gun – hardly enough for a crew to gain proficiency. The economic downturn of 1910 motivated a decrease in funding sufficient for only one airplane over the next two years. The Quartermaster's centralization of transport payments displeased Western railroad companies, which now had to send agents east to receive their fees. Congress initially refused to pay to expand the Medical Department organization in proportion to Army increases or even to the lower levels recommended by the Dodge Commission. When unable to transfer overages from one appropriation to cover deficiencies in another, the Chief of Ordnance annoyed Congress by refusing to spend the entire allocation for a project if it was too small for what was necessary. Crozier felt it better to try and hold the money in order to complete the project as designed rather than spend it inefficiently. The irritation of these situations frustrated bureau leaders and threatened to stifle initiative.[44]

Congress generally acted conservatively as it sought to manage its priorities. The ongoing resistance to the creation of any war reserves reflected a basic desire to avoid paying for items that would likely reach obsolescence before ever being used. Although the overall amount of red tape decreased, there remained only so many ways to provide some centralized control with decentralized execution. The committees with

[44] Armstrong, *Bullets and Bureaucrats*, 151-153; Gillett, *Medical Department*, 318. "Obituaries," *The Assembly*, January 1944, 3; Harvey A. DeWeerd, "Production Lag in the American

legislative authority over Army activities expected facts to back up fiscal requests and the various reports, summaries, and other required paperwork provided sufficient proof that the Army was behaving responsibly. Crozier's implementation of Fredrick W. Taylor's efficiency system in government arsenals earned him the displeasure of Congress when arsenal employees threatened to strike because they believed Taylorism threatened their jobs. Legislators cautiously sought to balance the interests of their many constituencies.[45]

This does not mean to say that the bureaus were constantly victims of circumstance, for they were certainly capable of creating their own ineffectiveness. Although it had successfully designed what was possibly the best rifle in the world at the time, the Ordnance Department and the boards it convened feebly vacillated on the choice of a machine gun. Both the Quartermaster and the General Staff neglected to coordinate the supply services' transportation and failed to anticipate a requirement for storage depots along rail lines within the interior to prevent a logjam at one point of embarkation. Perhaps most disconcerting were the troubles in the Signal Corps Aviation Section from 1915-1917. A series of investigations revealed a general failure to enact reforms, the suppression by commanders of unfavorable reports, fraudulent claims for compensation, and suggestions that officers had deliberately procured substandard aircraft. Secretary Baker censured General George P. Scriven and the section head, Colonel Samuel Reber, for failing to properly oversee aviation activities.[46]

Ordnance Program" (Ph.D. Dissertation, University of Michigan, 1935), 52.

[45] Aitken, *Scientific Management in Action,* 173-181.

[46] James A. Huston, *The Sinews of War: American Logistics, 1775-1953* (Washington, D.C.: Department of the Army, 1966), 296-298; Raines, *Getting the Message Through*, 165-167.

Even in the absence of such friction, improvements that appeared reasonable in peace would prove foolish when tested in war. Boards established to develop solutions to problems were very effective during peacetime for gaining consensus useful in convincing Congress and for including users in the procurement process, but they took time that might not be available in the stress of war. No one seriously considered a mobilization and deployment ten times bigger than that of the Spanish American War occurring from a limited number of American ports. The priority assigned to various domestic missions suggests that the government remained reluctant to allow the Army to attain its goal of focusing solely on preparations for war. Decentralized purchase succeeded in being more responsive to the requirements of the dispersed force and allowed the central offices in Washington to focus on purchase and production of specialized items, budget issues, economy measures, reserve stocks, and new equipment development. However, the trend toward decentralization did little to coordinate production — a procedure that had been unnecessary in 1898 — and the viability of relying on government arsenals except in an emergency prevailed. In sum, predicting future needs proved difficult then as it does now.

CONCLUSION

The decades before the First World War were a period of important evolution for the United States and its Army. Along with the majority of the country, the bureaus continued to adapt to events and improve performance. Most sought maximum efficiency and expertise, but had to do it within a tight network of constraints. Some perceived the bureaus' attempts to cope with a constrictive atmosphere as seeking favor

from Congress. Despite overcoming an initially untenable situation in 1898, success in supporting expeditions to Manila and Puerto Rico, and exoneration in postwar investigations, popular opinion continued to view the bureaus as incapable and corrupt. Consequently, the supply agencies carried a stigma of incompetence for many years.

Some would seem to suggest that the Army should have taken more initiative in preparing for war, but such action was clearly not their role. Military officers could advise their civilian masters in the administration and in Congress; they could help draft legislation favored by civilians; they could plead their case to individuals or committees; they could, of course, resign in protest. In any case, the final decision remained with duly authorized civilian leaders. More active agitation by the military would have probably overstepped legal authority and risked a constitutional crisis that not even General Miles (for all his political ambition) seemed willing to hazard. Despite the embarrassing failures of the Spanish American War, military leaders kept their place and sought change through accepted channels.

The Spanish American War and the reforms it inspired illuminate five salient patterns that affected bureau performance in 1917. First, the War Department was an agency influenced as much, if not more by legislative leadership than by any program of the executive branch of government in the years preceding the conflict. Next, the conservative direction provided by the executive to the military establishment, even with the threat of war on the horizon, led to a boomerang effect when diplomacy failed. From this follows the next point that prewar planning would only count for so much, for not only did it have to attempt to forecast against an undefined, thinking, active foe, but also it had to attempt this augury uncertain of the influence of domestic political

forces. The changes following the Spanish-American War were steps toward efficiency, but those changes necessary to attain a structure to match the most dangerous threat were not worth the fiscal or political risk. Fourth, the actions of many of the reformers show that the bureaus did learn from their experience in 1898. They addressed what was broken, but did not bother to adjust that which appeared to work, such as hasty open market buying. Finally, the popular desire for reform fueled some important improvements, but did not inspire all the changes necessary. The Army remained subject to civilian authority and domestic politics; even if there had been unanimity in the direction of reform, military officers lacked the agency to enact all the changes desired. Ironically, some of the reforms would actually work against the bureaus' later efforts. The bureaus were clearly striving to make operations as efficient as possible; intransigence would not be the reason they failed.

The Spanish American War provided a catalyst to necessary reform, but also shows the continuity of American unpreparedness for war. This perpetual state of affairs has often been realized through economy imperatives on the part of Congress and the retention of conservative civilian authority. Though sometimes frustrating, civilian control and fiscal restraint remain important principles. Unfortunately, no one at the time had discovered a way to harmonize these ideals with the level of efficiency necessary for rapid mobilization.

CHAPTER 2

ORGANIZATION AND PROCEDURE

Various forces fueled the reforms that occurred in the American military establishment in the first decades of the twentieth century. Great strides in American business organization in this period contributed to increasing economies of scale and scope. The success of the Prussian General Staff system in the 1860s and 70s revealed what a structure unified in policy, organization, and doctrine could achieve. National leaders sought more efficiency in government. Elihu Root, William Carter, and their disciples used examples from business and from other countries to restructure the military establishment of the United States for increased efficiency. But did the War Department need to operate like U. S. Steel, the DuPont Corporation, or the *Grosse Generalstab*? Did the form of the military administration match the function intended for it by the civilians who controlled it?

This chapter describes the organization and procedures of the supply bureaus before the National Defense Act of 1916 to explore how well their form matched the intended function. The analysis shows that the organization of the bureaus and the procedures they followed adequately fulfilled the functions assigned them by the political leadership of the United States. From beginning to end, the bureau system was

designed for the routine, low-volume, extremely scrutinized nature of peacetime Army purchasing and not some sort of high-volume, high-speed, expert-led production similar to the largest enterprises of the time. The Army did not need these more streamlined, advanced processes, but rather required a form suitable to a small army performing myriad roles in an environment dominated by principles of limited government, low external threat, and fiscal accountability across a geographic area stretching from Cuba to Alaska to the Philippines. The bureau purchase system was not intended to expand rapidly to support a major mobilization. The structure and processes of the military purchase facilitated control over expenditures to ensure economy and oversight while still providing adequate defense as defined by security needs of the time.

To see this, we will first discuss the standard against which observers measured bureau performance. The essay will follow with an exposition on the total structure of federal procurement to view bureau organization in a more complete context. Finally, a description of military purchase procedures will demonstrate the constrained environment facing those who were expected to prepare material for war.

THE STANDARD: A VISIBLE HAND?

Before analyzing the system for obtaining goods and services for the military, one needs to briefly discuss the appropriateness of business models as a standard against which to measure War Department organization and procedures. It is interesting and worthwhile to compare the army's purchase process to accepted commercial doctrine at the time, especially since those criticizing the War Department in 1917 did so.

Business history and theory provide a useful, albeit imperfect, rule against which to measure the supply bureaus. Influential people such as the Chairman of the War Industries Board, Bernard Baruch, and the businessman who served as Assistant Secretary of War, Benedict Crowell, certainly saw efficacy in judging the War Department against business standards. Indeed, commercial and military organizations do have much in common. The business world arguably learned from the military that hierarchical structures facilitate unity of effort. From the dawn of the twentieth century onward in the United States, the Army and commercial enterprises have shared a commitment to efficiency that fosters greater effectiveness in operations. Ideally, both seek an organizational form that best allows them to accomplish their primary function. Yet while the two enterprises bear these and other similarities, they differ significantly at the core. Consider the incentives of business compared to those of a government in a federal republic. The proprietor of a capitalist enterprise was (and still is) interested in one thing: profit. Business must maintain a positive flow of money to survive and satisfy its constituency of owners and shareholders. A nation state's motivations are the reverse. The state must certainly have money to survive, but first needs to retain the confidence of its constituency. If the citizens are satisfied, the money will come and the government will function. Both organizations make decisions intending to further their bottom line, but in different ways. With profit as the measure of prosperity, a company can develop objective processes that facilitate the programming of inputs that will increase the efficiency of output for the company. For the government, success is much more subjective: public approval as gauged by legislative representatives. This is much harder to measure and makes it more difficult to program out into the future the

inputs that are necessary to secure long-term success. This subjectivity also makes executive control much less absolute than the type exercised by civilian firms. In the end, comparisons of military purchase with models from private enterprise do broaden perspective, but an organizational form that works for a corporation may not automatically apply to the Army.[47]

The most important historical trend that pertains to our discussion is the rise of managerial capitalism. Prior to 1840, all business in the United States had been generally regional in scope, relatively small in scale, and utilized an organizational form built around an individual owner-operator to perform a single economic function. Over time, improved transportation technology, especially the railroad, and information management by telegraph enabled increases in efficiency. These enhancements led to the development of managerial hierarchies in those industries (usually those that conducted long production runs of homogenous products) whose evolving function could take advantage of high volume and rapid processes to produce more goods less expensively and distribute the finished product to a broader area. By the second decade of the twentieth century, levels of professional salaried executives were increasingly "supervising, evaluating, and coordinating functional activities under their command and coordinating the work of their department with others." These executives gradually supplanted owners as the key decision-makers, taking over the long-term direction of the business and integrating the flow of material from its initial to its finished state. While these structures represented the vanguard of organizational evolution, the

[47] A. Hamilton Church, *Manufacturing Costs and Accounts* (New York: McGraw Hill, 1917), 404.

extremely close connection between an entity's function and its form continued to fit the specific situation. In fact, for those businesses not engaged in high-volume processes, a managerial hierarchy served little use.[48]

There was no unanimity among contemporary writers as to the best structure for an organization -- "various influences and considerations enter into the form for any particular business enterprise" -- but almost all distinctions depended on either the scale or scope of an operation. The best organization was the one that permitted the most flexible shifting of the factors of risk, control, and income among the owners. Many theorists of purchase systems stressed a highly coordinated structure. Business expert H. B. Twyford explained: "In order that the best interests of the undertaking may be served, the purchase of everything needed by each department should be centralized, and never delegated to several persons scattered throughout the various sections of the establishment. Even where a concern has a number of factories or work going on in widely scattered parts of the country, there should be central control." While influential economists recognized the value of "great material efficiency" present in the modern business structure, many still believed a system of "small units and close personal relations" was preferable.[49]

When analyzing the structure of the supply bureaus, some critics have pointed to the principle of centralized control and declared that the bureau structure failed to

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[48] Alfred D. Chandler Jr., The *Visible Hand; The Managerial Revolution in American Business* (Cambridge, MA: Belknap Press, 1977), 390; Mansel G. Blackford, *A History of Small Business in America* (New York: Twayne Publishers, 1991), 35-38.

[49] Charles W. Gerstenberg, *Business Organization* (New York: Alexander Hamilton Institute, 1917), 4 and 9. Scale here refers to volume and size of an enterprise, scope addresses geographic area, product diversity, and depth of activities. H. B. Twyford, *Purchasing; its Economic Aspects and Proper Methods* (New York: D. Van Nostrand Company, 1915), 42.

adhere to this key guideline. These commentators have tried to compare the War Department to an independent enterprise that generally requires a unified purchase structure to best balance control and risk. But when scrutinizing the War Department, one should really consider it a part of the larger federal structure, not a separate entity. A broader examination of government reveals that the bureaus were integrated with the larger federal bureaucracy as an instrument of domestic and foreign policy as well as institutional support. As such, the military establishment was subject to oversight and review by other federal entities, which in turn firmly intertwined it in the struggle between the president and congress. That the bureaus sought to employ the cutting edge principles of management in their operations speaks to their desire for effectiveness. Their inability to perfectly organize in accord with those principles reveals more about the unique nature of government than a failure by the military establishment to prepare for war.

The system of checks and balances, which certainly does not make sense for a hierarchical business organization, is reasonable for a representative government. Government was certainly a special case. Even contemporaries recognized that the "aims of army work [did] not find a perfect parallel in the aims of business work, nor [did] the tests of success." As another business authority noted, "some business are so highly specialized that no one purchasing department can be organized to do all of the buying." He went on to emphasize the point that "a municipal purchasing department [would] require certain features not necessary in a private corporation." The Federal Government could adopt some of the methods but not all the forms of civilian business and still remain publicly accountable. It needed to maintain a higher level of

accountability, supervision, and thrift than most commercial concerns. As long as routine ruled, such a specialized system achieved acceptable levels of effectiveness.[50]

ORGANIZATION

The organizational structure from the President to the bureaus reflected the nature of power in the representative democracy of the United States. Centralized control simply could not exist in a way possible with business. The divided system reflected the concerns of the "stockholders" -- U. S. citizens represented by the legislature -- while providing some unity of effort for the managerial branches of the enterprise that constituted by the executive branch of government. Within the larger federal structure, there were a number of levels at which the management of the military purchase function submitted to an outside authority to fulfill the need to keep the purse of appropriations separate from the sword of power.

From Chief Executive to Bureau Chief

The President had only a limited role in the military supply process. The Chief Executive and his cabinet managed the day-to-day functions of government, but they were by no means the "owners" of the enterprise. Rather, the executive branch of government was much more responsible to its constituency than the average business executive was to the shareholders. Of course the President signed into law the bills for

[50] Instructors of Army Supply Service Course, University of Chicago, *Quartermaster and Ordnance Supply* (Chicago: University of Chicago Press, 1917), 82; Charles S. Rindsfoos, *Purchasing* (New York: McGraw-Hill, 1915), 86 and 106. It must also be noted that there was not unanimity in business theory at the time as to what managerial structure was appropriate. What worked for DuPont or Swift, would not necessarily for work for a smaller, regional company such as Stoppenbach Meat Packing in southeastern Wisconsin. See Claude S. George, Jr., *The History of Management Thought* (Englewood Cliffs, NJ: Prentice-Hall, Inc.: 1972).

support of the Army and he could appoint officers as Theodore Roosevelt had when he selected reform-minded men for key positions in the bureaus during his presidency. The primary actor in foreign relations, the President's use of the military could drive the volume and type of items the purchase system would need to acquire. The president could coordinate policy, but Congress was generally the final arbiter of decisions regarding how much and what type of military equipment to obtain. Woodrow Wilson, for one, faced a difficult enough battle to retain executive direction of the administrative apparatus from congressional control, much less take the lead on military policy. The President was a peripheral figure in the life of a bureau officer; Congress and the Secretary of War held much greater sway.[51]

Taken to its logical conclusion, the expert advice expressed above leads one to believe that purchasing for the entire federal government should have been centralized under one agency. Perhaps it was. Legislative control of all purchase in the federal enterprise occurred through its use of appropriations. Congress remained pre-eminent over the president and executive functions through its control of spending, investigations such as the Civil War era Committee on the Conduct of the War, approval of policy, influence in the selection of officers, and frequent discussions with senior military leaders. Before World War I, it "had been the custom of Congress to legislate in great detail the formation and function of government bureaus or other administrative agencies making separate appropriations for each." As this practice affected the Army, legislative authority (derived from monetary power) extended to

[51] Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877-1920* (Cambridge: University Press, 1982), 175.

broader areas of military policy through the various committees charged with overseeing government activities. While the Committee on Appropriations scrutinized all federal funds, the Committee on Military Affairs reported on the appropriation of nearly every military item except fortifications. The Committee on Rivers and Harbors monitored related expenditures and was involved with the War Department because of the responsibilities of the Corps of Engineers to these projects and other infrastructure development.[52]

Fiscal supervision enabled members of the House of Representatives and Senate to exercise significant influence over the armed forces. They exerted some of this power through patronage in appointments. Committees had a voice in force composition, size, and location of military units. Members of Congress could bend spending to the advantage of constituents by sending official letters to a bureau chief recommending a certain business from their district be allowed to bid on particular government contracts or by asking detailed questions of current bureau activities. Legislative review could reach seemingly extremes that might seem excessive today: in 1916, for example, the Quartermaster Department reported the annual mileage of every single truck in the Army inventory.[53]

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[52] Louis Smith, *American Democracy and Military Power* (New York: Arno Press, 1979), 162; Lieutenant Colonel J.B. Porter, *Army Contracts* (FT Leavenworth, KS: Army Service School, 1912), 7. "A course of three lectures delivered before students of the Army Service Schools by Lieutenant Colonel J.B. Porter, Judge Advocate, U.S. Army, Senior Instructor, Department of Law,"

[53] George Soule, *Prosperity Decade: From War to Depression, 1917-1929* (White Plains, NY: Sharpe, 1975), 44. See Seward W. Livermore, *Politics is Adjourned: Woodrow Wilson and the War Congress, 1916-1918* (Middleton, CT: Wesleyan University Press, 1966), 57 who also discusses the number of committees at the disposal of Congress to check on the executive expenditures of the government. Examples are scattered throughout bureau file in this period. For examples of the favors requested by members of Congress, see Crozier to Hon. John Q. Tilson, House of Represntatives, March 7, 1916, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2556 and Louis C. Cramton to

Such a level of detail proved tenable in an environment of small-scale forces executing minor operations. In peacetime, Congress could keep close control of the military through the specifications on appropriations and a close accounting of the funds expended. Recognizing the initiative of Congress in military affairs, the bureaus, the War Department, and the General Staff often had to take what they could get in the struggle between Army needs and Congressional frugality. The dominance gained by this detailed control of the purse in effect made the War Department and many other parts of the executive branch more responsible to Congress than to the President. Congress in the late nineteenth and early twentieth centuries was intimately involved on many levels with the workings of a military still small enough for them to regulate directly.[54]

Among the Federal departments, the supply bureaus were part of an integrated support system that served the entire government. It was not abnormal in this era of limited government for one executive agency to perform a function for more than one Federal office. Examples of these activities range from the Treasury Department directly disbursing War Department funds to the Engineer Department building harbors for the Navy to the Quartermaster Department coordinating freight shipments for the entire Federal Government. Such integration helped keep the size of the government small by preventing the creation of redundant offices. In some cases, the volume of work simply did not warrant the existence of more than one agency for the task.

Aleshire, November 29, 1916, Office of the Quartermaster General, RG 92, Entry 1888, Box 29; War Department, *Annual Reports, 1916* (Washington: Government Printing Office, 1917), 454.

[54] Skowronek, *Building a New American State*, 169.

Congress deliberately sought a clear separation of purchase functions from other administrative functions of the Executive branch. The lack of autonomy necessitated cross-agency transactions and divided administrative authority sufficiently to make any attempt by a public servant to consolidate power in one agency a difficult challenge. In an environment that placed economy first, these arrangements met the intent of Congress for the military establishment and the government at large. The system fostered civil control, achieved a degree of managerial efficiency by reducing the number of redundant functionaries, sufficed for security requirements at the time, and was acceptable to the public.[55]

Perhaps the best example of these divided administrative functions is found in the three ways that Congress used the Treasury Department to control the purse strings of the War Department. First, the Department of Treasury audited the War Department. These auditors were particularly powerful, theoretically independent of the Secretary of the Treasury and charged with seeing that every dollar of public money was expended according to the law. This agency and the laws holding contracting officers personally accountable for expenditures they made contributed to the conservative attitude most officers had toward the flexible use of money. Unless an approved appropriation existed, one simply did not spend a penny. Second, the Treasury Department maintained accounts and funds for the national government. Even though it had its own paymaster, the War Department could not independently manage its own budget nor

[55] There are a series of memos and letters covering the period of April-May 1913 that discuss this. They are found in the records of the Office of the Surgeon General, RG 112, Entry 26, Box 1037. Smith, *American Democracy and Military Power*, 114 & 152 provided the measure of requirements for the American military establishment.

disburse its own funds. Normally, individual bureau officers went to the Treasury Department for monthly allocations of money and returned with their receipts when a transaction was complete. Finally, the Secretary of the Treasury held the authority to designate the dates for the opening of proposals to bid on any government contracts. Assistant secretaries of the Treasury and Interior along with an Assistant Postmaster General examined and compared all purchase proposals to recommend acceptance or rejection. This panel acted as a centralized control on the awarding of contracts for the *entire* government, including the War Department supply bureaus. By this statute, one board was able to oversee and coordinate the relatively small volume of forecasted federal purchases. Although such checks alone appear to have been sufficient to ensure responsible use of federal monies, they did not end there.[56]

The emphasis on oversight and economy in an environment characterized by the low volume of transactions and the low level of threat colored the responsibilities of the Secretary of War. Ideally, he conducted liaison between the Army, the President, and Congress promoting policy, negotiating changes to bills, and requesting additional expenditures. While overall government purchase rested with Congress, Army purchase was essentially centralized under the Secretary of War. The actions he approved, the reports he received, and the decisions he made all point to his unifying role in the War Department. But because the Secretary had only one Assistant Secretary and three clerks working directly for him, he depended heavily on the Chief of Staff, Bureau Chiefs, and General Staff to help manage affairs.

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[56] Porter, *Army Contracts*, 11-12; Ordnance Department to Adjutant General, March 28, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 64.

Although the office of the Secretary of War lacked the personnel to administer the Department directly, he did have important authority in property and purchase. He monitored activities and coordination between the various agencies within the War Department, even personally signing requests for staff actions within the Department. He received reports from the Chief of Ordnance every six months on the status of all ordnance under department control. He was personally expected to approve and account for the issue of arms and ammunition to any War Department agency tasked to protect public money and property. The Secretary's clerks provided an internal control over money used by the bureaus when they processed supplemental requests that lacked a specific allotment. They did this by means of an endorsement that a bureau officer could take to get funds from the Treasury, but had to return to the clerk. The Secretary of War may not have personally performed all these tasks, but, as the civilian authority, he was an additional check on anything that could be perceived as a threat to civilian control of the military. The small size of the office of the staff of the Secretary of War limited its ability to oversee more than the basics and fostered the tendency of Congress to deal directly with the bureaus and General Staff on issues of policy and budget. His duties may have been comparable to a corporate top-level manager, but he lacked the staff and received much greater scrutiny than his corporation counterpart. Oversight remained paramount and the volume of activity within the War Department was still low enough that a small number of people could personally monitor it.[57]

[57] Correspondence between Secretary of War and Office of Surgeon General, April 13-15, 1911, Office of the Surgeon General, RG 112, Entry 26, Box 263; Ordnance Department, *Ordnance Property Regulations, 1917* (Washington, D.C.: Government Printing Office, 1917), 11; The Ordnance Office to Secretary of War, March 31, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12; Ordnance Department, *Ordnance Property Regulations, 1917*, 5.

Within the uniformed hierarchy of the War Department, other structural demarcations separated the purse from the sword. The Department lacked the standard functional organization advocated by civilian theory; various operational, administrative, and logistical actions were instead split among a number of offices. Although such a divided structure may not have been appropriate for a military designed to project large forces or defend against imminent threats, it certainly did not hinder the technical support missions of the Medical, Engineer, and Signal Departments that contributed as much to civilian infrastructure as to national defense. The Chief of Staff essentially helped the Secretary of War administer the Army through the Adjutant, the Judge Advocate, the supply bureaus, and the General Staff, but the bureaus remained "under the direction of the Secretary of War" -- yet another shackle on the Army. While the General Staff's mission to develop plans, gather intelligence, and coordinate policy may compare to the professional middle managers that evolved in business at the time, numerous restrictions on their activities and prohibitions on the control of resources indicate that Congress was not yet ready to abrogate its authority over military procurement.[58]

The departmental alignment of the individual supply bureaus formed the final check on the purchase structure. The bureaus described their buying network as commodity-oriented, which normally meant that one agency bought all of a basic

[58] Business literature identifies seven recognized functions: personnel (Adjutant General), transportation (Quartermaster), operations (General Staff & Chief of Staff), finance (Quartermaster), purchase (supply bureaus), legal (Judge Advocate), and communication (Signal Corps & General Staff). See Twyford, *Purchasing*. Signal Corps, United States Army, *General Property and Disbursing Regulations* (Washington, D.C.: Government Printing Office, 1915), 7; Office of the Quartermaster General, *Manual for the Quartermaster Corps, United States Army, 1916* (Washington: Government

commodity or raw material for the entire organization. In the War Department's case, however, there was a twist: the expert or primary user of a particular end item of equipment (or commodity) obtained it for the rest of the Army, even if the items shared common component materials. Therefore, rather than one unified agency purchasing canvas items for the whole Army, the Medical Corps purchased all canvas stretchers, the Ordnance Department bought canvas covers for weapons, and the Quartermaster Department purchased all the canvas tents. The bureaus organized procurement around the use of the end product, not on the material that constituted it. Contemporary theory considered this type of departmentalization appropriate for an enterprise engaging in "several different types of production simultaneously."[59]

Despite later criticism concerning the lack of a functional approach based on the availability of raw materials, a commodity-oriented practice had some advantages. Besides the obvious curb on power that such a division represented, technical experts of the Army had direct control over the acquisition of their own specialty items allowing them to better match specifications with cost. When Congress reviewed appropriations, it could often directly question the user, developer, and purchaser of the item simultaneously. While members of a committee might not understand why the Army needed a particular amount of canvas, they could see how many stretchers, covers, and tents were required. Divided purchase provided an appropriate level of detail for the time and kept expenditures visible rather than hidden behind a wall of managers or

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Printing Office, 1917), 15. The common reference for this provision was Revised Statutes, Section 1133 and existed in all bureau manuals pertaining to purchase.

[59] Church, *Manufacturing Costs*, 38. "Generally speaking, most firms carry on several different types of production simultaneously, even though the same product is carried through all of them, and whenever this condition exists departmentalization is necessary."

buried under blanket requests. Reports by item to the Secretary of War enabled him to more directly monitor purchases and pass the information to Congress. Commodity-based purchase provided a satisfactory way to connect needs to appropriations and allowed for ease of congressional review.

The lists detailing purchase responsibilities reveal that there was almost no overlap of like items. It is intriguing to see where some of the splits occur. For instance, the Quartermaster Department acquired horses, transport wagons, and associated equipment, but the Ordnance Department obtained gun carriages as well as the tack and harness for horses. No single bureau could equip an artillery battery or a wagon team. While these divisions may have been the result of agencies struggling against each other for influence, it appears that these splits were deliberate, effectively dividing the power of the bureaus even further, and only unifying them under the civilian secretariat. Separate bureaus purchasing by commodity clearly had built in inefficiencies that would have proven troublesome for the average large-scale civilian organization. United States Steel would have undoubtedly suffered financially if it had purchased iron ore separately for rolled steel, pig iron, and steel rails. But the War Department was not buying at the same volume to benefit from such economy of scale. In peacetime, and even in most anticipated war scenarios, military requirements for unfinished goods and raw materials would barely make a dent in the national market. When disagreement arose regarding purchase responsibilities, the bureaus simply negotiated. This led to some unique solutions. For example, the Quartermaster Department split the purchase of electric buzzers with the Signal Corps; the Quartermaster Department bought doorbells and desk call buttons, while Signal

purchased similar buzzers for telegraph and telephones. The quirks associated with the semi-rational nature of the War Department organization could be troublesome, but did not outweigh the larger political benefits as long as volume remained low and sufficient resources remained available to negate the need for the complete vertical or horizontal integration of military purchase.[60]

Within the Bureaus: Functional Unity

Structural divisions finally ended within the bureaus where they were able to organize along identifiable functional lines. In 1916, the Medical Department had seven officers and 146 civilians in five divisions: Personnel, Sanitation, Supply, Library/Museum, and Records. Each section performed discreet tasks that supported the Surgeon General's management of medical services for the Army. The Personnel Section had been established to ensure quality of medical personnel brought into service and, along with Supply and Sanitation, was led by a Doctor to provide expert control of these critical functions. The Quartermaster Department consisted of five divisions as well: Administrative, Finance and Accounting, Supplies, Construction and Repair, and Transportation, indicating the broad range of tasks assigned to the Department after its consolidation, but also a functional delineation. A central staff in Washington, the Office of the Quartermaster General, contained the heads of the divisions directing operations across the country. The Quartermaster General had two brigadier generals to assist him while colonels led the divisions. Supply operations

[60] Ordnance Department, *Ordnance Property Regulations, 1917*, 14-19; Signal Corps, *General Property and Disbursing Regulations*, 135-140. There was little change between the fifth edition published in 1915 and the sixth edition published 15 January 1918.

separated the storage and distribution of supplies from purchasing, determining requirements, and procuring supplies.[61]

Other bureaus had fairly flat structures, but the divisions were clearly along administrative and operational lines. An organization chart for the Ordnance Department shows a large number of internal elements reflecting the divergent types of equipment that the Department acquired and produced. At the prewar volume of purchase and production, senior Ordnance officers could assess progress and influence change within this community of subordinate offices, but a major expansion might create fundamental challenges. With its responsibilities to rivers and harbors, the Engineer Department supervised a vast network of operating offices in addition to its purchase functions. There were 59 district offices in major cities, ports, and on important rivers all charged with maintaining public transportation on the waterways. The staff of the Office of the Chief of Engineers in Washington conducted central administration, such as tracking all officers and their qualifications. Although theoretically the most effective way to organize a staff, a functional system above the internal bureau level would not have matched the objectives of civilian control. That the bureaus were internally organized in accord with these principles suggests their desire for efficiency.[62]

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[61] Gillett, *Medical Department*, 381. The Quartermaster was practicing what logisticians call "off the shelf" purchasing today. Manuals at the time discouraged the storage of commercial articles to avoid costly surpluses of items readily available. The emphasis for storage was on uniforms and shoes. See Office of the Chief, Quartermaster Corps, *Procurement of Supplies, Engagement of Services, and Pay of the Army by the Quartermaster Corps* (Washington: Government Printing Office, 1912), 68.

[62] "Organization of Ordnance Department, November 25, 1917, as described in a memorandum by Lieut. L.K. Dunworth...", Office of the Chief of Ordnance, RG 156, Entry 64. A note on the document states that the "chart represents the organization of the Ordnance Department as officially recognized. It does not show functional differentiation as they actually were." Other documents support

To cover the broad geographic scope of War Department operations, the supply system dispersed to align with major production centers or support the Army from New York to the Philippines. The Office of the Quartermaster General in the capital communicated with three main classes of operating offices in the field: department quartermasters, depot quartermasters and subsidiary quartermasters. Department quartermasters, part of the staff of military department commanders throughout the country, supported troops within their district. Depot quartermasters, with general offices in seven production centers or at other sites designated as points of supply, worked to acquire, store and distribute supplies to districts upon receipt of requisitions. Each depot specialized in handling certain types of equipment and, although following a central model, had many of their own operating procedures to better integrate with local practice. At the beginning of 1917, there were two classes of Quartermaster Department depots: general depots received, stocked, and shipped certain quantities of supplies to various posts, while the other type, basically a purchasing station, processed contracts and received supplies that a contractor produced. The latter had almost no storage space because they simply received, inspected, and shipped the products to other depots. At the bottom of the system, the camp, post, and other subsidiary quartermasters worked for the military districts as the intermediary between the supply and operating sides of the Army. To keep the troops supplied, these lower level quartermasters usually sent requests to the depots for uniforms and any special articles, but could locally purchase items when it was necessary. Each one of these field offices

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the idea that the OD organized by function and not commodity. "Personal Record," Office of Chief of Engineers, RG 77, Entry 106, Box 1; Chief of Engineers to District Engineer Officers and Division

was capable of handling every one of the diverse missions of the Quartermaster Department. Management experts from New York had reviewed the Quartermaster system before the war and found it acceptable.[63]

Medical Depots, existing primarily for distribution, were located at major ports such as San Francisco, along important transportation hubs such as Chicago and Louisville, or key overseas sites such as Manila. The Medical Department had two purchase depots in New York City and Washington, D.C. In addition, the depot at St. Louis specialized in veterinary supplies, and by 1917 there was a site at Hoboken that supported embarkation. Hospitals, infirmaries, and other units had a definitive list of authorized equipment they accumulated and kept on hand. In this unit system of supply, when the user ran low, they could send a telegram to the Depot that would release a pre-arranged kit to the unit to replenish its stocks.[64]

For its general supply functions, the Engineer Department supervised a geographically vast network of personnel and facilities. There were thirteen supply depots with more than half of these either overseas or on the Mexican border. In each of the six military departments there was an Engineer Officer. Finally, there were ten officers on headquarters staffs, one per geographic division of the country. These assignments were in addition to the staff of the Chief of Engineers in Washington.

Engineers, May 19, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2574.

[63] Cruse, Memorandum to Sharpe, Dec.13, 1916, Office of the Quartermaster General, Record Group 92, Entry 1888, Box 29; Henry G. Sharpe, *The Quartermaster Corps in the Year 1917 in the World War* (New York: Century, 1921), 274. These experts had reviewed only the Quartermaster and not the War Department system as a whole.

[64] Organization Chart, approximately 1915, Office of the Surgeon General, RG 112, Entry 129. Army War College, "The Preparation of the Medical Department for War," Lecture 1915-1916 in Curricular Archives of the Army War College, MHI, Carlisle, PA.

Each of these offices had the capability to engage in the purchase of items. Bureau officers, whether attached to a staff or member of the Staff Corps in headquarters of territorial departments and other administrative units could execute purchases. This decentralized organization equated with the operational reality of a dispersed army. There would have to be other ways to ensure control.[65]

Within the context of a representative democracy secure behind vast borders, the organizational form of the supply bureaus does not appear ineffective. The bureaus were not large entities using high-speed processes to expand the volume of production or distribution. Their institution was not separate from the rest of the federal government. Externally, the bureaus were subject to numerous checks and divisions intended to prevent any abuse of power. Internally, they were multi-functional entities conducting purchasing, procuring, and technical support for the army and the government. The reforms and innovations of the period show that the system was not perfect, but it did work. As the form a business took matched its functional motive—profit and long term viability for owners and stockholders, so did the form of the War Department harmonize with its function—the defense of a republic that remained accountable to its citizens.

PROCUREMENT PROCEDURES

The organizational form of the Army purchase system was not the only aspect governed by the principles of economy and oversight. Laws strictly regulated

[65] Chief of Engineers to District Engineer Officers and Division Engineers, May 19, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2574; Chief of Engineers, United States Army,

procurement itself by emphasizing individual accountability, exact specifications, and precise documentation when engaging in military acquisitions. As the structure of the War Department fell under the authority of the civilian Secretary of War, so too did the procedures. His oversight of funds, coupled with laws and regulations that limited spending practices, sufficiently maintained centralized control of purchases while allowing decentralized execution by the individual supply bureaus. At first glance, it may seem inefficient for all purchase to be under the control of the same person who supervised nearly every other function of the military establishment. However, upon deeper examination, one realizes that in the routine, small-scale level of peacetime army operations, these seemingly inefficient controls only further cemented civilian control without degrading overall effectiveness.

To obtain an item involved a cycle of estimate, advertisement, bid, contract, and production, with controls woven throughout. While the shell of this process was common to civilian business, the details were unique to government work (indeed, theory recognized the difficulty of espousing one policy for dealing with sellers). The Army's procurement procedures helped keep the purse separate from the sword.[66]

The Estimate Process

A concern for economy as an ultimate value, rather than calculation of profit margin or return on investment, dominated the purchase process from the very first

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Engineer Training Manual, Appendix No. 1, Elements of Administration (Washington, D. C.: Government Printing Office, 1917), 27.

[66] Rindsfoos, *Purchasing*, 41. "It is impossible to state definitely just what policies should be adopted by corporations with respect to their dealings with sellers."

step. Every Federal agency generated reports called estimates, which they sent to appropriation committees to explain and justify monetary needs for the coming fiscal year. To get its share, the Army derived its analysis from "the records of actual consumption for the preceding period or periods, modified by such knowledge as may be had as to the conditions of the equipment in the hands of troops and their probable future service." While basing requirements on past usage was in line with business theory at the time, this "probable future service" often proved to be the sticking point with Congress. The War Department tried to explain equipment needs in terms of the raw materials or equipment required for a contingency operation such as those outlined in the various war plans, but no amount of strategic analysis would convince those decision-makers who saw no impending threat or disagreed with military policy. They were simply unwilling to pay millions for items based on what amounted to best guesses. Even after the Dodge Commission had completed its investigation of the Army's performance in the Spanish-American War and advised that there should be some stockpiling of supplies, political leaders usually only released funds to supply the minor increases in manpower. Congress did not allocate money for long-term material reserves so there were no stocks of many basic items even after tensions with Germany increased. While corporate purchasers identified the financial resources, the pattern of demands, and the attitude of owner toward expansion or curtailment of production in order to be efficient over the long term, the bureaus remained generally unable to effectively communicate to authorities the results of such deeper inquiry. They depended more on everyday statistical information than strategic analysis to determine future needs, manage current activities, and review past performance. Consequently, the

system lacked the ability to justify expenditures that would allow the Army to prepare for war during times of peace.[67]

Civilian oversight prevailed during the routine estimate process. In a continuous cycle corresponding to the fiscal year, bureau offices in Washington first sent out a letter instructing subordinates how to project their equipment expenditures during the coming months. From this guidance, bureau headquarters received regular summaries that they recorded and analyzed. As the end of the fiscal year approached, Army geographic departments submitted reports of past supply usage and recommendations for future requirements to the War Department. The Office of Secretary of War sent the departmental information to various bureaus and officers of the War Department with a cover letter providing any additional guidance (normally, subordinate staffs were told to follow the same format as the previous year's appropriations). The bureaus reviewed the requests that applied to their office and recommended any changes before sending the approved reports to the Division of Requisitions and Accounts, "a purely civil office" that checked the report for correct arrangement and reference to existing laws. This division further processed the

[67] In other words, in the absence of a measure of profit, economy for its own sake dominated the thinking. Though this may not be a problem in the abstract, that which is economical does not always yield the desired outcome. For instance, it may be more economical to put advertising in fewer newspapers, but if as a result, I sell less product (or in the bureaus' case, receive fewer and more expensive contracts) it actually costs the organization more over time. Furthermore, while this type of thinking may not be unique to public service agencies, bureau opponents criticized them for putting economy first. Ordnance Department, *Supply and Allowance Tables, Ordnance Department* (Washington, D.C.: Government Printing Office, 1915 and 1917), 6. The bureau edited and published a 1917 edition before war but did not change this paragraph. The only change in quantities was for the Philippines who saw a 3x increase in authorizations which appears to have reflected strategic concerns for the Pacific despite the problems with Germany. Twyford, *Purchasing*, 82. We will see the pattern allowing stocks to remain at zero balance continue through 1916 when the bureaus attempted to secure funds to restore stocks after Pershing's Mexican Expedition, but had their requests rejected. Rindsfoos, *Purchasing,* 40.

requests and calculated the increase or decrease compared to previous years. These calculations along with the compiled, corrected, and collated collection of requests went to the Secretary of War for approval. It was only now, after the Requisitions and Accounts office had processed the data, that the Chief of Staff could first officially review the estimates for the military establishment. When necessary, the Secretary of War, Chief of Staff, members of the General Staff, and Bureau Chiefs conducted a final study to reduce conflicts. If these failed, the military leadership then submitted the estimates with their recommendations to the President. After all these steps, the Secretary of War transmitted the final Department estimates to the Secretary of the Treasury as part of the annual government request to Congress. Congressional committees used this thoroughly reviewed documentation to determine the size of the appropriation that authorized the letting of contracts for the next fiscal year.[68]

New equipment or complex military systems presented a special challenge to officers seeking to communicate Army needs. Providing coherent data upon which the staff could secure funding required technical expertise and extensive bureaucratic cooperation. Experts in Ordnance and Quartermaster published *Instructions for Bidders* that spelled out in fine detail to contractors and congress alike the schematics of more specialized military items. All the bureaus developed price lists that helped to explain some of the costs behind the requests. For elaborate projects such as harbor forts, the Board of Ordnance and Fortifications provided a forum for four of the supply

[68] Officer in Charge, Engineer Depot, Washington Barracks, D. C. To Chief of Engineers, December 11, 1916, Office of the Chief of Engineers, RG 77, Entry 106 Box 16, File "Engineer Equipment of Troops prior to 1918." Porter, *Army Contracts*, 3ff. The office of the Secretary of War presented the final estimate on Treasury Department, not War Department, forms.

bureaus plus Field and Coast Artillery officers to agree upon technical specifications and delineate responsibilities. The work of this board resulted in manuals designed to prevent duplication of effort in the construction and support of these installations. Boards that convened to develop and test machine guns or artillery were other examples of the coordination of military procurement within a system that encouraged divided effort. The detailed instructions and manuals provided acceptable standards against which Congress could check when determining the validity of estimates.[69]

With very minor exceptions, the bureaus could not initiate purchases of end items, resources for use in production, or materials for construction until after Congress approved estimates and appropriated funds. The purpose, duration, and amount of an appropriation were finite; purchase officers were expected to manage the business of supporting troops within the limits of the apportionment or allotment. If an unforeseen need developed during the year, the War Department could conduct an abbreviated estimate process called a deficiency bill to accompany any request to Congress for more funds. The process by which the army obtained funding for purchases effectively made cost a more important criterion than any operational requirement. This practice stood in contrast to private business where, while cost was certainly a factor to be limited as much as possible in all areas, the knowledge of increases or decreases in demand had a greater role in driving purchases. Putting cost ahead of a detailed

[69] United States Adjutant General, *Price List of Equipment and Material Issued by the Signal Corps to the Army and Organized Militia* (Washington, D. C.: Government Printing Office, 1917) is one of these lists. For other examples, see the Signal Corps manual in the William M. Chubb papers at the U. S. Army Military History Institute, Carlisle Barracks, PA; Office of the Chief of Ordnance, *Instructions for the Care, Preservation, Repair, and Adjustment of Instruments for the Fire Control Systems for Coast and Field Artillery* (Washington: Government Printing Office, 1916); and War Department, *Installation*

analysis of requirements made sense to those seeking to ensure fiscally responsible government.[70]

Advertisements & Bids

The desire to preserve government funds continued into the next phase of the military procurement process. Both civilian and military purchase systems had to manage the "complicated problem" of obtaining low prices and expeditious deliveries on desired items. In other words, competent buyers sought to keep stock flowing and buy at a good price while controlling overhead. The bureaus performed buying from three locations: centrally from the offices in Washington, regionally at depots by bureau officers, or locally by officers authorized to purchase in support of units.[71]

In all but emergency cases, once a purchasing officer identified a need that could not be satisfied through requisition of existing stocks, he placed an advertisement to obtain bids. The announcements appeared in approved newspapers in major production centers and in the *Army and Navy Journal*. Depots also distributed circulars containing technical specifications and other instructions to potential clients. For example, prior to 1916, quartermasters at Philadelphia, Boston, Chicago, St. Louis, New York and San Francisco placed notices in local papers asking producers to offer bids for the required quantities and types of supplies. This method best ensured competitive prices and regional distribution of Federal dollars.

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and Maintenance of Fire Control Systems at Seacoast Fortifications (Washington: Government Printing Office, 1917).

[70] Quartermaster, *Procurement of Supplies and Engagement of Services, 1912*, 8.

[71] Shaw, *Buying*, 15.

As part of the decentralization effort of General Aleshire, in 1908 Quartermaster officers had obtained a relatively higher degree of freedom in making purchases. Departmental and other quartermasters received funds periodically in a lump sum to "conduct the business of the Quartermaster Corps for which they [were] responsible." This flexibility in no way freed the local Quartermaster officer from prohibitions against spending more than appropriated or from reporting in detail how he spent the money. Rather, local officers were able to increase responsiveness by initiating contracts *before* going to Washington for approval as long as they stayed within their allocation. Through this practice, the leadership took advantage of both the peacetime routine and advances in record keeping that allowed such a risk of public accountability to be acceptable.[72]

The almost exclusive dependence on the bidding process met recognized standards of business practice at the time, although it does not appear to have been common among larger corporations. Many companies maintained catalogs or records listing the most reliable producers and the best prices to save time. Salesmen advertised products and sought contracts by making personal contact with potential clients. Purchase agents contacted suppliers or negotiated with salesmen. Some company representatives established contact with the bureaus (usually in New York City) and once the war started many others of varying size sent agents to Washington for the entire summer "to place the name of (their) organization before the proper parties in an endeavor to obtain the opportunity of making plans and specifications,

[72] Quartermaster, *Procurement of Supplies and Engagement of Services, 1912*, 7 ff.

etc." While the solicitation of bids may not have been speedy, it did prevent military-industrial collusion and created an opportunity to disperse federal funds. It also kept more influence in Congress by giving members the opportunity to recommend contractors or businesses to bureau officials.[73]

Government restrictions and relatively detailed rules helped prevent fraudulent companies from engaging in military contracts. As mentioned above, the bureaus published various "*Instructions to Bidders*" which clearly communicated specifications for some of the more complex, specialized, or highly refined items. Most of the instructions were an accepted method for seeking business and outlined in detail the requirements of a producer accepting a government contract. Valid bids needed to state unit price, dates of initial and final delivery, and specifications by lot (the government could divide lots among bidders). The prospective bidder had to identify subcontractors, prove that they had adequate facilities to do the job, and secure a bond insuring their completion of the contract. Circulars advised that low bids would be subject to careful scrutiny and that all bonds guaranteeing the contract would be investigated. The government could reorder at the same rate, while failure to meet the deadline would cost the contractor. There could be no transfer of the contract to another company. No Federal or congressional interests could conflict, although Congressmen still sent letters to bureau chiefs recommending particular businesses in their district. Prohibiting forced labor and requiring the honoring of the eight-hour workday protected workers' rights. Security was preserved by banning "foreigners"

[73] Twyford, *Purchasing*, 42; Ballinger & Perrot to Crozier, Oct 20, 1917, Office of the Chief of Ordnance, RG 156, Entry 613, Box 56.

from confidential work on items such as ammunition. These measures protected the government by emphasizing fiscal accountability, ensuring maximum return for the dollar, enforcing legislation applying to business, and retaining sufficient oversight to stand up under scrutiny.[74]

Nevertheless, the initiative to accept a contract rested with producers. Although circulars solicited bids and depot or arsenal officers invited businessmen to meet with them, many firms had no interest in government business and refused to accept the financial risk associated with fixed-price military contracts. The very specific government tolerances often proved beyond the effective capabilities of factories and caused numerous complaints when companies were later compelled to do war work. Many simply did not need the business, especially as Allied purchases took more and more of the market after 1914. A military contract might tie the producer to a long-term arrangement of rigorous tests or force it to share designs with others, thus increasing the cost and reducing the commercial benefit for a company. Contractors had to pay for a government purchase on the open market if they in any way reneged on their part of the deal. Finally, court precedent had favored the government over business in a number of contract disputes during this period. There was plenty to dissuade a company from freely engaging in government work.[75]

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[74] Rindsfoos, *Purchasing*, 75: "But the careful buyer will go further in better insuring himself...by insisting that the seller warrant the goods purchased and to be delivered as being of such a kind and quality..." Examples of congressional correspondence to chiefs are scattered throughout bureau files from this period. See, for instance, Louis C. Cramton to Aleshire, November 29, 1916, RG 92, Entry 1888, Box 29; Ordnance Department, *Instructions to Bidders…Cartridge, Metal…and Cases for Artillery Ammunition* (Washington: Government Printing Office, 1917), 5-12. This document was published on March 24, 1917.

[75] Ordnance Department, U. S. Army, "SPECIAL SPECIFICATIONS GOVERNING THE DESIGN AND MANUFACTURE OF 9.5-INCH HOWITZERS, CARRIAGES AND TRANSPORT

Companies that wanted government contracts submitted formal offers that were held until the announced end of the bidding period. Depots received the proposals and forwarded them to Washington where the bureau offices selected the best contract and then authorized the depot to arrange purchase and delivery. Regardless of their origin, bids remained subject to regulations and review by those in Washington. To ensure fair competition in the acceptance of bids, there was to be no variance from the original advertisement. In other words, an ad for a certain quantity of oats could not be filled by an offer of twice the amount even if it was actually a better deal financially. At an announced meeting that bidding parties or their agents attended, the bureau officer opened the proposals and awarded the contract to the lowest bidder offering the highest acceptable quality product. Army methods conformed to the ideas of one reputable expert on purchase who recommended the competitive bidding process as "the one certain way to get the best price." The regular purchase process fulfilled the government's purpose to obtain acceptable quality goods at the lowest possible price.[76]

In addition to this methodical technique, there were two other ways to procure supplies and engage services. If, after advertising, all the prices were unreasonable, there was insufficient competition, no proposals were received, or immediate delivery was required, the contracting officer could resort to an acceptance agreement or open-market purchase. Before 1916, both of these options had limitations on amount and

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VEHICLES", Dec. 9, 1916, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12. An addendum to the *Instructions to Bidders,* this memo expanded in detail the requirements and expectations for those who would manufacture howitzers. In addition to testing and design sharing, the instructions called for the gun to be transportable by a mobile "tractor" and to be interchangeable with the carriages.

[76] Porter, *Army Contracts*, 31; Rindsfoos, *Purchasing*, 19. C.S. Rindsfoos was president of the United States Purchasing Corporation.

duration allowed because they were less formal proposals and more susceptible to abuse. Normally, open market purchasing was authorized only in emergency situations or when routine opportunities for advertising and bidding did not exist. The law had limited transactions to an aggregate amount of $500. This gave department and lower level quartermasters the flexibility to legally fulfill extraordinary obligations. The government kept control by demanding that even these contracts had to be authorized by law or an existing allotment of appropriations. Although clothing, consumables, and other necessities were exempt from this restriction in certain instances, the acquisition still had to be for needs within the current year. Even in crisis circumstances that permitted the purchasing officer wider discretion to accept bids and make awards, he was still expected to accept the "lowest responsible bid for the best and most suitable article." He was still supposed to seek competition for bids and remained personally responsible for the contract under the law. The limits on emergency purchases generated much complaint from officers, but did succeed in keeping these special situations under control.[77]

Since military equipment ran the gamut of specifications, there were other variations in the particulars of purchase. For every highly detailed piece such as an artillery carriage or machine gun, there were plenty of cleaning solvents, medicines, nails, and shovels that were identical to civilian items. Buying these commercially

[77] Open market purchases were done without advertising or formal contract, but rather "in manner common among businessmen when the delivery or performance immediately follows the award of bargain." See Office of the Quartermaster General, *Manual for the Quartermaster,* 132-143. Porter, Army *Contracts*, 24; Office of the Quartermaster General, *Manual for the Quartermaster,* 132-197; *Compilation of Laws Relating to the Quartermaster Corps* (Washington: Government Printing Office, 1918), 7, 36. Not every government purchase agency could claim the same discipline. One account

available or perishable supplies in quantity would consume storage space as "dead" stock and cost money. However, to wait to specially purchase such items to fill requisitions could risk unnecessary delay and expense if the items were not immediately obtainable. To balance storage costs with flexibility, local supply officers could estimate need for common commercial items in their area of responsibility, advertise for quantities in three or six month increments, stipulate in the proposal that on call or short notice deliveries would occur, and award a contract that guaranteed this arrangement at a fixed price. The Office of the Quartermaster General further supervised the bureau's purchase of standard items based on forecasts or accumulated requisitions by directing depots near appropriate factories to seek contracts for set amounts, at certain specifications and price, or to manufacture the items themselves, if possible. These steps improved the responsiveness of supply, saved space, prevented surpluses, and avoided emergency orders. The supply officer did not need to wait for a release of funds to enact the purchase, but was expected to arrange deliveries so that funds would be available in time to make payment and avoid purchasing on credit.[78]

For more specialized items, the bureaus used detailed bids or produced the item internally. Production of items unique to military use, such as artillery pieces, generally occurred at a very measured pace in arsenals. Arsenal production kept manufacturing capabilities alive, provided an unbiased estimate of cost for the low volume, highly exacting processes involved, and permitted in-house technical innovation protected

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described the problems that New York City had in the same period. Over 30% of municipal supplies were purchased under "emergency conditions." See Rindsfoos, *Purchasing,* 87.

[78] Office of the Chief, Quartermaster Corps, *Procurement of Supplies and Engagement of Services*, 68-69. This process bears many similarities to the drive for "off-the-shelf" military purchasing encouraged in the 1990's.

from the vagaries of the market. Items in the Army inventory that were very close but not identical to civilian standards, such as harnesses, wagons, and shoes, often led to tension with producers who could simply not understand why miniscule variances in specifications were unacceptable to military purchasers. The bureaus also used subcontracting and piecework for items such as uniform shirts. The main offices in Washington managed the specialized production of major items frequently negotiating directly with the producer as in the case of the Signal Corps buying aircraft. Ordnance officers needed their chief's approval and an adequate allotment of funds to enter into contracts of this type.[79]

Completing Contracts

Once the purchasing officer gave notice of the award to the accepted bidder, he had to complete the contract. Federal Statutes, not War Department regulations, governed transactions for the Army as they did every other executive department. After the officer drafted the contract on a form prepared by one of the War Department bureaus and it was *approved by the accounting officers of the Treasury* (italics mine), three originals were signed by the parties. One was forwarded to the auditor of the War Department for review, the second went to the bureau chief, and the third to the contractor. Two copies went to the Returns Office of the Interior Department and one to the contracting officer. All bids, offers, proposals, and any advertisement accompanied the copies sent to the Returns Office where the papers were attached together by a ribbon and a seal, annotated with a number, and then filed. An army

[79] DeWeerd, *Production Lag*, 22.

contract was complete when put in writing and signed by the parties, but did not usually "take life" until approved by the Chief of the Bureau to which the contract pertained, or by some other person in superior authority. By 1917, it took, on average, 30 days to advertise and award a contract, 30 days for a manufacturer to start production and another 30 days before the first deliveries arrived.[80]

The contract process shared many similarities with civilian practice, but oversight of military purchase by non-military agencies contributed to control and coordination within the government. The business world recognized that all conversations, conduct, correspondence, and transactions between the buyer and seller were important and had to be handled properly. The best way to achieve this was by recording the agreed upon conditions in written contracts. In the case of the military and government, extra layers of oversight bogged down a process that involved only buyer and seller in the civilian world. Then again, civilian businesses were not accountable to Congress in their day-to-day transactions with one another. The stringent military contract laws were appropriate for a system that valued accountability more than flexible, responsive purchase. The prewar process provided a means of centralized control with decentralized execution by delegating purchase away from Washington while retaining limits within appropriations and keeping reviews in place.[81]

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[80] Porter, *Army Contracts*, 10. Rules contained in Sections 3709 and 3744 of the Revised Statutes required that all contracts for services and supplies may only be made after advertising for proposals except in emergencies and that all arranged by offices of the Secretary of the Navy, the Secretary of War, and the Secretary of the Interior be in writing; Cruse, Memorandum to Sharpe, Dec.13, 1916, Office of the Quartermaster General, Record Group 92, Entry 1888, Box 29, National Archives, Washington, D.C.

[81] Rindsfoos, *Purchasing*, 71.

This system of purchasing sought to entrust as much as possible to authorized contracting officers at the depot or department level while retaining oversight through reviews and other checks. It attempted to avoid the expense and potential loss of placing in stock large quantities of perishable supplies that could be obtained commercially. The process maintained civilian oversight by requiring the Secretary of War to sign written authorization annually for any officer who would advertise for bids. It held the bureau chiefs responsible for delegating to and directly supervising contracting officers. Federal law and Army regulations made officers financially liable for any discrepancies stating that the "[o]fficer who exceeds allowance of ammunition accidentally or loses part of next year's allocation neglectfully, is charged for its value." These measures emphasized the protection of government financial interests over all other considerations.[82]

ACCOUNTING AND ACCOUNTABILITY

On top of the restrictive methods for determining estimates, receiving appropriations, advertising, obtaining bids, and letting contracts, the bureaus employed other mechanisms to demonstrate their judicious use of public monies. The War Department used two types of accounting to gauge the condition of assets under their control. Both techniques reflected the environment of military purchase by contributing to efforts to economize and supervise expenditures. When the Army talked about accounting, it did not only mean the cost accounting commonly used by business to

[82] Ordnance Department, *Ordnance Property Regulations, 1917* (Washington: Government Printing Office, 1917), 46; Office of the Chief, Quartermaster Corps, *Procurement of Supplies and Engagement of Services*, 68.

ascertain expenses in order to determine price effectively. The Army way also implied a more general accountability necessary to protect government interests across the board.

For businesses, the nascent science of cost accounting improved the ability of proprietors to manage equity or "find out the present condition of [their] original stock of cash." This process measured total costs to ensure that the price of the final product brought in an acceptable return on the investment. An analysis of the three broad divisions of cost -- purchase of resources, transformation of resources into product, and marketing of product – gave the manufacturer insight into ways to reduce fiscal inefficiency and maintain profitability. All costs that did not contribute to the "alteration of the status or condition of material" needed to be reduced or avoided all together. More advanced methods distinguished between superfluous expenditure and expenditure that "actually and usefully contributed to the productive process." This analytical tool helped a business to retain efficiency and succeed in the market.[83]

Contemporary business literature pointed out that there was not one best method of cost accounting. Two broad types of cost methods, departmental and non-departmental, were recognized. "Only the very simplest kinds of business could be handled on non-departmental plans." The majority of plants had such diversified operations that correct assessment of cost was only possible "by isolating each main class of operation, calling it a department and costing it by itself." Those producing simple and uniform items might not find cost controls useful at all. Others needed to

[83] Church, *Manufacturing Costs*, 1-12; Shaw, *Buying*, 22.

track the smallest details to safely set prices sufficient to sustain financial solvency. The War Department did not need to worry about margins of profit and common stockholders; instead its "analysis of cost was necessary to keep production up to the high-water mark of efficiency." War Department operations were sufficiently complex to warrant cost accounting, but while such analytical techniques could isolate inefficiency, improve management, and reduce cost, they could not prove profitability because there was no product, true market, or consumer for the end-item.[84]

Though not motivated by profit, the bureaus increasingly used cost mechanisms to measure effectiveness. As a government agency, the War Department was expected to be efficient and could show success by publicly proving how well the Army used funds at its disposal. Accounting and cost keeping in the Quartermaster was necessary:

(1.) To prevent deficiencies in appropriations.
(2.) To allow subordinate Quartermasters to track status and "avoid exceeding the amounts apportioned."
(3.) To enable the Chief to communicate to submit to Secretary of War the estimates and "intelligently explain to Congress the needs of the Army."

In 1906, the system of cost accounting at the Ordnance Department's Watertown Arsenal allocated all costs directly to orders with no attempt to ensure that each product bore an appropriate share of the overhead. By 1909, modern accounting methods were in place in arsenals. In July 1916, Springfield Armory had sufficient command of processes to track $.65 expended on "material for experiment" during the previous two quarters and report this to the Chief of Ordnance.[85]

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[84] Church, *Manufacturing Costs*, 38.

[85] Office of the Quartermaster, *Procurement of Supplies and Engagement of Services*, 8; Hugh G. J. Aitken, *Scientific Management in Action: Taylorism at Watertown Arsenal, 1908-1915*, (Princeton: University Press, 1985), 87; Commanding Officer, Springfield Armory to Chief of Ordnance, April and

Business used accounting methods to avoid waste and scrap in order to reduce expenses. The military sought these cost-saving measures as well, but took them one step further. Laws compelled the expenditure of surplus before bureaus could get approval to buy more to help government get the most for its money out of an object. To analyze requirements and expenditures of existing supplies, the Office of the Quartermaster General had unit quartermasters regularly account for surplus property by directing that "original and all vouchers [for property returns] will be sent to the Quartermaster General within twenty days after the end of the period." Regulations of 1915 directed Signal Corps purchase officers to submit information monthly that showed the total number of open market purchases and the total amount of all procurements followed by a statement of the percentages of open market against the total. The Chief Signal Officer submitted this information to the Secretary of War to show the extent of open market purchases and "to enable a comparison to be made with other purchasing officers of the same and other bureaus." Soldiers and officers remained personally responsible both legally and monetarily for items in their care. Ordinary "profit and loss accounting" only went so far for army purposes because items had to be accounted for as real property rather than being assigned a representative value and depreciated as was done by commercial firms.[86]

The bureaus did not use cost accounting to show profit (that is, the difference between cost and sale), but instead demonstrated accountability to "the owners."

July 1916, Office of the Chief of Ordnance, RG 156, Entry 36, Box 1426.

[86]Office of the Chief, Quartermaster Corps, *Instructions regarding the Method of Property Accounting in the Quartermaster Corps* (Washington, D.C.: Government Printing Office, 1916), 7; Alexander E. Williams, *Manual for Quartermasters* (Menasha, WI: George Banta Publishing Company,

Changes in the volume of business came not from market forces, but from adjustments in policy and threat. Such a subjective criterion made it very difficult to measure value. In peacetime, bureau officers could arguably compare actual expenditures to estimates for the fiscal year in order to determine their success. If all went well, the difference would be minimal; but if a crisis arose, such calculations would be worthless. Standard cost accounting could serve to measure the efficiency of an arsenal or contract, but could not determine if the country had made enough security. On the contrary, dependence on cost as a general policy tool only masked a traditional unwillingness to prepare for emergencies by paying in peace for future war.

The government would ultimately buy the equipment it deemed necessary to fulfil its military policy regardless of its expense. Cost accounting could not be the final determinant in the success of national security. While civilian purchase agents measured success by the perceived ability to satisfy the producer, owner, and directors, bureau effectiveness was measured by their perceived ability to satisfy two constituents- troops and Congress. The cost accounting used in arsenals combined with previous cost estimates was probably the only best way to determine appropriations given the absence of an overall fiscal picture and the lack of an agreed upon yardstick to measure the adequacy of military policy. The challenge remained to measure the true importance of costs with no profit motive or market force as a guide. Army use of accounting methods shows the incongruity of the War Department supply bureaus' form and function.

1916), 33; Signal Corps, *General Property and Disbursing Regulations*, 72; University of Chicago, *Quartermaster and Ordnance Supply*, 82.

OTHER CONTROLS

The prevailing supervision of funding requests and contract formulation did not stop with normal business controls and outside review. A system of inspectors and other methods provided ways to further safeguard public funds. The use of minimum and maximum levels of supply helped manage inventory. The layers of detailed regulations and reporting obligation, commonly called "red tape," were the cumbersome answer to the need for centralized control of decentralized execution over a broad area.

Regular inspections of producers helped the bureaus ensure quality. Buyers generally had the right to inspect all goods upon their delivery before accepting them. The Departments sent inspectors to review the contracted company's progress and give samples of the product a series of rigorous tests. The Quartermaster Department took this one step further by stationing an inspector in the establishment to observe the process from start to finish. The Army was probably excessively risk-averse in its methods: for example in the case of clothing manufacture, the Quartermaster Department required "at least one inspector …constantly maintained at all [mills] while contracts are being carried on… through the entire process of manufacture from the inspection of raw material to the final mill inspection of the finished product." A large company like Sears Roebuck did not go to this level of detail; their sellers may have checked out the factory before agreeing to a contract and then again before accepting shipment, but that was a far cry from the stated Army method. A contractor who reneged on an Army contract only risked losing a minor customer; anyone whose

reputation suffered with a major corporation like Sears Roebuck, risked losing a large part of the market share. The Army used these inspectors to protect its interests because it could not use market forces to ensure quality like a large corporation did. The bureau inspection was another system that made sense when protecting public interest, but would be difficult to maintain in higher volume operations.[87]

During this period, business was reluctant to expend large amounts of liquid capital on supplies. Business wanted to keep overhead low to avoid spending more money on storage than necessary and to reduce the risk of waste. "[T]he purchasing agent [was] constantly in receipt of instructions from above to 'stock light' as it [left] the cash balance that much larger." Companies did this by maintaining minimum and maximum stock levels for items. If an item reached a pre-set maximum, no more was to be purchased; when it reached its minimum, the buyer went out and obtained more. War Department depots effectively followed the same concept to track usage and avoid waste. Supply officers could not request re-supply of an item until it dropped to a particular quantity. The Army version of this philosophy extended beyond issues of efficiency and future usage back to routine estimates. Bureau officers could generally only buy the minimum to replace expenditures and could never exceed the maximum approved by appropriations. There was no discretion granted to manage funds to gradually build up stock levels beyond those approved by Congress. The absence of overhead, while economical, greatly reduced the ability of the supply bureaus to respond to surprises. A company that forecast demand based solely on past usage was

[87] Rindsfoos, *Purchasing*, 78; Office of the Quartermaster General, *Manual for the Quartermaster General Corps, United States Army, 1916* (Washington, D.C.: Government Printing

susceptible to crises that came with recession or depression. An army that sought economy this way risked being unready for a great increase in demand that could come with major war.[88]

The much-maligned "red tape" of which so many officers complained appears to have been the result of efforts to balance decentralized execution with the continued necessity for centralized control. By 1917, the policy of decentralized execution remained the same as it had since the Quartermaster General initiated it in 1908. The bureaus allocated funds for subordinates to conduct department business within the limits of appropriations, but still required paperwork and regulations to demonstrate proper accountability. These controls were most evident in a number of manuals, published primarily by the Quartermaster and Ordnance Departments but apparently followed by all bureaus which outlined explicit techniques for obtaining equipment and services. The level of detail found in these documents reflected the triple dilemma facing bureau efforts to be more responsive to units in the field. First, the people engaging in purchase activities were generally short detail officers on loan from line branches who often lacked requisite experience and needed the rules to guide their actions. Second, purchasing remained a challenge even for experts because they could not dare entrust to memory alone the exacting technological requirements of some military items and the multiple rules governing purchase when the slightest mistake in the use of appropriations promised significant penalties. Third, civilian authority still

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Office, 1917), 145.

[88] Shaw, *Buying,* 16

mandated detailed accounting of activities and expenditures.[89]

In addition to an emphasis on the tight management of appropriations, there were Federal statutes and Army regulations that curtailed the power of the War Department and the military. Detailed primers on how to record, research, route, and reply to correspondence existed for all headquarters, departments, and posts. Quartermaster regulations specifically spelled out, by federal statute, the duties of quartermasters and emphasized their subordination to the Secretary of War. Legislation called for Federal Claims Courts to handle fiscal adjudication of contracts rather than internal War Department agencies such as the Inspector General. The bureaus' publishing of price lists discussed earlier also helped organizations to balance centralized control with decentralized operations. Although the Quartermaster bought most common-use items, one bureau could not purchase specific supplies for another in the Washington area without approval from the General Supply Committee. The entire system was designed for maximum accountability and thoroughness of communication that ensured public accountability but proved very time consuming. These standards would not be effective with a significant increase in volume.[90]

Attempts to streamline processes were but drops in the bucket. There was some standardization of procedures across the War Department, but specialization in matters

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[89]Office of the Quartermaster General, *Rules & Regulations, 1915* (Washington: Government Printing Office, 1914), 12.

[90] See debate of HR.12766/ S.4840 in *Congressional Record*, 64th Cong., 1st sess., 1916, 53, pt.16: 679, especially pages 5219,5277, 5354. United States Army Office of the Adjutant General, *Price List of Equipment and Material Issued by the Signal Corps to the Army and Organized Militia* (Washington, D. C.: 1917) provided a published standard against which to determine cost of a unit. Various memoranda, Office of the Surgeon General, RG 112, Entry 26, Box 1037. An Act of June 17, 1910 was the legal basis for the General Supply Committee's authority. C. G. Morton, *Catechism of Instructions for Keeping the Record of Correspondence* (Washington, D. C.: GPO, 1909).

for which a bureau held primary responsibility (such as clothing for the Quartermaster or radios for the Signal Corps) continued. The Quartermaster "simplified the method of accounting ... and eliminated special reports." Changes to regulations clarified procedures for minimum and maximum supply levels, property accounting procedures, posting of records, location of supplies, and storage methods, but none of these measures addressed overall effectiveness or the adjustment of procedures in time of war. It is difficult to judge the efficacy of red tape. While the phenomena created a substantial burden on activities, the bureaus needed a series of administrative controls that could successfully analyze cost and account for property in order to show Congress (and by extension, the nation) that they were responsibly managing funds. Getting quality equipment for a public institution could be a very complicated and time-consuming process; the press of later events would confuse this process and make it almost impossible to manage.[91]

CONCLUSION

Minor corrections to perspective help one to better understand the problems facing the government before World War I. In 1912, the same year that the Subsistence, Pay, and Quartermaster Departments consolidated, there was another governmental establishment seeking to reform its purchase system. Over the previous few years, the City of New York had discovered great waste in the organization and procedures of its procurement process. Thousands of individual buyers abused

[91] War Department, Office of the Chief of the Quartermaster Corps. *Instructions Regarding the Method of Property Accounting in the Quartermaster Corps*. Washington, D.C.: Government Printing Office, 1916). This manual was a reprint of an original dated October 21, 1913 and effective January 1,

emergency policies and purchased almost everything as they needed it, greatly expanding overall cost. The city responded by restricting emergency buying and reducing the number of those authorized to procure goods and services. Now one purchase officer per municipal department would buy all of a particular item for his agency. The business community hailed this as an important and effective reform at the time. Yet the War Department supply bureaus, considered by many to be the epitome of an archaic organization, were already doing that very thing.[92]

The peacetime military supply system was not completely out of line with common practice at the time and reflected the economy-oriented function of the bureaus. G. A. Hammer in the book *Buying: Purchase for Factory, Store and Office* emphasized that the good buyer was one who knew the policy of the company and let it guide his actions when making purchases. Army purchasers knew the policy of the government was for peacetime economy and continuous control over military expenditures. The War Department did not engage in rapid process production except in a few isolated arsenals and depots making only specialized equipment, so more streamlined processes were unnecessary. The semi-centralized system practiced by the bureaus allowed the American military to gain economy of scope, but was not suitable for economies of scale.[93]

The organization and procedures of the military establishment in the period before World War I enabled civilian authority to tightly leash and closely monitor the

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1914; Porter, *Army Contracts*, 32-34. All federal departments, civilian and military, followed the same centralized procedure.

[92] Rindsfoos, *Purchasing*, 90.

[93] A. W. Shaw, *Buying: Purchasing for Factory*, 14.

military to prevent it from acquiring too much power or expending too much wealth. Given its function within the national government, the small scale yet vast scope of its operations, and security strategy before the war, the bureaus effectively performed their purchase duties under these conditions. The next chapter will examine how the national security strategy and foreign policy further influenced this structure. Subsequently, we will see how the form and structure responded under changes in function, strategy, scale, and scope.

CHAPTER 3

SYSTEM, STRATEGY, SCALE

The attritional stalemate that had descended on Europe by 1915 caught all sides unprepared. Elaborate war plans developed and refined by Continental military and political leaders in the years prior to the assassination of Archduke Franz Ferdinand had envisaged large forces in a relatively short fight. Consequently, the staffs of the armies had determined that they only needed to procure sufficient reserves to equip these masses for an anticipated 60 - 90 days of campaigning. As the conflict stagnated, the warring states were able to call up more men, but when they sought additional support from industry, they were dismayed. The European economies were not ready for the sustained surge of protracted industrial war. The French experienced a "short period of complete industrial disorganization," with only 65% of French business establishments working in January 1915. The British procurement problem would culminate in the "shell crisis" that effectively prevented any major British offensive until the summer of 1916. Though Walter Rathenau eventually managed to work his miracles, the Germans immediately felt the pinch of the British blockade as they too struggled to increase output. By the time the United States entered the war, starvation loomed for British and German civilians living in economies dominated almost totally by military production,

while the French, although able to produce sufficient equipment and food, were being bled white in battle. Nations that had started the war with a wealth of resources and well-developed strategic plans had difficulty adjusting militarily and economically to first contact with the enemy.[94]

The United States witnessed many of the developments occurring overseas, yet army procurement experienced similar difficulties when it entered the war. One wonders how it was possible that the bureaus ignored the warnings available from Europe and failed to prepare for the extensive materiel commitment necessary in 1917. While army officers were aware of the trends in Europe, the bureaus and their activities before the declaration of war remained part of the American arrangement in which domestic political well-being protected by economy and oversight took precedence over security against an external threat. The bureau procurement system learned from events in Europe but changed only slightly between 1914 and 1917 because the small inexpensive forces serving national strategy did not aim to fight the same war. American plans focused on the mobile defense of U.S. coasts and far-flung possessions, not on vast armies waging static wars of attrition. The bureaus would not need to rapidly procure massive quantities of material for the fight the Army foresaw. The anticipated amount of time and forces required for any conceivable American military commitment were inconsequential compared to the conflict in Europe. Given the slim probability of involvement in a major war, a procurement system best designed to enforce economy and oversight continued to be prudent; greater modifications in the

[94] Arthur Fontaine, *French Industry During the War* (New Haven: Yale University Press, 1926), 22-24. By the following January, 80% of companies were back in production. Holger Herwig, *The First*

bureau system were not necessary. The form of the bureaus' system would not change because its function had not— they were still to provide for a small army on a vast continent, not a large standing army waiting to mobilize and drive across an enemy's frontier.

This chapter presents the situation facing the bureaus in the years immediately before the American declaration of war to explore the relationship between the military's administrative system, its strategy and policy, and the anticipated scale and scope of the contingencies they might face. The ongoing war in Europe, the growing absorption of the economy by war-related trade, and popular support for "preparedness" did not change fundamental assumptions underlying the procurement process in the years immediately preceding the United States entry into WWI. Political and military leaders attempted to adapt to the new conditions by means of changes in policy and strategy that satisfied reasonable assessments of security needs without sacrificing other priorities. The generally successful administrative support of Pershing's Expedition into Mexico showed that the bureaus had improved since 1898. American military policy and the system that sustained it were not perfect, and certainly not visionary, but did represent a judicious compromise of national goals and spirit.

CONTEXT

Among the many conditions that affected the bureaus in the period immediately preceding the war, three deserve special attention. First, observations of the war in Europe did alter perceptions within the military establishment. Second, the increasing

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World War; Germany and Austria-Hungary 1914-1918 (London: Arnold, 1997), 254-266.

commitment of American economic capacity to the Entente promised to influence Army procurement. Finally, the Preparedness Movement provided a surprisingly ambiguous impetus to bureau efforts. These factors, along with many other details, affected the responses and the results of American efforts to be more prepared for war.

Witnesses to the War

The bureaus were fully aware of events in Europe and sought to benefit from the experiences of others. Staffs translated documents, conducted studies based on reports from observers, and used other sources to recommend adjustments in organization, doctrine, and equipment. The lessons that the Army learned provided insight into all levels of war. Senior leaders used their findings to attempt to educate civilian policy makers. Yet, the prism of existing American policy and attitudes toward the war ultimately colored responses. The bureaus adapted where they thought best, but could only change those portions of the system that they controlled.

From the start, the American army sent officers to monitor the major powers and report back to the War Department. Future Chief of Signal George O. Squier violated convention by dressing in a British uniform to conduct extensive tours of the Western Front before returning to the United States. Colonel Joseph E. Kuhn, later head of the War College, reported back on the methods and conduct of German armies. Already in November 1914, a Medical Department colonel published his findings on the French medical service, including its upper-echelon supply system. The Engineer Department sought information on fortification methods on the Western Front and even translated French documents on their food procurement and distribution system. The

facts provided tactical, operational, and strategic insight but were not limited to the actions of the armies – broader aspects of war, such as organization, technology, doctrine, and economic factors also came under review. Data on logistics went beyond methods of distributing rations to frontline troops; it included national resource management, industrial organization, and procurement. Not all information was available, but enough existed for bureau officers to glean an understanding of the monumental undertaking occurring across the sea.[95]

The bureaus and the General Staff used their findings to react to the material challenges presented by the war. The knowledge provided by attachés and others aided the preparation of staff studies, the most important of which was perhaps "*The Proper Military Policy*" conducted by the War College and its bureau counterparts in 1915 cited by many as critical to American preparations for war. The Medical Department learned much about patient care, surgical techniques, hospital management, and the need for vast quantities of supplies. In a September 1915 lecture, the President of the War College stated that the war in Europe had "already proved that mobilization of industry [was] absolutely necessary in order to keep up the flow of supplies and munitions of all sorts needed by the armies at the front." Bureau chiefs cited events in the war when pleading their case in the annual reports and testimony to Congress. After being asked for information by an inquiring member of the House Committee on Military Affairs, Chief of Ordnance William Crozier took advantage of the opportunity

[95] Report of Colonel Charles Richard, November 1914, Office of the Surgeon General, RG112, Entry 26, Box 466. William R. Livermore, translator, "How France Subsists Her Armies at the Front," in *Professional Memoirs*, (Washington, D.C.: Corps of Engineers, U. S. Army, and Engineer Department-at-Large. 1917), 692. "Translated, by permission, from *l'Illustration*, March 10, 1917."

to explain the changes in artillery use brought on by the European war. In a clearly articulated summary (before the massive artillery preparation that preceded the battle of the Somme), Crozier explained how

> the size of the armies involved and their mobility, together with the geographical restrictions, have prevented the use of turning or flanking movements, especially in western Europe, and advances are possible only through direct frontal attacks. The success of the latter is rendered more difficult by the great strength of the trenches and other field works thrown up by the first line troops, and by the more effective fire of the infantry musket and machine gun. In fact, it has been demonstrated that these trenches cannot be taken without first practically demolishing them by artillery fire. To accomplish this, enormous expenditures of ammunition are necessary, as indicated by the fact that one of the allies is reported as expending more than a million rounds of artillery ammunition per month.

The bureaus realized the scale of war in Europe and understood many of its implications.[96]

Yet these analyses and observations would only mean something to an Army preparing for a war similar to that fought by the Allies on the Western Front. No one in the United States desired this kind of war; few anticipated that they would ever face a comparable challenge. Mass armies slugging and sloshing in no man's land were irrelevant to officers whose experience consisted of jungle skirmishes with Moros and containing raids by Mexican bandits. As policy developed, equipment procurement processes followed the logical flow of what was probable, not what was possible. The same type of mindset that had underestimated the potential of the machinegun before

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[96] Mary C, Gillett, *The Army Medical Department, 1865-1917* (Washington, D.C.: Center of Military History, 1995), 404; "Address of the President, AWC," September 1, 1915, Lectures 1915-1916, AWC Curricular Archives, USAMHI, 9; Crozier to Hon. John Q. Tilson, House of Representatives, March 7, 1916, Office of the Chief of Ordnance, RG156, Entry 36, Box 2556.

the war and believed that the U.S. would never go "over there" helped deprecate the inescapable material reality of mobilization.[97]

The Allies Absorb the Economy

As the military bureaus watched from afar, the war came to the United States economically, bringing with it as many implications for the Army as the campaigns in Flanders. At first, the conflict disrupted an American economy already in recession. By the fall of 1914, cotton prices had dropped to below 50% their prewar level, the New York Stock Exchange had closed, the gold supply was drained, debt increased, transatlantic shipping stopped, and harbors became so crowded that railroads placed a temporary halt on grain shipments to ports.[98]

Fortunately, American business did not collapse as some feared it would; on the contrary, it rebounded to aggressively pursue opportunities for sales to the belligerents and to the now uncontested markets in South America. In the spring of 1915 combatant nations began purchasing American wheat and war materiel. Total exports expanded 17% in fiscal year 1915 and from $2.76 billion to $4.33 billion for fiscal year 1916. This 56% increase was topped by an additional two billion dollars in exports for the last six months of 1916. At its peak, the Entente or its agents negotiated over 4,000 contracts with 948 principal firms and an additional 19,000 subcontractors. Over 87% of the primary contracts were for at least $1 million each. Foreign trade increased

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[97] Allan R. Millett, *The General: Robert L. Bullard and Officership in the United States Army, 1881-1925* (Westport, CT: Greenwood Press, 1975), 290-294; Rod Paschall, *The Defeat of Imperial Germany, 1917-1918* (Chapel Hill, NC: Algonquin Books, 1989) discusses another aspect of American exceptionalism found in the stubborn belief that "Open Warfare" would prevail on the Western Front.

[98] Burton I. Kaufman, *Efficiency and Expansion, Foreign Trade and Organization in the Wilson Administration, 1913-1921* (Westport, CT: Greenwood Press, 1974), 92-94.

fivefold from 1914-1917, taking up almost all available domestic capacity. Congress actively supported efforts to expand this trade and take advantage of the situation presented by European war, reflecting the common belief that the United States would avoid military involvement in any significant way. The warring states consumed an ever-larger section of American productive capability.[99]

The increased demand from abroad certainly helped business. Whether the effect would be beneficial or detrimental to the military establishment depended on the scale of future American defense needs. European orders made the United States a creditor nation for the first time in its history, finally allowing the country to pay off the debt incurred to finance railroads and other technological advances. Purchases from 1914-1917 brought almost half of the world's available gold into the United States which further spurred economic growth. The ravenous hunger for munitions increased production of gunpowder, rifles, and ammunition – a capacity that American planners hoped to exploit for their own needs. Unemployment dropped. Foreign contracts for materiel enabled potential Army producers to invest in appropriate tools and dies while "educating" the workers and managers in the specifics of military procurement. America was growing to be an arsenal to the world and increasing the ability to provide for its own defense.[100]

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[99] The statistics come from *Reports of the Department of Commerce, 1917* (Washington, D.C.: Government Printing Office, 1918), 287-88 & 294-96 quoted in Kaufman, *Efficiency and Expansion*, 132; Paul A. C. Koistinen, *Mobilizing for Modern War* (Lawrence, KS: University of Kansas Press, 1997), 120-121; G. A. Lincoln, W. Y. Smith, and J. B. Durst, "Mobilization and War," in Seymour E. Harris, editor, American Economic History (New York: McGraw- Hill Book Company, Inc., 1961), 221; Kaufman, *Efficiency and Expansion,* 112-113.

[100] G. A. Lincoln, W. Y. Smith, and J. B. Durst, "Mobilization and War," 223; Some experts at the time recommended that factories undertake "educational" orders, that is small batch military

However, negative repercussions of this war-induced growth lurked in the background. The higher rates of inflation that gained a foothold from 1915 to the summer of 1917 (the prices of some goods rose over 85% due to Allied purchases on credit and general war profiteering) made annual estimates much more difficult for the bureaus to forecast because of the instability introduced into their equations. The increase in employment reduced the number of men readily available in the event of mobilization. During the winter of 1915-16, the nation's railroad system nearly collapsed because goods awaiting shipment overseas clogged ports on the East Coast and the rail network lacked sufficient sidings to re-route or store the excess. "Great piles of projectiles for the British Government ... stacked on the wharves for months" at ports as far west as Mobile, Alabama would still hinder American attempts to send its own supplies overseas in the summer of 1917. In 1915, the Medical Department reported a delay in their effort to build a stockpile of first aid packs because allied demand caused a shortage of brass for cases. To support the 1916 Punitive Expedition against Pancho Villa, officers of the Quartermaster Corps went to the docks in New York City and virtually confiscated trucks awaiting shipment overseas because there were none available on the open market. The United States' assistance to the Entente, while a boon in purely economic terms, severely stretched the nation's infrastructure and the army's support system even before active participation in the conflict.[101]

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production to educate machinists, foremen, and engineers on the methods, specifications, and tolerances associated with government contracts.

[101] Joseph Dorfman, *The Economic Mind in American Civilization, 1606-1933* (New York: The Viking Press, 1966), 475; Robert D. Cuff, *The War Industries Board: Business-Government Relations during WWI* (Baltimore: Johns Hopkins University Press, 1973), 90. See *Army and Navy Journal*, May 12, 1917, page 1197 for an example of inflation's affects. District Engineer Officer, Mobile Ala. To the Chief of Engineers, August 20, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670;

But these negative aspects of foreign purchase on military mobilization were not readily apparent in the early years of the war. Bureau leaders assumed that the production capacity utilized by the Entente would become available to American interests in an emergency. They would be sorely perplexed when, despite the transfer and cancellation of a number of Allied contracts when the United States entered the war, existing Allied demand denied immediate market access to Army purchasers. Although the War Department knew that it had taken months for some American factories to convert to the production of European war goods, they did not think that it might take as long to convert to different designs. The addition of Army needs in 1917 would nearly push American industrial capabilities and infrastructure to the breaking point.[102]

PREPAREDNESS

Reformers and activists of various stripes had advocated greater commitment to defense since 1898. Conflict in the Philippines, between distant powers in Europe and the Balkans, and along the border with Mexico had reminded many that the world remained a dangerous place. Nevertheless, as one historian put it, "Americans refused to abandon their traditional commitments to political isolation and passive defense." The principal security concern centered on protection of the homeland with the fleet

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"Preparation of Medical Department for War," September 1915, Lectures 1915-1916, AWC Curricular Archives, USAMHI, 3-7; Clendenen, *Blood on the Border*, 225. Witnesses before Congress reported that the Allies had exported over 23,400 trucks in the period from August 1914 to December 1915. See United States Congress, House of Representatives, Committee on Military Affairs, *To Increase the Efficiency of the Military Establishment of the United States, Hearings.* 64th Congress, 1st session (1916), 280; hereafter, it is abbreviated as Congress. House. CMA, *To Increase the Efficiency* (1916).

[102] Congress. House. CMA, *To Increase the Efficiency* (1916), 54.

still the first line of defense. This was the strategic atmosphere in which the War College, the General Staff, and bureau officers gathered to review and analyze military policy to improve national defense. During 1912, the General Staff, with direction from Secretary of War Henry Stimson and General Leonard Wood, had released *The Organization of the Land Forces of the United States* to the public. On the confidential side, the Ordnance Department contributed to efforts by publishing its *General War Plan* in 1913. Wood and the political elite who supported his vision promoted Universal Military Service expressed through voluntary instruction camps, such as those at Plattsburg, as the best way to prepare citizens to defend the nation. A core of leaders, in the army and out, kept military readiness issues alive and continued to promote the steps deemed necessary to provide adequate defense against the most likely threats to the Republic.[103]

The calls for increased defense took on a new quality in 1914. The outbreak of the fighting in Europe caused an initial revulsion across the United States against war and armaments. This mood did not prevail as important elements of society began to re-evaluate the European war. For although geographically distant, the conflict increasingly touched national interests and incited fear that a hostile power might attack from across the sea. By the fall of 1914, debate raged between groups urging the government to prepare for war and those opposed to any involvement or military expansion. Although the country seemed committed to preparedness after the sinking

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[103] David F. Trask, "Military Imagination in the United States, 1815-1917," in *Anticipating Total War: the German and American Experience, 1871-1914*, edited by Manfred F. Boemeke, Roger Chickering, and Stig Forster (Cambridge: University Press, 1999), 334; War Department, *Report on the Organization of the Land Forces of the United States* (Washington, D.C.: Government Printing Office,

of the *Lusitania*, support was never universal; large segments of Congress remained opposed through 1915 and beyond for reasons of principle, economy, party, and regional politics.[104]

The preparedness movement opened useful discussion in the country at large. Those calling for more defense forced those who wanted to ignore the war in Europe to consider its implications for their security. The public nature of preparedness promoted discussion and political debate at a level unprecedented for peacetime in the United States. This openness provided an opportunity for bureau and other War Department leaders to finally push their case for readiness through the accepted channels of annual reports to Congress, testimony to committees, and responses to correspondence from senators and representatives.[105]

Those Americans who supported Preparedness were divided over its goals and extent. For most it was about the attitude of the country and little more. Some saw it as a means to improve citizenship and make the country better – very Progressive ideas. The specific threat to the United States remained vague. Not everyone believed more defense was needed. Those who did emphasized any of a number of priorities – more coast artillery, a larger mobile Army, a bigger Navy, longer-range artillery, more machine guns – it seemed that almost every proponent had a different vision of what preparedness actually meant. A majority emphasized the manpower aspects of military

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1912); Ordnance Department, *General War Plans* (Washington, D.C.: Government Printing Office, 1913).

[104] John Patrick Finnegan, *Against the Specter of a Dragon: the Campaign for American Military Preparedness, 1914-1917* (Westport, CT: Greenwood Press, 1974), 22-23 and 80.

[105] Trask, "Military Imagination," 337; Allan R. Millett and Peter Maslowski, *For the Common Defense: a Military History of the United States of America* (New York: The Free Press, 1984), 338-339.

readiness, seeking trained reserves over any material or industrial arrangements. The most drastic of their recommendations saw trained forces, active and reserve, totaling three to five million men within five years. The prevailing vision of material readiness desired reserve stocks of supplies for up to one million soldiers immediately available with the capability to expand ammunition production in support of five million men. Some simply advocated access to the widest possible sources of supply. Since most of the largest corporations in America were not active participants in the movement for various reasons, attempts to define the industrial trappings of the program lacked their expertise and, more importantly, their political support. In all of this there is no record of anyone who proposed sending forces to Europe before March 1917. Preparedness made people more aware of national security issues, but did not prescribe a clear solution to the country's defense dilemmas.[106]

[106] Francis A. Adams, *American Minute Men of Today*. NY: New York Commercial, 1917. In talking about preparedness, material and manpower were separate. Most of the calls from pundits, proponents, and politicians were in terms of manpower. Adams was an exception here because he also addressed material needs. He emphasized requirements, conservation, and cooperation by workers and industry to supply the armies. Although he espoused a "thoroughness" of production, he did not advocate government management seeing it beyond the capabilities of a federal government busy placing an army of unknown millions into the field. He proposed a centralized plan and control of output but did not seem to grasp the idea of active coordination or the organizational restructuring such centralization would entail. In his analysis, cooperation and thoroughness would suffice. Popular prognosticators could paint dramatic pictures of the need for preparedness, but their solutions were often vague or unrealistic for the political climate of the time. See also Hudson Maxim, *Defenseless America* (New York: Hearst's International Library, 1915); Frederic R. Coudert, "Why Military Preparedness?," address at National Security League meeting, Tremont Temple, Boston, Mass., October 22, 1915; Robert M. Johnston, *Arms and the Race; the Foundations of Army Reform* (NY: The Century Co., 1915); Julius W. Muller, *The A-B-C of National Defense; What the Army and Navy would have to do in War, Why they Would have to do it, and What they Need for Successful Performance* (New York, E. P. Dutton & Company, 1915) and *The Invasion of America; a Fact Story Based on the Inexorable Mathematics of War* (New York, E.P. Dutton & Company, 1916); John McAuley Palmer, *An Army of the People; the Constitution of an Effective Force of Trained Citizens*, (New York: G.P. Putnam's sons, 1916); and Henry J. Reilly, *Why Preparedness; the Observations of an American Army Officer in Europe, 1914-1915*

Preparedness brought military topics into the open. It gave President Wilson an acceptable measure of popular support as he strove to engage the belligerents in Europe in his quest for a peaceful solution. Given the ongoing war, most believed that the United States had at least a three year window of opportunity to prepare before any potential adversary could recuperate sufficiently to present a threat. No one seriously suggested that more than two million men would mobilize, deploy, and fight overseas in a period of eighteen months. The ideas represented by the movement may have clarified the extent of the challenge facing the military and naval establishment, but they failed to clarify the security requirements on which a coherent defense policy would be built.

American Responses

In analyzing the response to the situation facing the United States from 1914 on, one can see many tensions between the President, Congress, and senior army leaders. Each was seeking to fulfill their responsibilities to the security of the United States. The President and his administration provided direction through policy, the military added expert opinion and implemented decisions, while Congress (as the representative of the people) advised, consented to, and funded the security efforts of the United States. The policy decided upon by the President and Congress, with advice from the military in turn shaped the strategies which would serve as the blueprint for force development and procurement. These all needed to be in harmony, but were susceptible to the uncertainty of a dynamic world. If the policy and strategy were

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(Chicago: Daughaday and Company, 1916); "Industrial Preparedness," *Army and Navy Journal*,

wrong, the whole military program might unravel, and with it the nation's defense. The degree of consonance in the interplay of these forces would greatly influence America's readiness for war.[107]

The policy challenge

The results of the policy process from 1914-1917 ultimately limited the War Department's ability to prepare for the possibility of major war. Theoretically, a nation's military policy should reflect an assessment by the appropriate parties of the geopolitical and domestic political environments, concerns and goals, and capabilities which should then drive all other strategic considerations. In the abstract, American appraisals did just that. In reality, a gap existed between the strategic views held by military planners and President Wilson's vision of the foreign situation. Beginning early in 1915, Wilson had recognized the growing threat to the United States from the continued war in Europe. He attempted to mediate the conflict through missions by Edward M. House and other secret means before publicly converting to a posture of limited preparedness as a way to influence efforts to mediate a peace. "He kept us out of war" had been Wilson's campaign slogan for re-election in 1916 and he still did not want to get the United States actively involved in the European conflict. However, after his second election victory, the President enjoyed sufficient political capital to ask

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November 11, 1916; Cuff, *War Industries Board*, 42.

[107] See Carl von Clausewitz, *On War,* edited and translated by Michael Howard and Peter Paret (Princeton,,NJ: Princeton University Press, 1984), 89 for a theoretical discussion of these tensions.

the belligerents to publicly state their war aims as he moved slowly from a philosophy of passive protection to active defense of American interests.[108]

While President Wilson walked a fine line in this period, his cabinet split over the matter. William Jennings Bryant, the Secretary of State, resigned in June 1915 because he thought the government was too aggressive in its policies toward Europe; Secretary of War Lindley M. Garrison quit in April 1916 because he believed the administration was not aggressive enough in providing for the country's defense. President Wilson publicly preached "no U.S. involvement" while privately backing the Allies, apparently seeing Germany as a future danger even though he realized it was not an immediate threat. Even after he had severed diplomatic relations with the Imperial German Government in February 1917, the President had prohibited War Department agencies from formally drafting any plans that would risk exacerbating the situation with Germany. Since he was the one who was ultimately supposed to define the country's security needs, the nature of his diplomatic efforts basically left the direction of a possible military strategy for Europe without a compass. Wilson pursued what he perceived to be the country's interests in a domestic atmosphere reluctant to becoming engaged over there. On this narrow tightrope there was not enough room for detailed military contingency planning.[109]

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[108] Amos A. Jordan, William J. Taylor, Jr., and Michael J. Mazarr, *American National Security* (Baltimore: Johns Hopkins University Press, 1999), 4-5 and 26-30; Trask, "Military Imagination" 337-339.

[109] Finnegan, *Specter of a Dragon*, 22-25; Daniel M. Smith, *The Great Departure: the United States and World War I, 1914-1920* (New York: John Wiley and Sons, 1965), 81; T. Harry Williams, *Americans at War: the Development of the American Military System* (New York: Collier, 1962), 124; with Newton Baker's blessing, the General Staff continued some unofficial planning for defensive operations against the Germans. Frederic L. Paxson, *American Democracy and the World War: Prewar Years, 1913-1917* (Boston: Houghton Miflin, 1936), 291-295.

President Wilson had to be very cautious if he chose to initiate an industrial mobilization given the tenuous political support for war. He realized Congress was suspicious, and any closer government-business links would require great public support. Public opinion concerning the power of the military and industry, essential to the successful prosecution of war in the twentieth century, remained divided. For every person who saw benefits in a strong military and big business, there were just as many if not more who loathed the idea of a large army and feared the power of "the Trusts." Congress reflected this reticence through policies limiting most military spending and curtailing the growing power of corporate interests. Popular political tradition opposed increases in government power, particularly concentration of emergency power in a state agency dominated by businessmen. The President himself still favored limited government. Others only saw the war in Europe as a chance to get popular support for additional reforms and a modest increase in military readiness. Such was the political environment in which the General Staff and bureaus analyzed the security options available to the United States.[110]

A cooperative strategy

For a number of years, the bureaus and the War College had been working together to assess and respond to the security situation facing the United States. In the

[110] Cuff, *War Industries Board,* 87; Zimmerman, *Neck of the Bottle,* 147. Some argue that the military was disinclined to plan for a major European effort in any case. This puts the cart before the horse. Most military leaders had been striving for years to prove their professionalism through subordination to civil authority even as they struggled to bring about the reforms they felt were needed to protect the republic. In the end, it was the President who set the terms of the nation's security needs, not some colonel on the General Staff in Washington. The most any, even Leonard Wood, would do was inform and advise. James L. Abrahamson, *America Arms for a New Century: the Making of a Great Military Power* (New York: The Free Press, 1981), 161 ff.

sensitive circumstances existing from 1914-1916, however, neither the General Staff nor any other War Department agency conducted sufficiently detailed planning from which they could have derived specific supply needs for operations in Europe. Lacking the authority or the guidance to prepare such comprehensive blueprints, the staffs oriented their efforts on broader military policy proposals and strategic plans to contend with threats to American interests. Although reformers such as Leonard Wood and Henry Stimson had done much to correct an earlier misdirection of the General Staff toward administration over planning, the morass of paperwork encouraged by the demand for oversight of army operations still distracted many officers in Washington. Under the circumstances, there were no plans from the War Department for a force that might intervene in Europe; in 1915 Europe might as well have been the moon given the miniscule probability that the United States would commit to a major land war there.[111]

Of more immediate concern, it is important to understand that by the beginning of the World War, the bureaus and the General Staff, especially the War College, routinely communicated to formulate plans and policy. Although it does not appear that bureau officers actively participated in the studies leading to the landmark *Report on the Organization of the Land Forces of the United States*, they were aware of its

[111] Finnegan, *Dragon*, 46. If I may be humored for a moment, an admittedly presentist comparison shows the unreal expectations that some place on the War Department in this period. As I write we are engaged in a shooting war in Afghanistan after terrorists attacked the United States on September 11, 2001. These terrorists had conducted numerous hostile acts against American interests for years, but before the final straw, only the most radical analysts would have suggested our military actively plan for a major campaign in Central Asia. Military strategy and planning in the United States follow the guidance and purpose of civilian leaders, not the other way around. The General Staff could only do so much, so it planned in support of the stated security needs of the country; it did not waste its time on what would have amounted to self-indulgent flights of fancy. We will see later that military intervention in Europe remained a far-fetched notion well into 1917. William J. Breen, *Uncle Sam at Home: Civilian Mobilization, Wartime Federalism, and the Council of National Defense* (Westport, CT: Greenwood Press, 1984), 12. See the discussion of reform in chapter 2.

findings. Bureau analysis perceived the need for manpower mobilization to take precedence over economic considerations. The emphasis on men over material was not surprising since supply needs before September 1914 did not seem to be as bleak as in previous years; most believed it would take longer to train a recruit than it would to arm them. Lieutenant Colonel Francis A. Winter explained to the War College in 1912 that the Medical Department was "happily supplied with things" thanks to an increase in expenditures following the hard lesson learned during the war with Spain. He declared that his department had sufficient equipment to "complete outfit for ten divisions of troops within the United States" – a substantial force structure for the time. In 1912, 1914, and early 1915, Lieutenant Colonel Chauncey Baker briefed the War College on the "Preparations for War" of the Quartermaster Corps. Engineer officers did the same for their department. The confidential *General War Plan*, published by the Ordnance Department in 1913, identified a four-fold increase of requirements in the event of war and outlined how the Department would match the needs found in General Staff plans with on-hand supplies. There were also indicators of improved cooperation between the individual bureaus. The Treat Board, which convened on April 17, 1915 to study types of field guns and ammunition supply, consisted of officers from both line and staff. None of these discussions matched the precision generally maintained by an organization like the German *Grosse Generalstab* of the time, but nevertheless promised better results for American military planning than in the past. The mutual

efforts with the General Staff suggest that the bureaus had learned something from the experiences at San Francisco and Tampa in 1898.[112]

A closer look at the nascent coordination with the General Staff in the period of the World War shows that bureau leadership recognized the basic challenges of major industrial war and sought to do something about them. Recognition of the most dangerous scenario compelled the Ordnance Department to draft plans to push six months supply out to depots dispersed to different geographic areas so the entire army did not depend on one point for munitions. Between 1914 and spring 1916, a nine-person panel of general staff and bureau officers appointed by Secretary of War Lindley Garrison investigated potential problems in war production for the Medical Department but determined that private industry could handle any anticipated demand and that the government should not control production of medical supplies. In the 1915 version of "Preparation of the Medical Department for War," the bureau reported that it had supplies on hand for thirteen divisions and was working toward the recommended amount sufficient for sixteen including 373,000 first aid packets with promises from contractors for delivery of 10,000 more per day after three weeks warning. Lieutenant Colonel Baker's presentation to the War College explained the Quartermaster Department's intentions, preparations, and concerns for administration, personnel,

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[112] Office of the Chief Signal Officer, Memorandum for the Chief of Staff, April 26, 1911, Records of the Chiefs Signal Officer, RG 111, Entry 45, Box 921; Text from "Preparedness of the Medical Department of the Army in the Matter of Field Medical Supplies" read to the Army War College on November 7, 1912, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 466;Major W. P. Wooten, "The Preparation of the Engineer Department for War," Army War College Session, October 29, 1915 in Lectures, 1915-1916, Army War College Curricular Archives, USAMHI; Ordnance Department, *General War Plan,* 1-5.

supply, transportation, the integration of reserve forces, finance, camp construction, and field operations in the event of war. The Engineer Department sought to accumulate supplies for coast defense and the mobile army based on approved War Department plans and their study of the conditions in Europe. The bureaus were incorporating the applicable lessons of France into an existing American military policy and doctrine that remained more relevant to a repeat of 1898 than to a campaign in the Argonne.[113]

A number of important common assumptions colored bureau assessments in the period before active belligerence, for better or for worse. Given the tradition of avoiding alliances, no one truly expected that the U.S. would participate in a coalition war with its shared resources, shared objectives, and shared risks. All the bureaus believed that, with minor exceptions, they would keep the designs of items currently used. They felt they could depend on commercial supplies of basic items beyond existing military stocks, open market purchase to fill shortages, more than one port of embarkation (for Philippine or Caribbean operations), state contribution of initial items for the militia, and legislation authorizing an increase of personnel. The Quartermaster in its negotiations with the American Railway Association did not think there would be "much doing that will monopolize the rest of the [railway] equipment" when it came time to move men to the front. The lessons learned in 1898 were apparent in the emphasis on reserve stocks, subsistence, rail transportation, ports of embarkation, and camp conditions. The biggest restriction facing the bureaus continued to be the

[113] Ordnance Department, *General War Plans*, 24-25; "Preparation of Medical Department for War," September 1915, Lectures 1915-1916, AWC Curricular Archives, USAMHI, 3-7; Major W. P. Wooten, "The Preparation of the Engineer Department for War," Army War College Session, October 29, 1915 in Lectures, 1915-1916, Army War College Curricular Archives, USAMHI.

availability of funds, both to enact any further preparations and to activate plans upon a declaration of war. Bureau schemes were predicated on the ability to stockpile items requiring long production time, produce almost all additional requirements in government factories, and fill whatever shortages appropriations would permit. For example, the Quartermaster Department expected that, given existing stocks and single shifts at the Philadelphia Depot, it could manufacture enough to equip one thousand men per day in everything but underclothes and shoes. The Treat Board recognized the magnitude of the effort necessary to obtain adequate ordnance for one million men and advised that reserve facilities be mobilized at once because, under existing conditions,

> the first six months after a war emergency arose, the delivery of complete field artillery material would be limited to that previously under manufacture at the one arsenal engaged in the fabrication of field gun carriages and vehicles. It would probably be eighteen months or more before all the output which has been foreseen and arranged for in the beginning could be obtained. Even this ability to meet needs would exist only if the Ordnance Department had sufficient trained personnel which [was] not the case...

The availability of personnel also concerned the Engineer Department enough that in the fall of 1915 it recommended a bill to obtain additional officers from the civilian engineering population in the event of war. The staffs realized that many of their officers would go to the front, further complicating the efficient administration of the War Department. For an army even one-half the eventual size of the force actually sent to France, the bureaus would have needed their own army of men and equipment to do their job.[114]

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[114] Congress. House. CMA, *To Increase the Efficiency* (1916), 282; Chauncey Brook Baker, *Preparations for War by the Quartermaster Corps* (Washington, D.C.: U.S. Army War College, 1915),

Like the lessons learned from Europe, bureau concerns and recommendations were not merely filed away in some pigeonhole, but were communicated within standard channels to civilian leaders. Annual reports to the Secretary of War provided a key conduit to the final arbiters of security policy. Chief of Signal Scriven called for more men to handle the increasing missions of the Signal Corps and more funds for aircraft. For years, Chief of Ordnance Crozier warned Congress that it would take almost 12 months before contracts could turn out artillery in any significant numbers. Quartermaster General Aleshire recommended the adoption of annual contracts for commercial type goods to keep production lines open and reduce long-term costs. The Quartermaster's concerns over clothing, "equipage," and transportation garnered particular attention in 1916. The Secretary of War underlined the common anxiety among the bureaus that adequate funds be appropriated to increase reserve stocks.[115]

The outbreak of war did allow for more systematic considerations of defense matters and these were published as the *Statement of a Proper Military Policy for the United States* in late 1915. As was the case for *Organization of Land Forces*, this collection of studies placed greater importance on manpower issues, but also considered material aspects. Recognizing that the United States was not "organized for industrial competition and full preparedness in war," the War College and bureaus studied the

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Army War College Curricular Archives, USAMHI; James C. Longino, *A Study of World War Industrial Procurement and Industrial Mobilization* (Washington, D.C: Army Industrial College, 1939), 43; Adjutant General of the Army to The Chief of Engineers, October 12, 1915, Records of the Office of the Chief of Engineers, RG 77, Entry 106, Box 19. This recommendation was part of ongoing discussions within the War Department after the publishing of "A Proper Military Policy." "Address of the President, AWC," September 1, 1915, Lectures 1915-1916, AWC Curricular Archives, USAMHI, 4.

[115] War Department, *Annual Report 1913* (Washington: Government Printing Office, 1914), 745; Ibid., 698-710; War Department, *Annual Report 1915* (Washington: Government Printing Office, 1916), 697-700; War Department *Annual Report 1916* (Washington: Government Printing Office, 1917),

origin of supplies and the country's ability to produce them as needed. Among their recommendations: (1) study all articles and equipment so they can be turned out by existing factories and (2) store dyes, jigs, and other machine tools so that factories could receive necessary equipment to begin manufacture immediately. The report also requested legislation to govern the use of civilian industry and its compensation for war orders. One particular legacy of bureau actions before the Spanish American War was Garrison's proposal for peacetime contracts with domestic producers of military equipment as "the initial steps toward organizing the industrial and economic resources of the country." Based on their analysis of the threat and the political commitment to the defense, the War Department thought it had time to build up before an opponent could mount an attack. They reasonably believed that, because of the Great Powers' complete engagement in Europe, they would have at least three years to prepare.[116]

One revealing portion of the document in regards to procurement planning placed the bureau chiefs in a mixed light. When asked by the General Staff about their department's ability to provide supplies in time of war, the chiefs showed the limits of cooperation:

> *Chief of Engineers*. – "No adequate study made, but one should be made; work of several bureaus ought to be supervised and coordinated so that they may be working to the same end and avoid getting confused and overlapping letters from the manufacturers and commercial firms who would supply articles to more than one bureau."

183-185 and 822-833; War Department, *Annual Report 1915,* 281-290; War Department, *Annual Report 1916*, 346-385 and 227-231.

[116] "Statistical Comparison of Universal and Voluntary Military Service," 5, in United States War Department General Staff, *Statement of Proper Military Policy for the United States* (Washington: Government Printing Office, 1916), hereafter abbreviated as *Proper Military Policy*. The method of citing this page number is not standard because *Proper Military Policy* is a collection of studies each with its own pagination. Longino, *A Study of World War Procurement*, 47 and 132- 135.

> *Chief Signal Officer.*-Steps have been taken to procure estimates as to the quantity of material the principal manufacturers of the country can furnish and the probable length of time necessary for deliveries.
> *Chief of Ordnance.*- A study has been made of the probable output of ordnance materiel of establishments in this country; the degree of preparedness of these plants in any future year can not be predicted; practically none of the ordnance materiel can be procured in less than three months, and a much longer time will be required for the procurement in quantity of any of the articles, even in case of plants that are thoroughly equipped at the time the orders are placed.
> *Surgeon General.*-It is known where the necessary supplies can be purchased under usual conditions; a very large number of medicinal products are imported and could not be procured within our borders, but none are absolutely indispensable except quinine, opium, and cocaine; a large proportion of surgical instruments are imported; a fair amount of soft-metal goods can be obtained, but a pinch would be manifested in the lines of handforged steel instruments, such as knives, hemostatic forceps, and scissors.
> *Quartermaster General.*- A study has been made of the places of origin and ability to procure supplies needed for an army of a million men; all the necessary articles are of domestic manufacture and can be readily obtained on reasonable notice.

Although more effectual coordination would have helped establish a unified front on which to build in case of war, the departments were at least communicating with the General Staff to define the material challenge facing the United States; the greater hurdle they faced was convincing decision-makers of the need to pay the peacetime price for wartime readiness.[117]

Fog, friction, human error, and petty politics kept cooperative efforts from reaching a higher degree of success. While the Ordnance Department had fielded a new machine gun before the war, manpower and supply issues partly retarded its

[117] "Study on Places of Origin and Ability to Produce Supplies Needed in Vast Quantities in Time of War," 6-7 in *Proper Military Policy*.

effective employment because the General Staff had not designed a new organization to use it and the War Department could not obtain sufficient funds to replenish ammunition expended in training soldiers to use the system. The General Staff and the bureaus still spent much of their time drafting estimates and legislation for the Secretary of War, examining tactical ideas from the field, or answering inquiries from Congress. The supply portion of the *Proper Military Policy* was denied circulation pending approval by the President (who did not approve it), which ultimately prevented the bureaus from analyzing requirements and making more detailed plans. The effort of the War Department to formulate policy for war still devoted time to finding ways to economize by reducing expense. Not every bureau had taken "adequate" steps to identify manufacturers with whom they would contract in the event of war.[118]

Perhaps most importantly, some proposals did not necessarily match the political reality of the time. The War College Division's suggestion that the "General Staff Corps must be charged under the authority contained in section 2 of the act of Congress approved February 14, 1903, with *the duty of supervising and coordinating the work of preparing each year the estimates for all amounts the War Department recommends that Congress appropriate*" (italics mine) is an example of this. Given the stress that Congress continued to place on their prerogatives, particularly their ability to oversee the appropriations process in the most detailed of manners, there is no way that the representatives at the time would have acquiesced to the unification of fiscal matters

[118] David A. Armstrong, *Bullets and Bureaucrats: the Machine Gun and the United States Army, 1861-1916*, (Westport, CT: Greenwood Press, 1982) 141-143; Longino, *A study of World War Industrial Procurement*, 51 and 47; "Elimination of Unnecessary Expense from Army Administration," 3 in *Proper Military Policy.*

under one military office. Too much power of the purse would have been consolidated in uniformed hands. Indeed, it is more reasonable to suggest that the tenacious push for this type of coordinating authority led to the reduction of the General Staff in 1916.[119]

The priority placed on formulating a comprehensive policy rather than pursuing detailed operational planning reflected the fact that the United States was not definitively considering war. The Army lacked a firm foundation of universally accepted policy upon which to build explicit campaign plans. There was no threat clear enough that the War Department could use an agency like the *Grosse Generalstab* railway section which constantly re-evaluated the number of trains and timetables necessary to transport the German army to the frontier. Even if there had been a well-defined opponent such contingencies remained theoretical exercises useful only for training until political will provided the purpose necessary to go further with the process. The strategic planning by the military establishment of the United States before 1917 was in synch with a stated national policy that accentuated domestic defense. War plans, including Orange against Japan and Black against Germany emphasized protection of the homeland and other existing interests against invasion while the Navy defeated the enemy well out to sea. The most dangerous threat, but not the most likely, involved a dominant power (probably Germany) sending upwards of three hundred thousand men to the Eastern Seaboard, possibly even seizing Manhattan for ransom and dominating the Northeast. Most staff studies recommended an army of several hundred thousand backed up by a National Guard of similar size with

[119] "Study on Places of Origin and Ability to Produce Supplies Needed in Vast Quantities in Time of War," 7, in *Proper Military Policy*.

augmentation from up to 500,000 volunteers to counter the greatest danger. Planners forecasted 12-18 months to complete such a mobilization once initiated and, given the anticipated time required for one of the European powers to end the ongoing war and recover, thought that the U.S. had at least three years before such a threat could present itself. These scenarios and their responses, although useful for communicating needs to Congress, lacked the specifics of mobilization timetables, force composition, and deployment locations because they were not necessary.[120]

There may indeed have been no sense of urgency on the part of the bureaus to prepare for war in Europe, but given the domestic political climate, the president's apparent direction in foreign policy, the staff's strategic analysis, and the army's place in the military establishment, any more aggressive initiative would have bordered on insubordination and threatened an even greater crisis. The uniformed members of the Army balanced their duties to both civilian control and national security. The staff and the supply bureaus sought to harmonize efforts, but they clearly did not expect an increase in the size of the force anywhere near that which came to pass in 1917. The War Department, aware of the limitations of existing policy, felt they were prepared for all plausible contingencies and were ready to brief Congress with a reasonable, threat-based, approach to the defense of the nation. Although the content of military policy thinking may certainly be critiqued in hindsight, the process behind it and the intent for it appear coherent in the context of the time.[121]

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[120] Smith, *Great Departure*, 10-19.

[121] Chauncey Brook Baker, *Preparations for War by the Quartermaster Corps* (Washington, D.C.: U.S. Army War College, 1915), located in Army War College Curricular Archives, USAMHI; Marvin A. Kreidberg and Merton G. Henry, *A History of Military Mobilization in the U.S. Army, 1775-1945* (Washington: Department of the Army, 1955), 183; "Mobilization of Industries and Utilization of

Congress Investigates, Debates, and Decides

The inquiries, deliberations, and legislation that led to the National Defense Act of 1916 shed light on the American policy process and its influence on procurement. As discussed in the last chapter, Congress remained ascendant over the president and paralleled executive functions through its control of spending. Such fiscal supervision enabled House and Senate committees, mainly those overseeing military affairs, to exercise significant influence over the force composition, size, and location of army units in addition to making general inquiries about policy and strategy. Since a committee's draft of legislation served as the basis for the laws and appropriations that led to procurement, the leaders of the War Department (including those of the supply bureaus) had to present their case to the elected representatives of the people. In addition to routine estimates, policy statements, and responses to individual queries, the bureaus communicated through their testimony in open hearings before congressional committees. The hearings served an important function in the overall system for public accountability and oversight that existed concerning the bureaus and the rest of the Army as well as providing a critical junction in the traditional separation of powers. Every bureau chief plus many of their principal subordinates came before the committee to answer questions and explain positions. Congress advised and consented to military policy by means of these investigations so they wanted to hear as many expert opinions as possible in order to make the most informed choices. The meetings

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the Commercial and Industrial Resources of the Country for War Purposes in Emergency" in *Proper Military Policy*.

also certainly helped to remind the military just who the boss was. The most important session of hearings prior to the U.S. entry into World War I occurred from January 6 to February 11, 1916 in the ongoing effort by elected leaders to "increase the efficiency of the military establishment."[122]

In testimony before the committee on military affairs, War Department leaders gave their frank assessment of the army's readiness. They reiterated the essential points of the *Statement of Proper Military Policy* which proposed that within three years the nation needed an army expandable to 500,000 immediately and then to at least one million after 90 days to counter the most dangerous possible threat from a great power. The Chief of Staff, Major General Hugh Scott, provided detail on the War College's analysis and explained major parts of the plan; when challenged on the feasibility of the threat, he cited the British expedition of 200,000 troops to Gallipoli as proof that a major power could launch such an attack on America. Secretary Lindley Garrison advised that there would be "chaos" for the first several months of a war as the country worked to train men and accumulate material. Various witnesses described particulars of the *Statement*, deferentially answering congressmen's questions about reserve forces, manpower mobilization, and other topics. Even as he explained the threat to the country, a General Staff officer acknowledged the military's duty to "set down the best and most economical solution possible and present the facts to those in power." This

[122] Congress. House. CMA. *To Increase the Efficiency* (1916), 1. After its establishment, members of the Council of National Defense would appear before Congress as well.

was no superannuated general's wish list; the professional military truly sought to provide a reasonable and responsible defense plan.[123]

The supply bureaus presented a generally united front to the committee. All expressed a great degree of confidence in the American market to produce in an emergency but told the assembled congressmen that it could still take months to properly prepare a soldier and equip him for action. They recognized the importance of saving money and planned their efforts accordingly by identifying reserve supplies required to be kept on hand, immediate purchases needed upon mobilization, and the increased production essential for a long-term conflict. For example, Quartermaster General Aleshire had (and wanted to maintain) existing stocks sufficient for the standing Regular Army. He believed that his department could purchase for an additional 250,000 soldiers within 45 days giving a total of about 600,000 troops equipped within ninety days, "if they could use the existing capacity under contract to the Allies." After that, Quartermaster research indicated that the bureau could equip a minimum of 60,000 more every 30-45 days, although if any items were to hold up the fielding of troops, it would be clothing. The Engineers had entrenching equipment on hand for nine divisions, and requested money to begin stocking compasses based on their proven utility in Europe. Because of the commonality of their equipment with commercial items, Engineer officers anticipated no problems getting more. General Scriven of the Signal Corps did not have enough planes or pilots on hand, but his staff pointed out that the nation had capacity for the production of several hundred aircraft a

[123] *To Increase the Efficiency*, 870.

month; training would be the greatest challenge for the air service. General Crozier had rifle reserves with ammunition on hand for 4-500,000 men. He could not purchase more immediately because existing civilian production was for a different type of rifle, but Ordnance Department arsenals could manufacture up to 530,000 rifles and 200 million rounds of ammunition a year. Artillery production would be his biggest challenge – particularly in light of its proven use in Europe -- but he felt he could generate enough pieces over the course of the next four years (i.e. by 1920) to meet at least initial needs for a larger army. He desperately needed money, however, for more machine guns. Surgeon General Gorgas had five to six months of medical supplies on hand for an expanding army but remained concerned about the health of mobilizing soldiers and the lack of native sources for medicines.[124]

Every bureau chief demonstrated an appreciation for the situation in Europe but no one blindly suggested copying the solutions implemented overseas because they realized that many of these models did not fit American preferences for a small army or the nation's unique strategic problem. As long as the Army could mobilize a force of approximately one million for defense of its shores and all existing national industrial capacity would be available to them, the bureau chiefs and the rest of the War Department were confident in their plans. The War Department had studied the issue of industrial mobilization as it affected the American Army's ability to meet the base

[124] Congress. House. CMA, *To Increase the Efficiency* (1916), 4 and 263. There was no discussion of Allied purchasing because no one believed that the United States would have to compete with the Allies for resources.

threat of invasion; the recommended measures appeared sufficient to defend the nation's shores without harming the economic health of the country.

Based on the transcripts of the hearing, committee members, though not necessarily experts, had done their homework. They asked a host of questions; the majority covered topics such as manpower policy, the role of the National Guard, pay and benefits, organization, technical aspects of equipment, general plans, the relation of proposals to the situation in Europe, overall costs, and production. A number of the representatives remained skeptical of the baseline threat identified by the War College as the most dangerous; to them it seemed a "physical impossibility." Others realized that while economy was important, it was better to "spend a little additional money in time of peace in order to have an efficient Army than to spend an enormous sum at the outbreak of war to make up for the lack of preparedness." An apparently more preparedness-oriented congressman declared that the United States was "a country of tremendous potential resources and it [was] difficult to convince some ... that not by the wave of a magic wand on the declaration of war [would] all those potential resources become available assets." At least one of the examiners appeared to have a better grasp of the complexities of the topic than the military expert seated before him. The committee understood that supplying the Army was "the most difficult part of the whole business" of defense. They wanted to be sure that the system for coordinating the manufacturing, commercial, industrial, and other facilities of the country would not be too burdensome to the nation's businesses. To ensure that they addressed broader needs, the committee solicited the insights of others outside the War Department as well. Self-declared pacifists, anti-militarists, leaders of national organizations of every

variety, and even military experts Leonard Wood and retired General Nelson Miles addressed the hearing. The representatives, rightly concerned about balancing security with constitutional restraints, costs, and the still prevalent fear of a large army, obtained as complete a picture of national capabilities and concerns as one could expect.[125]

It was difficult to make appraisals at the time because of the competition between foreign and domestic concerns. The challenge of strategic analysis and peacetime planning for war expressed by Assistant Chief of Staff Tasker H. Bliss bears repeating:

> The question has already been asked in this committee, "Do you believe that this or that plan is adequate?" I do not know of any more difficult question to answer. It is not susceptible of mathematical demonstration. It is a matter of opinion, and the most that can be said in advance of the event is that that opinion is probably the soundest which can be supported by apparently the soundest reasons.

Bliss went on to explain the problem presented by a thinking, acting enemy and the difficulty of identifying one course from among the many debated suggesting that the best that could be done to guarantee defense would be for a country to "be prepared to the extent of its ability for any contingency." But because of the high cost of such a course, nothing could justify a nation accepting such an extreme except "the certainty that its very life depends on it..." He proposed that the most adequate peacetime plan for the nation was the one that

> gives reasonable hope that it will hold off whatever enemy we assume as probable...long enough for us to organize the resources of the country, after war threatens, to such a degree as will reasonably assure our ultimate success.

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[125] Congress. House. CMA, *To Increase the Efficiency* (1916), quotes by Anthony (KS), 100; Kahn (CA), 97; Greene (VT), 52 and 282-285; and Tilson (NH), 55; 68.

The military experts had communicated to Congress their needs and concerns for what they thought was the greatest threat to the nation given the environment at the time, the national objectives, and their existing capabilities. As one representative said, it was up to the committee and Congress at large to "reconcile perfect military theory with the actual civic conditions" of the county in order to provide for the common defense.[126]

Soon after the hearings, Congress as a whole began debating the significance of the requested increases in equipment and forces presented by the War Department's proposals. Everyone assembled wanted the nation to be safe, but they could not agree on what safe meant— for many there was more at stake than an external enemy; comments expressing concern for economy, oversight, and separation of powers ran through the discussion. Speeches on the floor of the House opposed to further expenditures garnered much applause. Local, regional, party, and bipartisan factions in both houses resisted the efforts to "plan for war." Those politicians in favor of a strong National Guard and those against the idea of federalizing state militia generally opposed President Wilson's administration on some points of preparedness. Partisan politics poured additional fuel on the fire over military policy when elected representatives placed party interests over national well-being. As the debate wore on, the War Department showed a willingness to modify its proposals in order to achieve some increase in material readiness. A report from the War College to Congress in March 1916 suggested that the army would need to stock only those supplies for 500,000 soldiers that could not be procured within three months, stepping back from

[126] Congress. House. CMA, *To Increase the Efficiency* (1916), Bliss, 263; Greene (VT), 185.

earlier proposals for twice that number. Seeking to retain its authority, the legislative branch remained skeptical of the professional army, wanted financial oversight of military, and wanted the bureaus to stay decentralized and separate from the authority of the General Staff. In the end, Congress, "appalled at the idea of saddling the country with an expensive armament program in an election year, rejected [the administration's proposals] out of hand." The resulting legislation, although comprehensive, was essentially a negotiated settlement that left many key provisions under-funded and risked making the entire reform ineffective.[127]

The tangible result of this debate over preparedness was the passage of the National Defense Act of 1916. The plan was not a crash program to meet the menace of a world at war, but rather sought to develop a force structure for future mobilization and to improve the long-term readiness of the military establishment. Among dozens of provisions, the law authorized the standing army to grow to 175,000 over five years, fixed an organizational table for units, increased the number of generals, created a Regular Army enlisted reserve, limited the General Staff to three generals and 52 officers of lesser rank (of whom only one-half could be posted in the capital), placed the National Guard under the federal constitution and the president, and instructed the General Staff to focus on non-administrative matters. Among the provisions pertaining to industrial mobilization were the sections permitting the President to procure supplies

[127] Cong. Record, House, 64th, 1st Session, #53 pt 1, p. 458ff.; Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877-1920* (Cambridge: University Press, 1982), 199; David A. Lockmiller, *Enoch H. Crowder: Soldier, Lawyer, and Statesman* (Columbia: University of Missouri Press, 1955), 138-139; Finnegan, *Specter of a Dragon*, 72; Cong. Record, Senate, 64th, 1st Sess.,#53, pt. 5, page 5065; Finnegan, *Specter of a Dragon*, 80; Zimmerman, *Neck of the Bottle*, 25; Seward W. Livermore, *Politics is Adjourned: Woodrow Wilson and the War Congress, 1916-1918* (Middleton, CT: Wesleyan University Press, 1966), 6.

in war, authorizing purchase of machine tools, and approving $20 million for government nitrate production. Perhaps most importantly, it opened the door to a Council of National Defense (CND) for material preparedness. The bill represented an important step towards long-term security for a United States growing ever more connected to the rest of the world. However, it also acknowledged the perceived impossibility that the nation would be seriously threatened any time soon. These changes and reforms were predicated on a policy that did not foresee any sort of large-scale intervention in Europe.[128]

Although important, this compromise measure, passed into law on June 3, 1916, was no panacea. While it increased authorizations for manpower, it did not contain riders approving funds to pay and support new soldiers. The wording of the bill obscured the relationship between the Chief of Staff and the bureaus. It made it more difficult to coordinate bureau activities by creating loopholes in the purchasing procedures that encouraged the overlapping of duties. The portion requesting a more central role for the General Staff was soundly rejected, actually reducing the number of staff officers in the capital; it was only Baker's intervention that kept the General Staff from irrelevance. But considering all the voices warning against "militarism" (not to mention the money at stake), it is difficult to conceive of any way that civilian government would have approved of a centralization of procurement for the War Department by uniformed staff officers. Overall, the legislative response to preparedness sent a mixed message to the military at a time when it could have used a

[128] Longino, *A Study of World War Industrial Procurement*, 50. The plant took over a year to begin and was not completed until after the war. Finnegan, *Specter of a Dragon,* 155; Millett and

clear focus; the act addressed critical needs, but in retrospect, failed to speak to the mounting threat from the war overseas. By the end of this most sweeping review of the American military system, Congress stuck with tradition, refusing to risk internal well being for the sake of external security. Economy and oversight prevailed even as the Army turned to deal with a more traditional threat.[129]

PERSHING'S EXPEDITION TO MEXICO

As the war raged in Europe and Congress debated in Washington, the bureaus supported a dispersed force intended more for policing territories, patrolling borders, and executing limited interventions than for fighting wars against major powers. A series of incidents involving Mexico from 1911 to 1917 underscored this primary function. In 1911, local bandits capitalized on the political instability south of the border to launch attacks into the United States. In response, President William H. Taft ordered the "Maneuver Division" to Texas with mixed success; a second deployment in 1913 went better. After a clash between American sailors and Mexican soldiers at Tampico, President Wilson authorized the landing of a force of troops and marines at Vera Cruz in 1914**.** Pancho Villa and his band killed 16 Americans at Santa Ysabel in November 1915, leading to a deployment of troops under John J. Pershing. Despite this history, President Wilson continued his politically prudent policy of "non-retaliation" which unfortunately stifled anything more than the most basic military staff planning

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Maslowski, *For the Common Defense*, 341.

[129] James E. Hewes, *From Root to McNamara: Army Organization and Administration, 1900-1963* (Washington, D.C.: Center of Military History, 1975), 20; Kreidberg and Henry, *Military Mobilization,* 192-196.

for potential operations in Mexico. In this constrained environment, decentralized purchase allowed quartermasters to provision units and the bureaus managed to build up limited supplies in depots at San Antonio and El Paso. However, as troubles came to a head in 1916, it seemed likely that the tragically familiar pattern of 1898 would repeat itself.[130]

When Villistas crossed the American border and raided Columbus, New Mexico on March 9, 1916, popular opinion demanded action. President Wilson conferred with his cabinet, reversed his policy, and sent orders authorizing General Pershing to take offensive action into Mexico. In addition to the force already in place, the President alerted a large part of the regular Army, mobilized 112,000 National Guardsmen, and sent them all to the border. By March 14, Pershing's force was on the move. As the Punitive Expedition headed south, the difficulty of tracking a small band of outlaws over a vast area was compounded by logistical encumbrances. Previous fiscal and operational limits intended to save money and prevent escalation now haunted the forces in the area.

Another debacle like that at Tampa eighteen years earlier threatened the base in New Mexico. The single rail line constricted the flow of supplies hurriedly sent to Columbus. Initially, ordnance equipment was delivered haphazardly with no knowledgeable officer present to supervise its distribution. Medical supplies arrived in heaps as disoriented doctors struggled to find order in the chaos. Communications between the distant outpost and higher headquarters remained inconsistent. The

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[130] Clarence C. Clendenen, *Blood on the Border: the United States Army and the Mexican Irregulars* (New York: MacMillan Co., 1969), 210.

restricted parceling of money designed to centralize control of purchases while decentralizing their execution quickly became a major hindrance when Congress authorized no new funds to buy additional supplies. Consequently, many officers paid out of their own pocket for subsistence and other sundries to sustain the expedition in Mexico. The Signal Corps' First Aero Squadron arrived in Columbus on March 15 short half of their authorized equipment until Congress appropriated $500,000 later in the month. The peacetime system strained to adapt to war, even on this small scale.[131]

But this was not Tampa; although they still struggled with conditions beyond their control, the bureaus had learned and improved. As in 1898, officers in Washington and on the scene aggressively worked to remedy the initial deficiencies. They quickly supported the deployment by arranging rail transportation, supplies, and equipment for both the expedition and the additional troops moving south. New methods helped the Medical Department bring order to stock distribution after the initial disorientation. In the spirit of cooperation, Signal Corps officers loaned the air squadron's trucks to the Quartermaster until replacements arrived. "Because of the carefully, although hastily organized Columbus base, and the reforms of the early years of the twentieth century, adequate supplies flowed in a never-ending stream from the [b]order to American soldiers scattered over a hundred thousand square miles of hostile and forbidding territory."[132]

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[131] Frank E. VanDiver, *Black Jack: The Life and Times of John J. Pershing* (College Station: Texas A& M University Press, 608-609 describes the scene at Columbus, NM in language very similar to newspaper accounts of Tampa in 1898. Clendenen, *Blood on the Border*, 222; Rebecca R. Raines, *Getting the Message Through: A Branch History of the U. S. Army Signal Corps* (Washington: Center of History, 1996), 148-149.

[132] Clendenen, *Blood on the Border*, 227.

To respond to the transportation challenges in New Mexico, the Quartermaster executed an innovative plan for an emergency shipment of trucks and drivers that solved many of the tactical support concerns and demonstrated the utility of motor transport. Chief of Staff Scott and Quartermaster General Sharpe worked together to initiate immediate procurement of trucks on the open market to support the expedition. In the process they committed the crime of purchasing without an authorized appropriation. Scott confessed their transgression to Baker who chose to underwrite the act. In the next few weeks, Sharpe had his officers quickly purchase over 660 trucks, sending all but 22 to the border region; by the return of the expedition, this bureau had increased its automotive inventory from less than 100 to about 3,000. Except for the lack of an appropriation, large quantity open market buying appeared to work as intended in this case. Short notice buying may have cost a bit more on the face, but the Army had not borne the overhead of 600 additional trucks until they were actually needed. If this is what the country wanted, the bureaus proved they could adapt.[133]

A few weeks after the approval of the National Defense Act, President Wilson called up 75,000 more National Guard troops, an event which caused staff officers to question assumptions about the existing balance between men and materiel. The bureaus found that the state organizations, not under the authority of the War Department until mobilized, had failed to keep sufficient quantities of uniforms, hospital supplies, and other equipment on hand for their units. In fact, during the spring

[133] Erna Risch, *Quartermaster Support of the Army: A History of the Corps, 1775-1939* (Washington, D.C.:, Government Printing Office, 1962), 579 and 595-597; James A. Huston, *The Sinews of War: American Logistics, 1775-1953* (Washington, D.C.: Department of the Army, 1966), 303-305; Clendenen, *Blood on the Border,* 225.

and summer of 1916, the National Guard could not account for more than one million dollars worth of property. The situation forced the supply departments to use their reserves, in some cases nearly every stock built up over the previous eight years, to bring the mustered units to readiness. Camp conditions varied; one of the ways that the Medical Department averted a repeat of Montauk Point was by sending teams of inspectors to monitor the situation. The lack of readiness among reserve units coupled with the inability to control them further frustrated the efforts of those seeking to prepare the United States.[134]

This particular phase of the mobilization for Mexico highlights some of the problems with ideas of economy and efficiency. Although soldiers began arriving in mobilization camps as early as June 21, Supply Depot #1 in Philadelphia was unable to begin shipments of supplies until June 22**.** It then took eight days working at maximum capacity to issue the majority of the supplies needed for the sixteen states mobilized. The Depot did not even receive an official mobilization message until June 23 and, for whatever reason, the commander, Lieutenant Colonel G. H. Penrose, failed to act on accounts in the newspapers as early as June 19 reporting that the President had mobilized the troops. The delay in reporting to Depot #1 may have been the result of an experiment gone awry. This Depot, closest to the majority of units mobilizing, had been placed directly under the control of the Chief of Staff in an attempt to streamline control; but this also placed it out of the normal lines of communication. Not fully aware of the new relationship, the General Staff (thinking the Quartermaster

[134] Frederick Palmer, *Newton D. Baker; American at War* (New York: Dodd, Mead & Company, 1931), 150.

Department would alert the Depot) failed to expedite the information. Because of inadequate railroad sidings (only six cars could be loaded at a time) the staff of the Depot improvised and trucked supplies to sidings outside the grounds of the depot. Depot #1 had already been contending with some shortages that had not yet been replenished after the mobilization of the National Guard of Texas, New Mexico, and Arizona while raising the regular army in Texas (not to mention supplies for Plattsburg Camps) during the previous months. The Depot Commander had followed procedures by reporting the deficiencies so that the staff in Washington could include them in the estimates for funds for the coming year. He had not initiated a local purchase because there did not appear to be sufficient justification to risk a purchase not approved by Congress. Hence, when additional troops mobilized in the call up later that year, the Depot Quartermaster had little time and insufficient resources to reply even if he had responded to the newspaper accounts. By the end of the mobilization, all the warehouses were nearly empty. Drives for efficiency did not produce a frictionless deployment.

Shortly after the call to mobilize National Guard units, some State authorities complained that they did not promptly receive the supplies required to equip the men. From the Office of the Inspector General, Major W.S. McNair found a number of problems: there was confusion as to whether subordinate units would still need to formally requisition supplies or whether they would be sent automatically without requisition. States sent requests to the War Department, Headquarters Eastern Department, and to Supply Depot #1 in Philadelphia which caused considerable

confusion. Major McNair, identified four "legitimate causes" for the problems experienced during the mobilization: lack of appropriations, depletion due to earlier efforts in New Mexico, Texas, and Arizona; an increase in the Regular Army; and the unscheduled diversion of supplies to Plattsburg. He also faulted the experiment to centralize the depot under the Chief of Staff and to depend on this one Depot for the whole Eastern Department. Finally, he made a recommendation that could have had some benefit in 1917; he suggested that state authorities should maintain their troops at "their armories or in local rendezvous where they could have been quartered at their own homes and fed under the provisions of Army Regulations which authorize[d] 75 cents a man per day for that purpose, and then sent to mobilization camps when the same were prepared and properly supplied for them." In 1917, this plan might have bought time for the army to gear up for rapid expansion and war by accumulating supplies in advance of the mobilizing army.[135]

In reviews of the army's performance, General Leonard Wood signed a number of reports that analyzed the strengths and weaknesses of the execution of the mobilization plan. Rations, mustering officers, mobilization camps, and clerical support were among the areas that earned favorable comments from the Commander of the Eastern Department. He cited problems such as the lack of adequate horses, the level of training of the new troops, and the centralization of supplies at one depot. Wood's assessment did not fix blame on individuals but emphasized problems with the system "under which the nation has treated the whole military question with

[135] W.S. McNair to the Inspector General to The Inspector General of the Army, July 8, 1916, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142.

indifference for generations." He noted that his recommendations meant "a considerable outlay of money," but saw this as necessary if there was to be any degree of efficiency in the army. He foresaw disaster if the present system remained and there were actual contact with an enemy, as opposed to the pursuit of irregulars as Pershing had done. He recommended five solutions to the problem: trained men to fill reserve organizations promptly, supplies and equipment on hand in local armories or at a nearby place for quick distribution, thoroughly trained militia officer and noncommissioned officers, adequate reserve supplies to equip the regular army, the militia, and volunteers to war strength, and finally, to place the militia under direct federal control.[136]

Quartermaster General Sharpe attached a memorandum dated July 19 to the Chief of Staff that concurred with Wood's comments. Sharpe emphasized the lack of funds to accumulate a proper reserve and the failure of the state governments to prepare a sufficient supply of arms, uniforms, and equipment. He supported Wood's proposal that organizations keep supplies on hand in their armories and advised designating several supply points for each of the geographic Departments. He qualified Wood's remarks about transportation explaining that there was an ample supply of wagons and harnesses. The problem of obtaining adequate mounts stemmed from appropriations that only permitted for the replacement of existing stocks, not for any kind of reserve. The main supply agency was aware of its shortcomings, but did not see itself in a

[136] Board on Mobilization Depots, Office of Attending Surgeon, U.S. Army, Washington D.C., Sept. 9, 1916—to the Adjutant General of the Army, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142; 4th Endorsement, Headquarters E.D, Governors Island, July 10, 1916, to the A.G.O. War Department Washington, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142.

position where it could do more than tinker with a system that it realized was insufficient.[137]

The Army continued to seek a more efficient mobilization process. In August 1916, under order of the Chief of Staff, a board convened to consider McNair's report and to "submit a new plan for the supply of the National Guard and volunteers when mustered into the service of the United States." These five officers—two from the Quartermaster, one from the Medical, one Ordnance, and one Inspector General--met periodically over the next three months to review and recommend solutions to the problems identified in the report, particularly concerning depot composition and location. While they did not agree on all issues, there was cooperation and open voting on key points. The board assumed that the states would play a key role in mobilization, that all militia organizations could be on trains within twenty-four hours of the call, and that they could be at their mobilization points within another twenty-four hours. Based on lists furnished by the Militia Bureau, their goal was to be able to supply 425, 000 members of the National Guard and 575,000 volunteers**.** The board sought to place the mobilization depots near railway centers within twenty-four hours train travel of all mobilization camps, but remained concerned about the vulnerability of depot locations to capture. They delineated responsibilities for supplies by clearly identifying that the Quartermaster (not the states) was responsible for the bulk of the initial issue items. They prioritized shipments of camp equipment, individual items, and uniforms ahead of weapons and other equipment. Recognizing that there would generally be a lack of

[137] H.G. Sharpe, QMC to Chief of Staff, July 19, 1916, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142.

storage at mobilization points, they planned to stagger shipments and load cars in such a way that they could be left unopened until needed. The members of the board found this plan "as economical as can be had" for they tried to use the "existing machinery of the supply departments … to the fullest and with the least strain in the establishment and maintenance of depots." Additionally, the "whole system [could] be put into effect at once without action on the part of Congress"—not to undermine its authority, but to avoid the painful wait for appropriations that had plagued the Army so many times before.[138]

By September 1916, the mobilization board had identified eleven existing facilities that were to be designated militia mobilization depots and had contacted the Militia Bureau to determine the specific supplies needed for the troops to mobilize in those regions. They had also drafted regulations for these Militia Mobilization Depots that placed a line officer from the regular army in command. Each of the five supply departments would designate an officer, soldier, or civilian to be responsible for supplies provided by their bureau and stored at the Mobilization Depot. There would be two clerks for every 20,000 militia scheduled to mobilize there along with sufficient clerks and laborers to maintain supplies. To ease any civilian concerns over the centralization of supplies in military hands, the commanding officer of each of these depots would report to the Secretary of War independent of the control of any bureau or geographic commander. The commanding officer was responsible for the maintenance of the stores and was to keep them ready for immediate shipment. He would have the

[138] Special Orders 177, July 31, 1916, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142; Proceedings of the Board convened by paragraph 32, Special Orders 177, August

ability to communicate directly to the Adjutant General, the heads of the supply bureaus, commanders of geographic supply depots, and with National Guard officials of the states he was to supply. Upon receiving notice of mobilization from the Adjutant General, the commander would initiate the loading and shipping of supplies by special trains to the camps in his area. The board also advised that there be adequate forms to request supplies to bring units to war strength, that the supplies remain under control of the War Department, and that the stocks be rotated to prevent deterioration. To correct earlier deficiencies, the Militia Bureau developed a plan to ensure that the National Guard fulfilled their obligation to have organizations completely equipped at peace levels. The Secretary of War had approved this program and the bureau intended to conduct the first inspection in 1917.[139]

The incursion into Mexico presented mixed results for the higher-level logistical support of the army. The bureaus gained experience useful to later efforts both in America and Europe. They now had some practical idea of the supplies needed by divisions as well as the techniques required to support a large organization, understood the value of trucks for transport, and had worked out some of the bugs in the use of railroads. The Medical Department had proved its wartime purchase system. Yet, while there had been sufficient stocks and market capacity available to handle buying for the rapid surge from March to May, the June call up had revealed some prevailing weaknesses in the system. The Quartermaster had used up its clothing reserve, the

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29, 1916, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142.

[139] Proceedings of the Board convened by paragraph 32, Special Orders 177, Sept. 1, 1916, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142; G. W. McIver, Militia Bureau to the Adjutant General of the Army, Sept. 25, 1916, Records of the Office of the Surgeon General, RG 112, Entry 26, Box 1142.

Medical Department had expended a large quantity of its stocks, and the Signal Corps still lacked funds for a programmed development of aviation. That these three and the rest of the War Department went deeply into debt only added to the friction with Congress over the appropriations needed to meet the standards of the National Defense Act and the role of the General Staff. Many purchase officers had begun to recognize that the economy had its limits and "that ordinarily it may be considered impossible to secure commercial goods either as to quality or quantity" on the open market as long as the European powers competed for resources. On balance, the bureaus lost as much as they gained supporting the border operations. The departments proved they had overcome many of the problems of 1898, but they had nothing left for any other contingencies.[140]

CONCLUSION: THEY SAW SOMETHING COMING

In 1898, purchasing had been the least of the bureaus' worries; for all but the most specialized equipment, officers had generally been able to go out, buy, and fulfill procurement needs within a few weeks of mobilization. There had been two primary sources for the problems that time: the inadequate reserves of supplies to buffer the initial rush in conjunction with a tenfold increase in the size of the army by the end of three months. For the Mexican Expedition, there was a smaller expansion and some stocks existed to help handle the surge. The only factor that prevented a more marked improvement in procurement appeared to have been the volume of European purchases

[140] Quartermaster General to Council of National Defense, Dec 13, 1916, Records of the Office of the Quartermaster General, RG 92, Entry 1888, Box 217; Henry G. Sharpe, *The Quartermaster Corps in the Year 1917 in the World War* (New York: Century, 1921), 131.

that kept the bureaus from many potential suppliers. While the performances in 1916 was far from perfect, the bureaus showed that they were able to use a system designed for superior civilian control and minimum long-term cost to achieve an adequate degree of success when equipping an army that expanded to three times its size in four months and deployed hundreds or thousands of miles from its home depot.

As the troubles with Mexico came to a head and armies slaughtered one another across the sea, the War Department assessed the methods (the ways) along with the force structure and equipment (the means) necessary to achieve what they understood to be the national objectives (the ends). Theory suggests that a successful military strategy balance these ways, means, and ends in a manner that reasonably promises to achieve security goals. The American military establishment had done exactly this in 1915 and 1916, and the procurement apparatus, obligated to obtain the means, acting as full participants in the process. However, the results were more in keeping with the status quo than with some visionary appraisal of the world.

Given no immediate threat, a president calling for neutrality, a strategy based on hemispheric defense, and a Congress reluctant to spend for reserve stocks, the bureaus' efforts to prepare held promise, if the underlying criteria remained true. Since there was no intention to get involved in the war in Europe, planners seemingly had no reason to address the possibility of sending troops. Since no one could send a million men to attack, America would not need millions to defend. Since it would take time for an opponent to deploy, America had time to respond. It all made sense. The United States could get guns without losing butter even as war raged over half the world. Even

in the most dangerous case, the existing purchase system promised to supply the army adequately while meeting the requirements of economy and oversight.

The civilian bodies responsible for raising, supporting, and providing direction to the army had determined that existing systems (especially the bureaus and the General Staff) and strategies did not need to change significantly. They analyzed the facts available to them and found the proposed plans suitable and acceptable for the nation's security needs. As form matches function, the purchase system still matched the domestic and foreign security needs of the time; the strategy of the United States had not yet invalidated the structure it used to equip its army.

By the end of 1916, the leadership of the War Department and its supply bureaus recognized the implications of the war in Europe. The changing conditions of war called for military readiness and economic coordination, but what would these look like? Did the United States need a million-man army? Could its businessmen be expected to work for patriotism and not for profit? Bureau leadership was learning that many important questions could not be answered until war actually arrived. The bureaus did not need a repeat disaster to understand the increasing need for coordinated effort, management of raw material, and prioritization along with existing standards of quality production and sound design. Despite progress since 1898, the War Department knew it was not ready in 1916 to fight against the Great Powers. However, no one in the military establishment seemed to think that there would be trouble supporting the forces projected by the National Defense Act, if only they could restock the reserves of uniforms and other specialized items expended in Mexico. Events soon tested their ideas.

CHAPTER 4

THE STORM BREAKS: THE FIRST SUPPLY CRISIS, FEBRUARY THROUGH MAY 1917

When discussing his disappointing World War I experience, old Indian fighter and Assistant Chief Quartermaster, Brigadier General Thomas Cruse lamented, "[the Army] had been assured that the United States was not going into the war." The astonishment Cruse expressed in his memoirs was not unique. While we now see how America was moving toward war, it was not so apparent at the time. A severance of relations with Germany did not automatically mean that the United States would enter the fray; the numerous diplomatic crises with European powers since 1815 had rarely resulted in war. There had been frequent trouble with the British over territorial issues along the Canadian border. Tension with France regarding Emperor Maximilian in Mexico had been high enough for some to suggest a truce in the Civil War while all Americans, Union and Confederate, dealt with a common enemy. The government had been at odds with Germany in 1888-9 over affairs in Samoa. President McKinley had conducted months of diplomatic exchanges before Congress finally declared war on Spain. Already since 1914, Britain had incurred American wrath for violating neutrality by seizing U.S. ships attempting to trade with Germany. Of all these crises before President Wilson sought a declaration from Congress, only the troubles with

Spain had resulted in active belligerency. It should not be surprising that few envisioned American involvement in the war in Europe.[141]

If America did go to war, the prevailing analysis did not forecast a major adjustment for the army. As we have seen, the military establishment had reviewed perceived security needs and responded with a national security policy based on political goals and strategic vision. Because the National Defense Act's small increase in the size of the army over a manageable tempo of five years would not alter the military's traditional functions, there was no obvious reason to change the form of its administration. The managerial structure providing for the nation's land security could continue to be an intentionally divided and safely neutralized association of agencies closely supervised by civilians in the executive and legislative branches of the elected government. The civilian representatives of the people could ensure adequate security within acceptable degrees of economy and continued oversight.

What would happen if this construct were wrong, if the army were suddenly expected to actively promote American policy among the Great Powers in Europe? If the scale and scope of the army increased rapidly, would the form continue to match the function? The decision by President Wilson to go to war presented a vast change to the War Department supply bureaus and indeed the entire War Department administration. Faced with a significant shift in strategy, the bureaus responded within the existing structure of collaboration and control to mobilize for World War I. When the conflict in Europe finally reached out to fully embrace America, many of the pre-war

[141] Thomas Cruse, *Apache Days and After* (Caldwell, ID: Caxton Printers, 1941), 309. I am indebted to Professor Sam Watson, Department of History, USMA for pointing out this trend concerning

assumptions about the operating tempo and size of the army still seemed valid. The Army's initial challenge lay in evolving from the concepts associated with peacetime policy into the reality of a force facing an entirely new situation. The bureaus' leadership comprehended the basic need for coordinating activities, managing raw material, prioritizing transport, and producing high-quality equipment to support a general war between industrial states. The principle of acquiring the most supplies at the lowest possible price after a thorough review would be challenged. Security would increasingly take precedence over economy and oversight.

This chapter explores the beginning efforts of the bureaus to once again adjust peacetime administrative structures to the rigors of war. As the diplomatic efforts with Germany faltered, the bureaus struggled to implement the standards approved under the National Defense Act of 1916. Once the war began, an early assessment that the Army would not have to expand beyond the force structure already planned further delayed a response. As the realization of the depth and breadth of the commitment to the Allied coalition clarified, the stresses on the existing system increased. The growth in the volume of requirements taxed the bureaus to their limit. Herein lies the first crisis that the War Department faced in World War I.

A CALM BEFORE THE STORM (December 1916 to 1 April 1917)

The struggle to refine the form and function of the military establishment continued as tensions with Germany increased in 1917. On the one hand, economy and oversight remained critical to Congress: there would be no sacrifice of this principle to

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diplomacy and war.

the "specter of a dragon." On the other, the military establishment attempted to increase material readiness and administrative competence to meet the apparent threat. In a post-election Congress that some describe as particularly divided in late 1916 and early 1917, the House Military Affairs Committee saw no need to pay immediately for a radical change in military policy even after the President had gone to Congress to explain the reasons for the severance of diplomatic relations on February 3. Many inside and outside the U.S. doubted the nation would become an active belligerent, much less involve an army in the morass in France. Self-proclaimed pacifist delegations continued to meet with members of Congress – some also had audience with the President. Although Americans were slowly accepting the need to back their interests with armed force, there was still no move to vote war credits. Proposals as defensive in nature as President Wilson's proposition to arm merchant ships against the *U-Boot* agitated anti-war elements. The strategic goals for the army expressed in the *Proper Military Policy* did not significantly change after the break with Germany. The War Department sought to accelerate the timeline for the increases already approved in the National Defense Act of 1916. Still, it seemed that "the most vigorous policy on the part of the War Department could not prepare [one million new soldiers] for service in the field within less than a year." Clouds of war would not relieve the tension between economy and readiness—it would take the thunderstorm of war itself to do that; it would take a hurricane of crisis to alter long-standing bonds of congressional oversight.[142]

[142] Seward W. Livermore, *Politics is Adjourned: Woodrow Wilson and the War Congress, 1916-1918* (Middleton, CT: Wesleyan University Press, 1966), 12; John Patrick Finnegan, *Against the Specter*

War Department efforts to make the National Defense Act a reality were sorely tested before committees in January and February. The bureaus were practically begging for money. After spelling out again in February the reasons for cost increases (he had already explained the affect of inflation on ammunition costs in January), Crozier was compelled to reduce every item requested for appropriation and eventually could only hope to obtain relief for those purchase officers who had to pay out of pocket when travelling to conduct the inspections required by law. Sharpe's fiscal year 1918 requests of $10.8 million for clothing and several million dollars more for other equipment reflected an attempt to increase inventory and a 10-20% inflationary increase in cost over the previous year; they were not eagerly received. A general reluctance to fund additional artillery, ammunition, or aircraft production prevailed despite communication to the committee of the gargantuan requirements in Europe. General Scott meanwhile continued his push for an increase in the General Staff, while inexplicably seeking to abolish the rank of brigadier general. The initiatives that the bureau chiefs and others on the War Department Staff pursued were all within the framework of the NDA, yet the ongoing spirit of economy and oversight often negated the prescripts of approved policy.[143]

The staffs of the War Department shuttled back and forth trying to stay on top of changes in legislation, priorities, and plans. Policy proposals behind the National

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of a Dragon: the Campaign for American Preparedness, 1914-1917 (Westport, CT: Greenwood Press, 1974), 185 ff.; David M. Kennedy, *Over Here: The First World War and American Society* (Oxford: Oxford University Press, 1980), 6; "The Call of the Hour," *The Army and Navy Journal*, February 17, 1917.

[143] 1st Indorsement, Ordnance Office, Feb. 9, 1917 to the Adjutant General, Office of the Chief of Ordnance, RG 156, Entry 36, Box 64. The increase in contracts necessitated greater expenditures in

Defense Act of 1916 had been based on the idea that the military situation would be stable and the army would have years (three for the basic equipment and up to seven years for the artillery program) to build. Although officers realized that the consumption of supplies in support of operations in Mexico alone challenged the assumption and they reasonably demanded an acceleration of the acquisition timeline, none could occur unless the money was made available. Instead, on February 10, the Ordnance Department and the other bureaus were seeking bids without approved funds, hoping Congress would appropriate the money by the time payment was due. A formal, programmed budget system for the government would not necessarily have helped estimates or better anticipated the new challenges of early 1917. A more centralized process would probably not have mitigated the uncertainty of the diplomatic situation and continued congressional frugality. There is little more the bureaus could have done without help.[144]

Secretary of War Newton Baker provided some of that help through his personal intervention. The day after the President severed relations with Germany, Baker approved bureau requests to purchase large quantities of clothing, shoes, and other material to supply the National Guard, the Regular Army, and volunteers to the levels authorized in the National Defense Act without waiting for appropriations before executing any contracts. Three weeks later, Baker wrote a memo to Senator Chamberlain requesting the restoration of funds to the expenditure for "Engineer

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order to complete the required inspections of producers. House Document H168-1, p. 156, February 21, 1917.

[144] See *Army and Navy Journal*, February 10, 1917 for announcements of bids and intent to purchase.

Operations in the Field" after the money had been cut. Baker's office drafted another letter to Chamberlain seeking to insert into the Army Appropriation Bill a provision for the Engineers to receive sufficient funds to inspect both existing fortifications and increased manufacture of engineer equipment. Baker regularly intervened in this manner for all the bureaus to facilitate attempts to fulfill the NDA and ease budget negotiations. He also went before the committees to secure funds for the Council of National Defense (CND). If these efforts failed, the Secretary knew he had other options to contend with the emergency since the President had set a precedent by permitting him to exceed congressional restrictions on the purchase of submarine nets deemed necessary to protect harbors.[145]

The Army was a loser in the ongoing legislative maneuvering. On the last day of the 64th Congress, a small bi-partisan group of Senators conducted a successful filibuster to thwart the proposal to arm merchant ships against the renewed submarine threat. The "little group of willful men" did more than make a statement about neutrality; their filibuster also held up final decision on other appropriations that had not yet made it to a vote. Provisions of $25 million for Agriculture, $333 million for the Post Office, and $533 million for the Navy passed into law, but $279 million for the Army for fiscal year 1918 died on the floor. Bureau officers could testify as often as Congress called them but their words meant little if the bills were not approved. During

[145] Office of the Chief of Staff for THE SURGEON GENERAL, February 4, 1917, RG112, Entry 26, Box 1110; *The Army and Navy Journal*, February 10, 1917; Newton D. Baker to Hon. George E. Chamberlain, Chairman, Military Affairs Committee, United States Senate, February 23, 1917. The ED had requested $300,000. The House had reduced it to $150,000 allowing $100,000 for normal peacetime operating costs with the remaining $50,000 to try to rebuild reserves and handle expenses still outstanding from the Mexican Expedition. Baker to Chamberlain, March 2, 1917, Office of the Chief of

this critical period in the spring of 1917, there would be no money to recuperate from the Mexican Expedition much less begin building the force authorized under the National Defense Act. Congress adjourned without approving funds. In this situation, there would be no contracts let to procure equipment; the most the army could legally do when operating at a deficit was purchase subsistence supplies.[146]

The War Department attempted various measures to be in a position to obtain supplies when the money became available. In March 1917, Sharpe had his depot quartermasters prepare to purchase additional items by receiving bids for quantities larger than authorized. They planned to take those bids, keep them open, and use them to fill orders if war came. Given time delays from contract to delivery, Sharpe believed this tactic would result in adequate supplies for projected increases to July 1, 1917, provided that Congress would approve the funds before delivery. The Quartermaster further coordinated with members of the United States' Chamber of Commerce to secure bids at New York City, Chicago, Philadelphia, San Francisco, St. Louis, and Boston for 900,000 pairs of shoes, 10 million yards of textiles, and over 2 million pairs of socks. Since any request obligated them financially to contractors, the bureau could not risk more than this initial increase, but they could get a head start on the bidding process. On the 17th of March, the Adjutant General sent a memo to the bureaus requesting an updated estimate of needs for an expanded army in anticipation of the emergency session of Congress. All developed deficiency estimates to request more

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Engineers, RG 77, Entry 106, Box 19; Baker to Wilson, April 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5807.

[146] "The Sixty-Fourth Congress Ends," *The Army and Navy Journal*, March 10, 1917. Note that the Post Office was still receiving more money than the War Department.

funds. The Engineer Department promptly provided a forecast of $33 million to complete the equipping of engineer troops to support the field army and for coast defense. It anticipated expenditures of $98 million to maintain units and provide fortification equipment. General Black advised that

> the amount for maintenance for one year should be available, or the authority given to incur obligations to that extent given, if it is considered possible that our forces will take an active part in war within a year. This is imperative as the material will require six months to one year for delivery and even to meet those deliveries will require prompt organization of the productive capacity of the country. Action as far as possible in advance is, therefore, recommended.

The War Department requested additional appropriations and re-examined policy to adapt to the evolving situation. Studies by the War College exploring the raising of 4 million for the army were useful but were expected to occur over a number of years (in the spirit of the timeline for the NDA), which did not help resolve immediate procurement concerns. The bureaus sent out orders in response to conditions, but without funding any steps would be for naught.[147]

Collaboration Continues

There can be no arguing that the War Department lacked the coordinated organization common in the largest, most advanced businesses of the day. It was a multiunit enterprise without a strong managerial hierarchy that used numerous routine reports and layered channels to demonstrate government thrift and accountability to the

[147] Sharpe, Memorandum to Adjutant General, Mar. 21, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5807; "Bid for Army Supplies," *Army - Navy Journal*, 10 Mar. 1917; Adjutant General to the Ordnance Office, Subject: Legislation March 17, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 64; Chief of Engineers to THE ADJUTANT GENERAL, Subject:

public. These checks and balances could cause delay and frustration, but there is evidence that bureau officers found ways to succeed within the system. The various elements of the War Department worked together, not always in perfect harmony, but at peacetime scales of time and volume they generally got the job done. The autonomous nature of their operations actually reduced the potential for internal friction or competition over funds that could arise in organizations lacking centralized management. Since there was not a strong chief military manager who decided one way or the other, the bureaus negotiated a solution among themselves or took matters to the civilian secretary for adjudication when disagreements arose. If these two methods did not work, Congress would provide the final judgment. Correspondence shows that the bureaus worked with other departments of the Federal government, the rest of the War Department, the CND, and each other to act upon the provisions of the National Defense Act.[148]

Cooperation between the War Department and the civilian economy would be critical as the country worked to build its defenses. The structure that was to play such a large part in harnessing the nation's productive potential during the first months of the mobilization was initially sketchy. While some companies in the spring of 1917 had refused to renew Allied contracts in anticipation of Army work, the business community in general was still reluctant to accept government contracts. Public opinion concerning the power of the military and industry remained mixed: for every

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Estimates for equipment of army of 1,000,000 men, March 22, 1917, Office of the Chief of Engineers, RG 77, Entry 106, Box 19.

[148] Alfred D. Chandler, Jr., *The Visible Hand; The Managerial Revolution in American Business* (Cambridge, MA: Belknap Press, 1977), 6-12. The War Department's structural pattern closely parallels Chandler's description of a federated association of producers.

Plattsburger or business Progressive who supported some form of preparedness, there appeared to have been an antimilitarist or pacifist who opposed the idea. Unable to divine a clear message from the people, Congress had ultimately retained its authority in the National Defense Act by permitting the idea of business-government cooperation, but not granting adequate infrastructure for its execution. The Appropriations Act in August 1916 had recognized the necessity of some economic preparation by establishing the Council of National Defense, but left its mission largely undefined. Congress appears to have believed there was time for the administration to work out some details before they put a stamp on the structure of the military-business interface. So, two groups of similar function but different form – officers used to close accountability in separate departments and professional managers accustomed to relaxed control in a centrally directed framework – would work together to build a purchase agency not clearly defined by law. From inception, the lack of definitive strategy or structure for the Council of National Defense and its sister agencies had the potential to divide as much as unify efforts.[149]

Despite the latent threat of divided effort, relations between the bureaus and the Council of National Defense seemed to be off to a good start. In December 1916, the CND requested information on capabilities, to which the Quartermaster responded the next day with a long document explaining its situation and needs. In addition to a number of lists detailing the types of equipment required for the Army, Colonel Isaac

[149] Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877-1920* (Cambridge, MA: University Press, 1982), 234. See chapter three of this dissertation for a discussion of the NDA & CND.

W. Littel of the Construction Branch expressed concern over the lack of appropriations essential to building the physical infrastructure necessary for an expanding army. Brigadier General Cruse repeated the standard prognosis for mobilization. At the low end he expected roughly 60 -90 days to equip five hundred thousand men with basics plus another six to nine months for special articles (e.g. uniforms), while at the high end estimate of two million men he forecast 12 months for basics and 12-18 for specials. Undeterred by the fact that "this Department ha(d) never been able to secure a reserve supply of uniform cloth," Cruse still sought help to build stocks for one million men. The head of the Supply Division anticipated trouble during these "abnormal times," but expressed confidence in business believing necessary supplies could be obtained from private sources provided all resources were utilized and significant funds appropriated by Congress. The Ordnance Department accepted the assistance of the Advisory Committee of the CND to expedite delivery of raw materials and components already contracted. By March 1917 when the CND was finally fully operational, Ordnance was regularly sending lists of material to retired Colonel J. F. Landis, serving on the Council. The Ordnance Office sought to gather the information on the amount of raw material required to manufacture various items so they could pass it on to the Advisory Commission. Later that month, the same department was replying to requests from the CND to add names of potential producers to its list of recipients for contract circulars. In a memo to the CND, Surgeon General Gorgas (a member of the Medical Section of the Advisory Committee) cited a number of examples of the production lag that the Medical Department had experienced and assessed that it would take eight to twelve months to accumulate the needed reserve sanitary material. The bureaus were willing

to share their concerns with the CND as both sides attempted to flesh out their corresponding roles and responsibilities. It remained to be seen how much the new civilian agency could help the Army.[150]

The increase in volume began to affect peacetime structure and associated attitudes almost immediately. The small bureau staffs (the Ordnance Department had ten officers in Washington) were busily juggling the wide range of tasks before them. The Surgeon General had six officers and 146 civilians to manage its administrative load, much of which still consisted of maintaining patient records. The Signal Corps, whose Aviation Section was already in turmoil, was struggling with the increase in aviation procurement. It took two months for Picatinny Arsenal to compile a listing of the quantity and type of raw materials that it used. Depots and arsenals were requesting more clerks to handle the expansion of operations and the requests for information. Sharpe, for one, had anticipated this problem by encouraging many of his department's civilian clerks to become reserve officers to form a core upon which he could expand. Despite increased work hours, offices everywhere were falling behind in completing reports, estimates, and other administrative requirements.[151]

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[150] Correspondence between Quartermaster Department and Council of National Defense, December 1916, RG 92, Entry 1888, Box 217. For one million men, Cruse saw six months to supply basics and up to fifteen for specialty items. Ordnance Office to Mr. F. A. Scott, Munitions Standard Board, Council of National Defense, c/o The Warner & Swasey Co., Cleveland, Ohio, March 28, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2566; MEMORANDUM RE: MEDICAL SUPPLIES, signed by Gorgas, Feb. 21, 1917, Office of the Surgeon General, RG 112, Entry 26, Box 1110.

[151] Mary C. Gillett, *The Army Medical Department, 1865-1917* (Washington, D.C.: Center of Military History, 1995), 381; Ordnance Office to Commanding Officer, Picatinny Arsenal, February 7, 1917 and return, April 2, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2566. Under peacetime procedures for obtaining additional clerks, the bureaus had to submit estimates through the Secretary of War to the Treasury Department by October 15. If funds were approved, the new employees could begin work the following July.

Nevertheless, requests, studies, and other important documents were making their way through the legendary labyrinth of internal War Department correspondence. There were no inane studies on matters like the distribution of toilet paper; discussions covered more vital issues such as troop levels, supply needs, possible sources, and costs. The tenor of the information reflects organizations that had learned and sought to improve: they remained palpably concerned about avoiding the mistakes of the Spanish- American War. The bureaus generally replied promptly to priority requests from the Adjutant General, Chief of Staff, or War College for pertinent information needed to draft estimates, plans, or congressional bills. From January onward, the Ordnance and Medical Department conducted a number of transactions between their departments to manage various property issues. As the appropriation drought continued, the Quartermaster General's office sanctioned the use of its funds to help Ordnance purchase from France much needed optical glass for artillery sights. Some of this communication remained slow and deliberate, making it fortunate that an enemy did not attack American shores: it took almost four months and twelve endorsements to approve and order an increase of guns for the coastal defense of Galveston, Texas. The bureaus forwarded recommendations and responses to sister bureaus or higher authority but the continued requirement for detailed coordination and accountability could slow decisions to a snail's pace.[152]

[152] For examples of document flow, see Chief of Engineers to THE ADJUTANT GENERAL, Subject: Estimates for equipment of army of 1,000,000 men. March 22, 1917, Office of the Chief of Engineers, RG 77, Entry 106, Box 19. A number of historians relate the story of the General Staff conducting a major study to see if they should issue toilet paper. Surgeon General to the Adjutant

Bureau officers did not acquiesce to every request from above or observation from below. Some issues were long-standing problems that would not be quickly remedied even with the threat of war. Leonard Wood endorsed a report to Scott lamenting the poor condition of coastal defense in the Baltimore area and advised that something be done immediately. Colonel E.F. Babbitt, acting chief of Ordnance in Crozier's absence, replied to Scott reminding him of the difficulty of quick solutions. He wrote

> should all legal restrictions as to the method of procurement be removed, all of the money necessary being immediately appropriated, and should it become possible to utilize all the private and public manufacturing establishments in the country to their full capacity, it would require approximately two and one half years to complete the projects referred to.

This was not stonewalling, for such complex projects could not be fixed overnight and, even if they could, risked diverting scarce resources from the main effort for little gain. Nevertheless, there were processes in place to exchange information and manage affairs within the War Department. Whether their peacetime structure would hold up in a wartime crisis remained to be seen.[153]

The seesaw uncertainty of the diplomatic situation and political environment in the period immediately preceding U.S. entry into the war muddled many routine processes. On March 30th, reflecting the increased likelihood of conflict, the Ordnance Department delayed the opening of bids for training ammunition and sent the proposals back to the manufacturers with updated advertisements. Factors including inflationary

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General, Subject: Medical Supplies, February 9, 1917, Office of the Surgeon General, RG 112, Entry 26, Box 1110. Numerous documents between Ordnance and Medical found in RG 112, Entry 23, Box 218.

[153] Babbit to Scott, March 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 1261.

pressure on pricing, the mood of Congress, new ideas from Europe, and changes in policy combined to challenge all the subordinate staffs of the War Department. With the pace of events accelerating, the current truth changed quickly. Most internal correspondence reveals efforts to stay on top of a rapidly evolving situation rather than an ignorance of subordinate activities.[154]

The practical, almost mundane staff work occurring exposes another aspect of the challenge the bureaus had in coping with the expansion: they were not only responsible for broad matters of procurement policy, but were also stewards of the basic doctrines and regulations of their branch. Sharpe directed the Supply Division of the Quartermaster Department to prepare a basic "how to" manual for mobilizing service and support units for company level commanders and regimental supply officers, as well as quartermasters at mobilization camp, depots, and in the departments to obtain necessary equipment (including clothing) camp sites, heat, light, water, fuel, forage, and subsistence. The Ordnance Department published a revised *Supply Allowance Tables* in January 1917 that integrated lessons from the Mexican Expedition to update figures showing the rates of consumption for supplies normally and "other than at Peace Strength" to help a unit Ordnance Officer plan requirements. It expected that "with ordinary forethought, under normal conditions, there should be no difficulty in maintaining an adequate supply by these regular requisitions," but advised that any difficulties warranted a special request.[155]

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[154] Ordnance Office to Birmingham Machine and Foundry CO., March 30, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2566.

[155] Sharpe to Supplies Division, January 13, 1917, Office of the Quartermaster General, RG 92, Entry 1913, Box 2; Ordnance Department, *Supply and Allowance Tables* (Washington, D.C.: Government Printing Office, 1917), 1-5.

Not Quite Coordinating

The bureaus participated in and advocated ad hoc attempts to coordinate within the existing administrative structure. Their efforts varied from the micro-level of individual items to the macro-level of the entire economy primarily because there was no real precedence in the government for this type of unified resource management. On February 12, the Secretary of War appointed Crozier to be the Army representative of the joint Army-Navy board "created for the purpose of determining the order of precedence in the supply of ammunition in case of need." Five weeks later, the Ordnance staff presented a report to Baker that had already been worked out by a joint board of Army and Navy officers on the allocation of private production capacity for artillery projectiles and gun powder. The staff was seeking further guidance on the matter because "there (had been) no previous correspondence on this subject, nor, as far as (was known, had) this subject been referred to since." The complex channels and increasing flow frustrated efforts to manage events. The habit of establishing committees or boards to make decisions that had been useful in building consensus before remitting issues to Congress now contributed as much to the inertia as the increased volume and tempo of actions.[156]

The bureaus realized that in the near future they might "require great quantities of leather, or of woolen cloth, or of canvas." There was concern that "if the matter (was) not properly coordinated it may result that one bureau of the War Dept requiring

[156] Secretary of War to The Secretary of the Navy, February 12, 1917 and MEMORANDUM FOR GENERAL CROZIER from Ordnance Office, March 20, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2556.

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." Members of the Ordnance staff recommended that the matter be brought to the attention of the bureau chiefs in order to arrange "some sort of 'steering committee' among themselves *to insure an orderly and uniform acquisition of supplie*s" (italics mine). Colonel Babbitt, Acting Chief of Ordnance, endorsed the memo, but emphasized that "the question of coordinating requirements of the *Federal Government must take into consideration the needs of the Navy Department in addition to these of the different branches of the War Departmen*t" (italics mine). He explained that the Ordnance Department had already coordinated with the Navy Department to divide between them the manufacturers capable of producing powder and projectiles. At the end of March, Babbitt informed the Chief of Staff that the Advisory Committee of the CND was analyzing the issue and was expected shortly to render a decision.[157]

General Black and his fellow engineers anticipated what was coming and recommended a focus on organizing the whole economy for war. They recognized that

> (o)n account of the large amounts of materials required by all supply bureaus, prices are bound to rise excessively unless active steps are taken to control them. Price regulating must start with raw materials and be carried through each step in the process of manufacture. It is, therefore, suggested that a commission be formed of reserve officers, representing the several supply bureaus and acting under the Council of National Defense, and that the necessary legislation to make it effective be included in the act authorizing raising of new forces.

[157] Memo from Office of Chief of Staff for the Chief of Staff dated 26 Mar 17 with endorsement from COL F. B. Babbitt, acting Chief of Ordnance, March 31, 17, Office of the Chief of Ordnance, RG 156, Entry 36, Box 1410.

The bureaus were not opposed to coordination per se, but would be concerned with the legality of any attempts to centralize beyond the structure then existing under the authority of the civilian Secretary of War. Reluctance to unilateral change in the system generally stemmed from concern by the officers involved that they could be held accountable to Congress who definitely had a say in matters of bureau organization and procedure.[158]

There were other attempts to unify control. The bureaus normally sent their estimates and requests for legislation through the Secretary of War, but had occasionally delivered them directly to Congress, at a committee's behest and almost as an adjunct to the congressional staff. In March, increases in volume motivated Baker's office to direct that "in order to coordinate all needs of the War Department and to avoid, in the future, the sending to Congress of numerous disconnected requests and recommendations for legislation," the peacetime habits would change. All requests for legislation were to now go through the Adjutant General's office for the consideration of the Chief of Staff and Secretary of War in order that the recommendations be "thoroughly studied and coordinated and included in a program to be transmitted to the proper committee of Congress." The same would apply for "(t)he items to be inserted in estimates, together with any necessary explanation therefore (sic)." This would go a long way to coordinating War Department efforts, but would take away some of

[158] The Chief of Engineers to THE ADJUTANT GENERAL, March 22, 1917, Office of the Chief of Engineers, RG 77, Entry 106, Box 19.

Congress' prerogative because such centralization kept ideas and concerns suppressed.[159]

The bureaus anticipated the need to coordinate acquisition, but how would they accomplish it? The attitude of public accountability made the idea of one uniformed chief of supply hard to consider: who would have the power, who would take such responsibility – a regular army officer, a Wall Street tycoon temporarily in uniform? The system was not ready to face this decision yet. Some saw the task of coordinating acquisition as a concern for the whole Federal government, not just the War Department. The bureaus appeared willing to subordinate themselves to the CND if Congress supported the idea. Although there was not a single uniformed head controlling the efforts of the bureaus, there were attempts to exchange information and integrate activities through the use of boards. The bureaus had foreseen many aspects of the administrative task that might come with war and attempted to establish ways to mitigate conflict; it remained to be seen if their efforts would be sufficient for the volume of purchasing involved.

Difficulties: Accountability and Control

The spirit of oversight and accountability also continued in the basic management of purchase. The staffs revised a number of core supply and purchase manuals in the period between the passage of the National Defense Act and the declaration of war, but there were very few substantive changes; all continued to

[159] The Adjutant General of the Army To The Ordnance Office, Subject: Estimates and Legislation, March 20, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 64.

emphasize personal accountability, detailed record keeping, exact specifications, and other peacetime control measures. There were minor exceptions. For example, a revised regulation now permitted depot officers to exceed authorizations in some accounts if they obtained War Department approval before executing the transaction. The existing procedural restrictions were still followed in practice. As explained in chapter two, supply officers remained fiscally accountable if they exceeded approved appropriations in any way. This control often meant that an officer who decided to take initiative to deal with unforeseen events by committing government funds without an approved appropriation took a personal financial risk. If Washington did not agree with the decision, the officer reimbursed the government for the transaction and could receive disciplinary action. In response to such policies, many in Mexico had chosen to pay out of pocket from the first rather than risk the additional trouble that could come with misappropriation. As its headlines contemplated war and its editorials called for bold action, the *Army and Navy Journal* published results of the Judge Advocate General's decision on the cases of those accused of misusing funds. Members of the armed forces could see for themselves that few of these judgments came back in favor of the individual officer. When examining their options, many in the bureaus, cognizant of the legalities of their actions, had learned to prefer the safe route even under emergency conditions.[160]

[160] Office of the Quartermaster General, March 2, 1917, RG 92, Entry 1888, Box, 8331; Ordnance Department, *Supply and Allowance Tables* (Washington, D.C; Government Printing Office, 1917), 1-2. For examples of the decisions, see "Opinions of the Judge Advocate General" especially "Decisions by the Comptroller" in the *Army and Navy Journal* during this period.

The March funding crisis compelled the Ordnance offices in the capital to remind the arsenals of the need to closely control their purchases. The bureau sent out messages reiterating the importance of obtaining prior approval through the use of estimates and emphasizing that actual cost should be reported immediately upon its calculation in order "that the authorization of the [existing appropriation] law may not be exceeded." The additional requests for allotments following the passage of the NDA had made it difficult to ascertain the exact amount obligated to and used by the Rock Island Arsenal for purchase of ordnance stores. In what amounted to an audit, the officer requested that the arsenal send an updated list of completed and planned purchases under the appropriation. Ordnance and the rest of the bureaus could afford to conform to these standards of fiscal responsibility because they believed they had time to fix their problems. The security situation did not seem pressing enough to overturn routine methods to remedy the emergency rising from the Mexican expedition or the tensions with Germany.[161]

The Secretary of War authorized the bureaus to continue seeking bids in March, but at the same time his office tightly controlled the money they used. Later that month, the Ordnance Department wanted to purchase some optical glass for gun sights but lacked an existing appropriation. Before the purchase could be completed, Colonel E. B. Babbitt had to request that the office of the Secretary of War transfer the necessary $4,000.00 from one appropriation to another. John C. Scofield, the assistant

[161] Ordnance Department to Commander, Watervliet Arsenal, February 13, 1917 and Ordnance Department to Commander, Rock Island Arsenal, February 13, 1917, SUBJ: Stores Purchased under Ordnance Store & Supplies, 1917 &1918, Office of the Chief of Ordnance, RG 156, Entry 36, Box1410.

and Chief Clerk of the War Department endorsed the request and informed the Ordnance Department that the money had been transferred. If the bureaus had to get approval at the highest level for a one-time purchase of $4,000.00 because there was not a specific allotment for it, how would the organization respond to an increase in volume many magnitudes greater? In the coming months, strict adherence to legal procedures would be sorely strained by events.[162]

A desire for readiness and an appreciation of the need to coordinate were not enough. Forever in the background lay the prevailing liabilities and restraints that enhanced accountability but risked stifling the initiative inherent in systems that maintained a balance of centralized control with decentralized execution. The bureaus were not masters of their fate in the design and implementation of the overall procurement process. Any actions they took were negotiated from their position of subordination within the federal system. Until the demonstrated need for more tightly centralized control motivated a change in the system, the desire for coordination would have to suffice.[163]

UNPREPARED FOR THE SURGE

Despite the assurances made to General Cruse, the United States was indeed at war on April 6, 1917. At the advent of hostilities neither the military, nor industry, nor the government was prepared for the surge in activity that would occur over the

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[162] Ordnance Office to Secretary of War, Subject: Procurement of Optical Glass, March 31, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12. The Glass for lenses was primarily produced in Germany and France. The Ordnance Department had to work with the attaché's office and the Quartermaster Department to purchase the glass from France.

[163] See discussion concerning principles of centralized control and decentralized execution in Chapter 5 of this dissertation.

following months. The General Staff had no programs to coordinate procurement and production, but then again it was not intended that it do such a thing, since any centralized control of procurement that was necessary had occurred in congressional committee. The bureaus were only dimly becoming aware that the combination of their informal coordination and unfettered access to markets might be insufficient to assure effective resource allocation. America's industrial base and transportation network were already exerting themselves in support of foreign governments' war production. By seeking to avoid changes in the existing administrative institutions, the President, the Congress, and the Secretary of War approached a total war from a perspective more suitable for a limited war. None of these would have predicted the actual nature of the journey they were beginning. The incongruity between their deliberately constrained organizational mindset and challenges of total war had undermined all attempts at reform immediately before U.S. entry into the war and would continue to do so. Those who suggest that there should have been some sort of grand industrial mobilization plan forget that the increases anticipated initially were of lower magnitude and slower rate than the responses for either the Spanish-American War or the Expedition to Mexico. This war would have its own unique pattern not quickly discernible by those responsible for its prosecution.

A Magnitude Slow to Unfold

The scale of the problem facing the supply bureaus and the War Department was slow to unfold. At the time, newspapers reported the possibility of a "Return of Rochambeau's Visit" hearkening back to the French expeditionary force led by Comte

de Rochambeau that had aided the Continental Army at Yorktown. But when Senator Thomas S. Martin frantically asked, "you're not going to send soldiers over there are you?" no one in the administration seriously planned to (though some in the War Department did contemplate that it might be necessary). Martin, who was also chairman of the Appropriations committee, added emphasis to his exclamation shortly after the declaration by stating that Congress would not permit troops to be sent to Europe. Should Congress relent and the administration decide to do so, conventional wisdom suggested that it would take over a year to get even a small corps sized element of 50,000 to the fighting. The War College continued to recommend against the immediate dispatch of troops even after Pershing's mission had been approved. In the first months of American participation, no one had any reason to believe that more than a few hundred thousand men would ever be sent to Europe.[164]

The President's policy goal to "make the world safe for democracy" may have been well defined, but the strategy to achieve it was not. The United States would presumably increase financial and material aid to her new allies. How the nation would use its military and naval strength to win remained to be seen. At the outset, some sort of naval augmentation, money, and supplies were obvious responses. It seemed reasonable to believe that a modest contribution to the land war, much as Britain had made in the continental wars of the eighteenth and nineteenth centuries, would be the limit for American military forces. Since priority clearly lay with continued forms of

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[164] *New York Tribune*, March 28, 1917; Senator Martin quoted in Frederick Palmer, *Newton D. Baker; America at War* (New York: Dodd, Mead & Company, 1931), 120 and in Edward M. Coffman, *The War to End All Wars: the American Military Experience in World War I* (New York: Oxford University Press, 1968), 8.

assistance, building any American land force threatened to detract from this ability. The time required to train an expeditionary force, the ever-shrinking number of ships to transport it, the drain of human and material resources to equip it, and, most importantly, domestic resistance all combined to make the deployment of a large army unlikely.[165]

In response to the new strategic situation, the War Department accelerated the existing program laid out in the National Defense Act of 1916. In April, Bliss and the War College anticipated a short-term wartime increase of 500,000 men to bring the total under arms to slightly over one million. On April 5, Baker submitted a bill to Senator Chamberlain for an overall strength of 1.7 million men: 287,846 Regular Army, 440,000 National Guard, and two "additional force[s] of men to be chosen by selective drafting" of 500,000 each. The bureaus began executing the pre-arranged contracts for these forecasts. Given perceptions of the time needed to train, equip, and ship, the War Department believed it would take two years to be able to provide more than naval and economic aid in any case. More detailed industrial plans than those proposed in the *Proper Military Policy* of 1915 were seen as unnecessary for a doubling of the army over 12 months; prewar studies had confirmed this prognosis and the CND could be expected to help overcome the problem presented by Allied competition for resources. The supply departments had survived heavier surges in 1898 and 1916; they believed they would weather this storm as well.[166]

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[165] David F. Trask, *The AEF and Coalition Warmaking, 1917-1918* (Lawrence, KS: University Press of Kansas, 1993), 4.

[166] "To Increase our Miltiary Establishment," *Army and Navy Journal*, April 7, 1917.

The bureaus aggressively sought to correct existing problems, but were unwilling to do so unilaterally. For example, the day after the President addressed Congress, General Crozier signed a letter to the Adjutant General advising that it would be necessary to secure whatever field artillery equipment that might be available (i.e. commandeer guns intended for other countries) until manufacturers could produce these items in quantity. He suggested that his Department receive the authority to procure only as long as necessary the needed material "within the limits of authorized expenditures" promising that the items would be as close to U.S. types as possible. Baker approved the request as he did those of other bureau chiefs seeking to take immediate action. The Ordnance Department contacted the CND on April 3rd to coordinate the procurement of several hundred thousand rounds of artillery ammunition. The quantities and types, including a large percentage of coast artillery rounds, reflected the existing strategic plan for a defense combined with a limited offensive, not a major projection of force. Crozier also inquired about the possibility of the CND coordinating with the manufacturers to secure the raw materials for the purchases. He informed the Council that this purchase, while appearing "small," would cost approximately $29 million for labor and material. Finally, Crozier asked for confirmation of his request within a week so that the Ordnance Department could execute the purchase "at the earliest possible date." The Medical Department used its mature relationship with the Red Cross and other civilian medical agencies such as the American Medical Association in addition to the CND to begin accumulating personnel

and supplies. Officers in the other bureaus also pursued this type of restrained initiative.[167]

There was a sense of urgency in these early efforts, but there is no indication that anyone was in a panic. In fact to many it seemed that if the Army needed to, it could increase tenfold over the next two years, which would have been more than enough to support its strategy at the time. Three weeks after the declaration, the War Department believed it was well positioned to support the proposed 500,000 by 1 July and one million by the end of the year. In early May, before the initial selective service act passed, War Department General Staff coordination sought to adjust to the "present rate of recruiting" because it was "probable that all of the men needed to raise the Regular Army with all five increments to war strength [would] be enlisted about the fifteenth of June." The memo went on to explain that it was impracticable to provide cantonment shelter at all sites designated for the formation of the new organizations. The Quartermaster General and his staff agreed to furnish tents as a temporary expedient while placing priority on building cantonments farther south. All it would take was a message to the Office of the Quartermaster General to proceed.[168]

Since the Army was growing at a manageable rate, there was time to build a proper foundation for the expanding army. The Signal Corps set to work developing an

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[167] Ordnance Office To the Adjutant General of the Army, April 3, 1917, Subject: Emergency Procurement of Artillery Material other than U.S. design, Office of the Chief of Ordnance, RG 156, Entry 36, Box 1410; Ordnance Office to Council of National Defense, Subject: Artillery ammunition to be procured from private manufacturers, April 3, 1917, RG 156, Entry 36, Box 2566.

[168] OFFICE OF THE CHIEF OF STAFF, MEMORANDUM FOR General Bliss, Subject: Shelter for the Regular Army, May 9, 1917. Those sites were Fort Ethan Allen, VT, Fort Meyer, VA, Syracuse, NY, Gettysburg, and Montauk Point. Office of the Chief of Ordnance, RG 156, Entry 341, Box 4.

aviation program. The Ordnance Department declared that it could support the initial artillery mobilization of 72 batteries with existing stocks (albeit of five different calibers) of field guns by requesting that the General Staff instruct the commanders of the Philippines, Hawaii, the Canal Zone, some coast artillery units, and the Superintendent of the Military Academy to send their training and reserve batteries to Depot Quartermasters who would provide the guns to the divisions for instruction. Of course, the wide variety of calibers and types would create serious supply challenges over the long term, but Crozier planned to have this corrected before the units deployed. As the history of one staff section put it, "It is not to be wondered at therefore, that the Ordnance Department went at its war preparations more in a studious methodical and systematic manner, than in a spirit of desperate haste and willingness to take material of inferior design and quality." By the end of April, Sharpe was refusing further applicants for the Quartermaster Reserve Corps because he had enough to assist an army of one million. As late as July 1917, most in the bureaus did not anticipate a need for further assistance. At this early stage, nearly all information helped paint a picture that the situation was under control; the bureaus would soon realize that the flood had just begun.[169]

[169] "Planning Control Section History, Part II, Book 3," Office of the Chief of Ordnance, RG 156, Entry 617, Box 1; *The Army and Navy Journal* April 28, 1917; Terrence James Gough, "The Battle of Washington: Soldiers and Businessmen in World War I" (Ph.D. dissertation, University of Virginia, 1997), 297; Office of the Chief of Staff, MEMORANDUM FOR The Adjutant General, May 16, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 4.

An Alliance Brings Change

The arrival of the Franco-British mission on April 22 heralded the beginning of the first coalition war since the nation's birth, greatly changing the situation facing the bureaus. Coalitions are tricky arrangements at best; for every advantage gained there is often some countervailing limitation or risk. The United States had entered into the political alliance against German hegemony in order to redress grievances and achieve stated policy goals. In exchange, it provided the coalition the resources it so desperately needed. Though officially adhering to George Washington's time honored warning to avoid "entangling alliance" by adopting the posture of an associate, the Wilson administration risked the freedom to chart an independent political course to victory. Any connection, whether as an associate or formal member of the alliance, ultimately tied the fate of American interests to the success of the French, the British, and their weaker allies. The battlefield failures of the Europeans coupled with the stronger political position of these senior partners forced the Americans to struggle over the composition, location, timeline, doctrine, organization, and sustaining of their contributions to the coalition for the rest of the war. By entering this coalition, the U.S no longer retained initiative in its military policy and further compounded the difficulty of mobilization planning in 1917.

With much ceremony, including visits to Washington's grave and speeches at West Point, high-ranking Allied dignitaries arrived to initiate formal contacts and coordinate the efforts of the already existing economic alliance. Among the more important members of the delegation were the hero of the Marne, French Marshal Joseph Joffre and British Secretary of State for Foreign Affairs Arthur Balfour. To

many in the administration, all the Allies seemed to need at the time was a few more resources to tip the balance in their favor. They easily obtained the money, material, and naval support they requested; loans of approximately $745 million, a joint buying commission through which they would retain preferential treatment in commerce, and full cooperation with the blockade system brought the Entente a new lease on life. The new member of the coalition provided immediate advantages for those already engaged in this war of attrition.

But there was a shadow hanging over the arrangement. Rumor suggested that the Allied effort was on the brink of disaster. Although some newspapers reported that recent Allied campaigns had not been successful, there were no public admissions of troubles. On the contrary, the *Army and Navy Journal* rejected the notion that France was being "bled white." Joffre announced publicly that the French Army was "attacking with greater vigor and material force than ever before." Privately, however, the Field Marshal surprised the American leadership when on April 27 he called for "men, men, men!" and opened the floodgates of total mobilization. To Baker, Scott, and Bliss, he advised that a division be sent as soon as possible, to be followed by special troops such as railroad units. He also urged them to begin to organize and train an army large enough to send about 500,000 men to fight in France. Five days later he made the same request for a division to the President who, after receiving similar suggestions from the British mission, approved the request that gave birth to the American Expeditionary Force. By the time these negotiations were completed, the administration had decided to send a division of U.S. Regulars, a regiment of Marines, and nine regiments of Engineers to France as soon as possible. This was the beginning

of the open-ended commitment to the coalition that would change the function of the bureaus from small -scale to large-volume operations.[170]

Eager to see Americans committed to the war as quickly as possible, the Allies proposed that the United States honor their pledge by allowing Americans to be incorporated directly into the European armies, or amalgamated, rather than fight as an independent force. Since it would take more time, ships, and men to build a separate army than it would to send troops to existing formations and use allied equipment, the concept held merit for those struggling to survive. However, while some have declared that the poor state of American industrial preparedness motivated the Europeans to suggest this course, there are more likely causes. Given that the United States was already providing huge quantities of finished equipment and raw material to the Entente (for example, one half of Britain's smokeless powder was supplied by the United States as were many of its rifles), it seems that the desperate need for men to fill the trenches drove amalgamation. Observers recognized that the Americans lacked the organizational structure upon which to build a mass army and the Allies did not have time to wait or ships to spare for a complete army to deploy overseas. Although on paper amalgamation would have solved many of these problems, the political value of an independent army made its creation a necessary risk. Besides, at the time of president's decision, the high-end forecast of several hundred thousand men in uniform seemed an achievable goal. The Wilson administration could not accept a dissipation of the American contribution and quickly rejected amalgamation as they ordered the

[170] *Army and Navy Journal*, May 12, 1917; William Crozier, *Ordnance and the World War: A Contribution to the History of American Preparedness* (New York: Charles Scribner's Sons, 1920), 34.

First Division readied for deployment. The United States would form its own army and build its own equipment. It was only after the decision to greatly expand the army that the level of American industrial and organizational preparedness would be found wanting.[171]

As preparations to send the first units overseas began, it looked like yet another Tampa might be in the offing. Although in December he had recommended that the German Steamship docks at Hoboken be seized in the event of war, the Quartermaster at New York, a Colonel Carson, did not obtain approval until after the declaration when he had personally presented the matter to the General Sharpe and Secretary Baker. While he was still coordinating efforts to clear the piers of existing German property, Carson received orders on May 21 to prepare the first shipment of troops. Because of lack of space at the dock, Carson sought to synchronize arrivals from a distance rather than collecting all cargo and personnel on site. There were no priorities established yet and although the bureaus communicated their actions to each other, it was too late to establish a detailed schedule. Concerned that the Offices of Chief of Ordnance, Surgeon General, and Signal Officer were ordering supplies to be delivered to the Hoboken pier between 1 and 3 June, he warned the bureaus that he was not going to be

[171] Industrialist and Assistant Secretary of War Benedict Crowell posited after the war that Allied requests for men were due to "the industrial unpreparedness of our nation." Benedict Crowell, "Procurement in War," Lecture delivered at Army War College, Dec. 10, 1926 in Army War College Curricular Archives, USAMHI. This is a rather dubious conclusion considering that financier Charles Schwab was quoted in *Army and Navy Journal* on April 21, 1917, saying that American companies were producing one million artillery rounds per month for the Allies. The magnitude of the American material commitment to the Allied cause is even further amplified by Paul A. C. Koistinen's analysis of the role of American industry in supporting the Entente. He cites sources showing that U.S. capacity as of April 1917 stood at 20,000 British and Russian Enfield rifles daily, plus 70,000 machine guns, 2.25 million small arms rounds, 360 million pounds of powder, 36.5 million shells (in sizes three to twelve inches), and corresponding volumes of fuses, primers, and cases annually. See his *Mobilizing for Modern War* (Lawrence, KS: University of Kansas Press, 1997), 125-126.

ready until "arrangements here [were] perfected." He stopped these shipments and asked the Quartermaster General to "direct officers and dealers at shipping points to hold shipments until directed by this office to forward." Carson planned for the bureaus to coordinate with him first what they intended to ship, then he would inform them by telegraph what to ship and when. He recognized that "unless this [was] done there [would] be confusion and delay and it [would] be utterly impossible to handle the movement with the secrecy, celerity and smoothness desired."[172]

The colonel worked through the Office of the Quartermaster General to prioritize the items that would go on the first ship and those that would follow when additional ships had been procured. Supplies that were in excess of what had been already designated would have to be retained where they were on the interior or stored in New York City to await the next convoy. The bureaus knew what they were sending and it was identified on arrival; this time the challenge was dealing with the excess volume. The bureaus had quickly recuperated from the lack of detailed contingencies and hustled to equip the departing soldiers. Part of the problem in coordination arose from supply bureau efforts to establish their own traffic sections rather than rely on the Quartermaster Department as they had done in the past. The resulting confusion encouraged the establishment of the Embarkation service, but the initial activities in

[172] Depot Quartermaster, New York City to Quartermaster General, U.S. Army, May 24, 1917. Forwarded to and received by the Office of the Chief of Engineers from Chauncey Baker, Office of the QMG, in Office of the Chief of Engineers, RG 77, Entry 103, Box 2259; Memorandum for the Quartermaster General, Subject: Piers and Hoboken Terminal Railroad, November 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5807.

New York Harbor in 1917 were more like the successes in San Francisco than the failures at Tampa back in 1898.[173]

The Brain Goes to France

Pershing's departure for France marked a major shift in the center of American strategic decision-making. Before, the War Department, however divided internally, had been the conduit through which elected leaders transmitted policy and their desire for economy. Although the bureaus had been accused in the past for forcing decisions that favored the means available almost to the exclusion of examining the ways required to achieve the desired end, the cooperative effort between the departments and the General Staff surrounding the National Defense Act had brought an equilibrium to the strategic process in which ways, means and ends had been equally considered. It initially appeared that the General Staff and bureaus, in alliance with the businessmen on the various cooperative councils, would continue to chart this course for the war. But as Pershing and AEF witnessed first hand the deteriorating strategic situation following Nivelle's bloodletting, the French mutinies, profligate British losses at Passendale, Italian collapse at Caporetto, and Russian capitulation, a new imbalance evolved. General Pershing, armed with great authority by the President, took the first step three months after the declaration of war (and two weeks after his arrival) when, following consultation with the British and French, he signed the AEF staff study of

[173] The Chief of Engineers has another telegram from Carson in NYC with an endorsement from Cruikshank in the Adjutant General's Office, dated 1 June 1917, RG 77, Entry 103, Box 2259; Robert L. Bullard, *Personalities and Reminiscences of the War* (Garden City, NJ: Doubleday, Page, & Company, 1925), 26; Erna Risch, *Quartermaster Support of the Army: A History of the Corps, 1775-1939* (Washington, D.C.: Government Printing Office, 1962), 610-613.

July 10, 1917 that had developed a table of organization and equipment on the basis of shipping one million men to Europe as soon as possible. It would be almost a year before bureau, business, and staff again positively influenced force development; until then the AEF would state its wants and expect to have them filled. Though this AEF dominance was preferable to a great many officers, it created new problems for the mobilization process. The imbalance caused by the ensuing series of uncoordinated and unexpected demands from France would have sent tremors through the War Department infrastructure regardless of its organizational form.[174]

The constant swell of force requirements contributed to an unsettled atmosphere and wasted effort in Washington. On May 19, 1917, the passage of the Selective Service Law had increased the potential force to 1.5 million men. The day after Pershing approved the new table of organization, Sharpe indicated to Baker that the estimate for total troop strength had risen to two million. By the late fall of 1917, the call for men had become increasingly desperate. Pershing and other Allied military leaders believed that it would be at least 1919 before there were sufficient American forces in the theater to tip the balance in Allied favor, but were not sure they could wait. As September arrived, the War Department was digesting Pershing's request for 100 divisions of 25,000, plus support troops, to France by 1919. The General Staff reduced this number, seeking a three million man army by 1919, with 30 divisions fielded in 1918 and a second 30 (for a total 63) divisions the next year. On October 19, the Chief of Staff's office published one memo adjusting the amounts to 1.5 million men for

[174] "AEF General Reorganization," Document # 174-23, Curricular Archives, Army War College, USAMHI.

fiscal year 1918-19 and, later that same day, published another increasing those numbers by an additional 11,941 officers and 112,245 enlisted men. Overall, there would be six different strength or mobilization plans delivered to the procurement offices between September 1917 and September 1918. The history of a planning section in the Ordnance Department recorded the frustration over the constant short-notice changes: at first there were no immediate estimates for troops abroad, in May came the decision to send one division, mid-August brought word that the 42nd Rainbow Division would go, shortly followed by 26th Infantry Division. After these units left in October, the planners heard no thought expressed for more until November when the 2nd Infantry Division received orders. It was January before it "became generally known that we would continue to send troops at a reasonable rate." It did not matter that the Quartermaster General and others repeatedly requested data from the Chief of Staff because the unstable evolution of the force structure and personnel strength stunted any growth toward a long-term coordinated scheme. In the end, the slow maturation of the strategic program reduced the amount of time the bureaus could take to plan and caused hasty adjustments to the procurement program with negative repercussions for the entire mobilization process.[175]

Although General Pershing certainly had good reason to change the strategic assessment, the escalating expanse of the problem contributed to the flood in the capital. The pressure on the American staff in Europe to build an army and its entire

[175] Assistant Secretary of War (Benedict Crowell), "Mass Procurement," Lecture at Army War College, January 20, 1923, 253-18, G-4 Course No 10, 1922-23, page 2, Army War College Curricular Archives, USAMHI; "Planning Control Section History, Part II, Book 3," Office of the Chief of Ordnance, RG 156, Entry 617, Box 1; Sharpe to Chief of Staff, October 9, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4139.

infrastructure from the ground up detracted from its ability to prioritize requirements before they sent them to Washington. Added concerns about an enemy that enjoyed the strategic initiative, coalition partners who, on the brink of strategic exhaustion, were constantly trying to absorb forces, attempts to implement a doctrine at odds with the Allies, and supporting the President's policies further distracted the staffs from such basic analysis. Officers on both sides of the Atlantic, with viewpoints vastly divergent from one another, worked to absorb the advice of two allies that fought differently than the U.S. did, to anticipate future requirements, and to determine policy. As these conflicting visions grated against one another, the designs of equipment, organizational structure, and doctrine mutated, causing ripples that frustrated bureau efforts to obtain quality equipment in quantity with speed. Though the bureaus were trying to listen and reply to needs from France, the challenge to reconcile doctrine, organization, and technology with strategy across vast distances increased the volume of communications beyond a rate that the War Department could manage. The bureaus were about to be overwhelmed.

There was one more factor that delayed the start of a coordinated program during this period: personnel issues took priority over materiel in the minds of most military and political leaders. Concerns over the bad taste lingering from civil war conscription coupled with the need to harness the flourishing spirit of volunteerism demanded reconciliation in policy if the government expected the people to support the war effort. Many assumed that training this mass of manpower would take more time than the production of equipment by the nation's powerful industrial base. The Assistant Secretary of War, William Ingraham, in personal correspondence the first

month after the declaration, was primarily concerned about the raising of troops and their subsequent training, not the material portion of mobilization. The consensus concerning materiel did not account for continued European demand on the market and most importantly did not consider the possibility that the army might send millions overseas. Although manpower is ultimately the critical component in warfare, the failure to simultaneously initiate more than the slightest appropriation to get purchase rolling left the bureaus unable to properly support these masses as they entered the force. The emphasis placed on personnel policy did establish some very important legal precedents, but did nothing to help determine force structure. For the first six months after the declaration of war, the bureaus could only guess how great a quantity of supplies the Army would need. When strategic requirements indicated that it was more important to get an armed body to the front than a trained one, another assumption proved tragically invalid and the War Department once again had to react.[176]

STAVING OFF THE SURGE

The pattern of events in mid-1917 resembled 1898 in some ways: a conservative prewar defense policy collapsed as hostilities began, the increasing volume of transactions fractured the existing function of the bureaus, and the War Department endeavored to adapt. Designed to conduct purchases in a way that emphasized financial accountable and economy in support of a small peacetime force, the bureaus would now need to manage operationally efficient high volume procurement at an

[176] Personal letters from Wm. Ingraham, Assistant Secretary of War April- May 1917, Office of the Secretary of War, RG 107, Entry 174, Volume 2 of 4; Sharpe, *Quartermaster,* 85.

accelerated operational tempo to project a large force overseas. In response, the bureaus altered the form of their organizations and disregarded those elements of red tape that hindered flow. By the end of this initial adjustment to the change in function, the principles of oversight and economy were metamorphosing: the focus of oversight narrowed to quantity and quality of production while concerns for economy would be only vaguely acknowledged. At the end of the first few months in the war, the War Department had established the pattern of its response. It remained to be seen whether it had set the right course or simply deferred disaster to a later date.

The Bureaus Adapt

While the most basic hindrance to successful planning, the lack of clarity concerning the size of the force was not the only problem to overcome in the first months. On April 28, Special Order 98 created a board to pursue the best methods to motorize the Army. A few days later, the General Munitions Board published a list of 17 items (including steel sheets, cotton goods, woolen goods, lumber, rubber, coal, gasoline, and oil) for which a shortage already existed or was probable. No bureau officer was to purchase any of these in bulk without first consulting the General Munitions Board. The prohibition extended to contracts in which subcontractors would furnish any of the restricted items in quantity, but neither applied to contracts already arranged nor forbid the continued purchase of small quantities ordinarily purchased locally. In cases where the new situation had made existing rules unclear, the bureaus attempted to work together to sort out matters. After consulting with the Office of the Chief of Engineers, the Office of the Quartermaster General contacted the Adjutant

General to gain approval for a delineation of responsibilities between the Zone of Interior and France. Despite the studies done by the bureaus in the months before the war, the Office of the Quartermaster General gathered more information to clearly determine the requirements for the growing military commitment. As late as June 1917, the planners in Washington were still developing the list of supplies necessary to equip an infantry division using data obtained from the depot in Galveston, Texas (which had supported the First Division on the Mexican border) and integrating recommendations from observers and allied officers.[177]

Before the war, the War Department Staffs managed a spectrum of decisions that ranged from broad policy to distinct parts of equipment; as the volume increased these functions could no longer rest in the same person. Where previously the Chief of Staff or bureau head was expected to know the fine points of their affairs in order to reply to congressional inquiry, continued attention to matters at this level of detail only kept them from making thoughtful judgment on larger policy issues. These leaders could no longer behave like an owner-operator of a small company who is able to focus on the details of daily operation while directing activities toward long-term goals. The bureau chiefs needed to stop supervising the details and adapt to a more indirect management style in which lower staff echelons made decisions appropriate to their authority while analyzing options and making recommendations for decisions on

[177] Chief of Engineers To District Engineer Officers and Division Engineers, Subject: Ordering supplies on which shortage exists, CIRCULAR LETTER, May 19, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2574. Quartermaster General to Adjutant General, May 26, 1917 Office of the Quartermaster General, RG 92, Entry 188, Box 5807. Establishing boards remained a preferred way to coordinate the bureaus. In the past it had been very effective in gaining internal consensus and congressional support. Krauthoff to Quartermaster General, June 11, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 8331.

matters beyond their purview. The War Department needed to become more corporate and less entrepreneurial in the supervision of its affairs. Given Robert L. Bullard's description of a harried Tasker Bliss personally reviewing and approving nearly every matter affecting the War Department, this transition was slow to occur. Part of the delay stemmed from the belief in June that the expansion of the Army would remain small; part arose from the challenge of training the burgeoning staff in War Department procedures. In any case, until the Army adjusted its managerial structure to the increased scale and scope of its operations, all attempts to respond to the new situation were at risk.[178]

As Congress worked through the personnel legislation in the early weeks of the war, the bureaus faced a personnel dilemma of a different sort. In April 1917, the Quartermaster Department had a total of 205 officers, plus enlisted soldiers and civilian clerks. Sixty-six of the 150 officers assigned from the line soon returned to their units, fulfilling the predictions that the short detail system would hurt the bureaus in wartime. Many of the remaining experienced Quartermaster staff officers left the purchase areas for assignments with the American Expeditionary Forces. The Office of the Quartermaster General had prepared for this possibility before the war by having its experienced civilian clerks earn reserve commissions so that with the advent of hostilities they might form a core around which the bureau could expand. When these clerks came on active duty as officers, complaints about the fairness of this move motivated the Chief of Staff to rule that these men could not stay in the bureaus but had

[178] Robert L. Bullard, *Personalities and Reminiscences of the War*, 23.

to go to the Army at large. This effectively stripped the Quartermaster of its most experienced staff and crippled an operation already under pressure. Instead of expanding to meet the increase in work, the Department lost nearly 75 percent of the people most familiar with regulations, methods, and precedents. The Quartermaster Department had seen one of its great supply readiness initiatives vaporize in the New Mexico desert. Once the war started, its major personnel program collapsed on top of the problems in the material program.[179]

There were other efforts to expand the staffs. Sharpe tried to compensate by requesting 200 extra clerks and messengers from the Civil Service Commission, but had difficulty getting results. In contrast to the Quartermaster General's disappointments, the Signal Corps program to issue reserve commissions to executives of leading commercial telephone and telegraph companies secured great advantages. Gorgas and the Medical Department may have been challenged in their efforts to train adequate numbers of civilian doctors in the nuances of military medicine, but this burden was mitigated thanks to the existence of the Medical Reserve Corps and a close connection with the Red Cross. As the staffs expanded exponentially by the end of 1917, the quality of support to the detailed work of purchase would suffer. The government could hardly find clerks of any description at that time -- many new employees barely passed the requisite qualification exam. These new, untrained people required close supervision, further degrading the staff's efficiency. The departments contracted more space in other buildings spreading operations all over the capital and

[179] Sharpe, *Quartermaster,* 21.

making internal communication even more difficult. Accounts of people working in their hotel rooms, typewriters on window ledges due to lack of office space, and multiple moves of offices added to the triple challenge of mobilization: expand the staff, manage the increase of routine transaction, and develop new equipment and procedures. Before the war many bureau offices in Washington had planned to go to shift work in a crisis: three each day, seven days a week, including holidays and Sundays. The second shift started almost immediately, the third followed a little later. Although many military and civilian employees labored overtime, the bureaus could barely keep up with the ever-increasing volume of work.[180]

Not deterred by the setbacks in efforts to buy time, the leadership of the Quartermaster Department presented and published a series of lectures to help prepare reserve officers for the challenge ahead. These bi-weekly sessions began the day after the declaration of war and continued into June. General Sharpe delivered the inaugural address and in it laid out his vision for the Corps in the coming months. He sought a system that "provided for the wants of the troops," but avoided accountability "so rigid and exacting as to impair the efficiency of the Army at the very time when it was most needed." He stressed that quartermaster officers must be zealous, intelligent, and active; that they should seize every opportunity, guard against risk, provide for all contingencies, and anticipate the needs of the troops. He also cited the example of businessmen "preparing a scheme" for their enterprise and conveyed the need to clearly

[180] Raines, *Getting the Message Through*, 169-171; Gillett, *Medical Department*, 341; Percy M. Ashburn, *A History of the Medical Department of the United States Army* (New York: Houghton Mifflin Company, 1929, 250-251. In 1912, Congress had authorized the President to accept the cooperation of the Red Cross with the Medical Department for the sake of standardizing rules and regulations between this agency and the two military sanitary services.

delineate the authority and responsibility of each supply officer. Subsequent lectures covered topics such as organization, transportation, advertising and contracts, and procurement. The influence of business was apparent as the speakers talked of the importance of coordination within the branches of the Corps, fiscal responsibility, concise communication, principles of supply, and procedures for shipping supplies by rail.[181]

Procedural controls remained an ongoing concern as expansion proceeded. The lectures to the reserve officers coming on active duty emphasized the importance of the procedures showing accountability for decisions. Primers for new quartermaster officers stressed the necessity for accurate records, the importance of requesting only what one needed, and explained the rational behind the paperwork. The General Staff and the bureaus were carrying on the "endless routine that military law requires of military men and which military law must have." For all the changes in organization that came during the war, the manuals reflecting official bureau procedures changed very little. One would have to search hard for differences between the 1916 and 1918 versions of regulations and many of those would actually be more restrictive, reflecting the perceived need to ensure that inexperienced officers towed the line. In a helpful loosening of controls, unit quartermasters were now authorized to incur financial obligations for their costs before money was allocated, but they still had to submit

[181] Henry G. Sharpe, *The Quartermaster Corps: A Lecture Delivered before the Officers of the Quartermaster Reserve Corps at Washington, D.C. on April 3, 1917* (Washington, D.C.: Government Printing Office, 1917); Charles P. Daly, *Office Organization and Correspondence of the Army* (Washington: GPO, 1917); C.P. Daly, *Advertising, Contracts, and Desk Efficiency* (Washington: GPO, 1917); Chauncey B. Baker, *Motor Transportation for the Army* (Washington: GPO, 1917); and Robert E. Shannon, *Transportation of Supplies for the Army* (Washington: GPO, 1917), texts of these lectures are available at the USAMHI.

monthly reports explaining against which appropriation their costs were incurred and were required to file with all contracts a copy of the Secretary of War's letter authorizing the purchase of supplies without advertisement. This was not a complete relief of responsibility since purchase officers were still required to obtain bonds as liability against any potential mistakes in obligating government funds. Purchase officers still had to await approval by the Secretary of War of any building related-expenditure in excess of $5,000. Baker, Scott and Crozier agreed that "in the beginning of the war the greatest delay caused by any factor was introduced by those statutes... which were trifling and had been enacted only for peacetime control." Many officers considered whether they dare disregard the existing rules in pursuit of their duties because the orders had not been repealed and still had teeth. Red tape menaced the spirit of ingenuity essential to adaptation.[182]

War Department plans to prevent conflict of interest show how Red Tape imperiled the ability to contend with the emergency. On April 26, the Adjutant General announced to the bureaus that "the Secretary of War directs that the purchase of any article, publication, or any other thing by which an officer of the Army would derive financial profit, be not permitted to be made from public funds during the present war." Designed to prevent some of the charges of corruption and profiteering made in 1898,

[182] For examples of these handbooks, see Instructors of the Army Supply Service Course, University of Chicago, *Quartermaster and Ordnance Supply* (Chicago: University of Chicago Press, 1917), Frank Moorman, *Notes on Supply* (Fort Leavenworth, KS: Army Service School Press, 1917), and Alexander E. Williams, *Manual for Quartermasters* (Menasha, WI: George Banta Publishing Company, 1916). "Bedevilling the General Staff," *Army and Navy Journal*, May 26, 1917; A. L. Smith to Depot Quartermaster, Philadelphia, April 20, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5817; *Instructions Governing Financial Operations of the Ordnance Department of the United States Army* (Washington, D.C. : Government Printing Office, 1917), 23; Col. Frank A. Scott, ORC, "Industrial Mobilization for a Great War," lecture delivered at the Army War College on December 16,

this message was indicative of the legalism that threatened to create a self-imposed climate of suppressed initiative and administrative lethargy among officers who would be more desirous of avoiding regulatory trouble than accomplishing tasks.[183]

The announcement created a flurry of resistance from across the bureaus. Gorgas identified three books on hygiene and hospital administration that were "standard publications of value in Medical Department Administration" but written by active or retired officers who received royalties for their work. He expressed concern that "[t]he Medical Department will be exposed to considerable embarrassment if the purchase of these and similar publications of military authorship is interdicted during emergencies when they are most needed" and requested that the directive be modified to permit the purchase of basic military texts even though they had military authors. Crowder pointed out that this order was much more sweeping than an Army regulation amended on February 5, 1917, which had emphasized that military purchasers should not obtain supplies or services from "any other person who sustains at the time, an active relation to military or civil administration under the War Department…except military publications and maps." The Judge Advocate identified three areas of concern with the new order: (a) that the wording "derive financial profit" disqualified companies in which military officer may have held stock; (b) that it would forbid the purchase of essential items, such as the Lewis gun, because some officer might receive royalties (the implication here seems to be the equivalent of cutting off your nose to

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1926, ASW Course No. 7, 1926-1927, page 14, Army War College Curricular Archives, USAMHI; "Getting Things Done," *Army and Navy Journal*, June 2, 1917.

[183] Adjutant General of the Army to the Surgeon General, April 26, 1917, Office of the Surgeon General, RG 112, Entry 26, Box 1212.

spite your face); (c) the War Department could not buy any books written by any active, reserve, or retired officer that would provide royalties to the author. In his opinion, the new measure had the potential to "unduly embarrass the government in procuring supplies for carrying on the existing war." Crozier wanted to know whether this prohibited the Army from purchasing Lewis guns even if retired Colonel Lewis promised to refund royalties to the government. The commanding officer of Rock Island Arsenal suggested that the proposed law be changed because it would inhibit the ability of those very experts needed to ensure the smooth transition of the military procurement program from peacetime to wartime operations.[184]

In response to these concerns, General Bliss and his staff explained that the initial directive was issued to "head off" charges that they feared would be made in the course of this war. The question was whether the "door be thrown wide open," or whether there was a way, "in some degree at least, (to) protect the War Department" from such accusations. The General Staff recommended that this "door should be closed as nearly as possible" in order to maintain the balance between competent procurement and protection of government interest. Bliss, clearly wanting to keep the final decision in Congress' hands, recommended that the Lewis gun be purchased publicly whether or not royalties had been waived so that "Congress (would) then have

[184] 1st Indorsement, Surgeon General's Office to the Adjutant General, April 27, 1917 and Judge Advocate General to the Adjutant General, April 28, 1917, Office of the Surgeon General, RG 112, Entry 26, Box 1212; Ordnance Office to Adjutant General, May 1, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 1410; 3rd Indorsement, Judge Advocate General's Office to the Adjutant General, April 28, 1917, Office of the Surgeon General, RG 112, Entry 26, Box 1212.

the data for determining, at some future time, what course (should) be justly pursued with respect to its own interests."[185]

As he supported Crowder's opine that "officials of companies engaged in contracts for the Ordnance Department may be members of the Ordnance Section of the Officers' Reserve Corps," Bliss stated the reason for all this commotion: "It cannot be too well understood that the sole object of the rule under consideration is to remove ground for future Congressional investigations." He added that "(t)he bureaus themselves are even more deeply interested in [preventing investigations] than is the Secretary of War" and pointed out that there was no guarantee "that dissatisfied firms may not charge deliberate favoritism due to orders that may have been given to other firms one or more of whose officials are officers in the Ordnance Section of the Officers' Reserve Corps. It will be out of just such things as that that Congressional investigations will arise." The general staff believed that "the simplest and most effective course is not to put such officials on active duty in Washington, and, if possible, avoid their appointment at all in the Ordnance Section of the Reserve Corps" – an impractical suggestion given the level of technical experience needed to intelligently negotiate a contract. As far as the issue of books and manuals was concerned, Bliss revealed that he understood the importance of preventing the war from being a "source of private profit at government cost." Part of the problem could be mitigated by remembering that in many cases these books were items of "professional improvement" that officers we expected to purchase on their own. The Acting Chief's

[185] Memorandum for the Chief of Staff, from Bliss, May 4, 1917 with indorsements, Office of the Surgeon General, RG 112, Entry 26, Box 1212.

solution was that the War Department would initiate all official publications by directing the bureaus to prepare such manuals. In the end, Bliss recommended that the Adjutant General draft a rule that was "practicable and will carry out the general intent of the War Department." Baker approved and the bureaus accepted this result.[186]

The flap over publications is an example of the conflict that arose from attempts to reconcile the existing functional standards of economy and oversight on the one hand with the rising demand for readiness or effectiveness on the other. The discord between these competing principles would continue to plague the bureaus throughout the summer because they could not find the right balance. Although the desire to avoid profiteering or Congressional scrutiny is insightful, it shows that the leadership did not yet understand the inseparable relationship that was developing between the military and the producer**.**

Even without all the confusion over estimates, plans, regulations, and requirements, the fiscal problems of the bureaus presented a challenge. In April, as already mentioned, money for purchases was so tight that the Ordnance Department had to request unused appropriations from other bureaus. Forced to juggle accounts just to pay everyone that spring, the Office of the Quartermaster General had stopped payment on supplies and made some essential purchases on credit, something with which it was not experienced and certainly not an attractive prospect to suppliers. Since the government was not a favored customer in those days, it needed someone to underwrite these purchases. A banker in New York, E. D. Page, working on an

[186] Memorandum for the Chief of Staff, from Bliss, May 4, 1917 with indorsements, Office of the Surgeon General, RG 112, Entry 26, Box 1212.

advisory committee with the depot quartermaster there, used his reputation to gain the cooperation of the banking community in making loans to back government vouchers issued in lieu of payment. Sharpe said the Quartermaster Department could not legally do this, so Page went to J.P. Morgan and secured a loan for $1 million without interest to back the vouchers. The committees in Boston and San Francisco did similar things to allow their depot quartermasters to purchase critical supplies. The Treasury assisted the office of the Quartermaster General in relieving the financial strain these vouchers placed on smaller contractors, many of whom were pushed close to bankruptcy.

As the staffs struggled to adjust to the influx of troops in early May, economy and fiscal responsibility remained a paramount concern. Attempting to arrange shelter for troops that would soon be arriving in camps, the General Staff had intended to place all levies in wooden barracks. After they realized that the funds estimated to provide shelter for these recruits had not yet been appropriated, the staff decided to modify the plan and place some of the new troops in tents. The adjustment reduced the cost from an estimated seven million dollars to three million and enabled the staff to use money already appropriated in the Army Bill for fiscal year 1918. It also taught many on the staff to hedge against the chance that Congress would not approve funds. For all their talk about directing military policy, the members of the general staff respected the authority of Congress.[187]

Yet bureau chiefs would disregard regulations hindering mobilization when such action was necessary to complete the mission. Congress's decision to adjourn in

[187] OFFICE OF THE CHIEF OF STAFF, MEMORANDUM FOR General Bliss, Subject: Shelter for Regular Army. May 9, 1917, in Office of the Chief of Ordnance, RG 156, Entry 341, Box 4.

May after passing the Army Bill and wait until June to thoroughly debate appropriations while only approving minimal emergency funds in the interim, effectively forced the War Department into a corner. If they abided by the letter of the law, nothing could be purchased until the money had been appropriated, which might be too late to get an army to Europe to make a difference. Fortunately for them, Baker protected the officers by authorizing their actions and keeping the corresponding congressional committees informed of his decisions.

Aware of the implications, the bureau chiefs were pragmatic. Almost immediately, Gorgas allowed the Medical Department to abandon advertising (although he checked with Judge Advocate Crowder about the legal ramifications) in favor of working with the business committees to do "cost plus" contracting. Sharpe, having learned from the criticism that General Ludington had received after the Spanish American War, worked with Baker to arrange for necessary purchases although he was certain that they would "both go to jail." Secretary of War Baker cooperated by approving millions of dollars in requests for which no money had been appropriated. This bold measure technically broke the law, but was the only way to get the purchase process rolling in order to be able to field any army in less than a year. Squier risked "violating a number of service regulations" to improve radio equipment by altering designs to include the capabilities available in the new technology of the vacuum tube without getting approval from Congress first. After coordinating with the manufacturer, Rock Island Arsenal recommended to the Chief of Ordnance that they delay sending inspectors to a reputable company making aluminum products for the Army. The arsenal staff argued that although regulations directed an inspector to

monitor every step of production, they should wait until the manufacturer was producing in quantity. The volume of work at the arsenal made it difficult to spare a competent man for the purpose of checking; since the company needed time to organize the factory, it would be more economical to send someone there once full production started to inspect items before they were packed and shipped. Crozier agreed. Time and again, bureau leaders were willing to ignore peacetime controls when it appeared they had no choice.[188]

The bureaus accepted assistance from outside the War Department as they adjusted from peacetime ways to war footing. The key allies kept missions in the United States whose soldiers conducted liaison and advised the Americans. French officers taught their army's supply procedures to the Quartermaster Department and offered their services to help build the aviation program. A member of the Royal Engineers from the Trench Warfare Supply Division of the British Ministry of the Munitions of War had brought drawings, specifications, and samples to the Ordnance Department that Crozier requested permission to retain in order to assist his office in the development of their own Trench Warfare Division. While these time savers helped the bureaus get a handle on the scale and scope of the new mission, other shortcuts would go too far and open the departments to criticism.[189]

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[188] Sharpe to Baker, *The Henry Granville Sharpe Papers,* Archives, USAMHI; Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917-1919* (Lincoln: University of Nebraska Press, 1966), 56; George O. Squier, *Telling the World*, (Baltimore: The Williams and Wilkins Company, 1933), 144; 1st Indorsement, Rock Island Arsenal, Ill., to the Chief of Ordnance, May 19, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2253.

[189] William Crozier to Mr. W. S. Layton, British Ministry of Munitions of War, May 11, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2556.

Many of the more frowned-upon arrangements seemed to be sensible compromises at the time. Recognizing the fact that the French had needed over 14 months to build up their artillery supply and that Crozier had predicted similar timeline for American production, in July the two allies agreed that the French would use their existing capacity to provide 75mm and 155mm guns in exchange for raw materials—a proposal in which the British later participated-- until domestic production hit stride. By the end, American persistence in fielding their own three-inch gun would only result in much wasted money, wasted effort, and public disgrace as the gun program never delivered and people chafed at depending on a foreign power for industrial aid. Although there were 600,000 of the extremely accurate Springfield rifle available in 1917, this inventory was inadequate for the rapidly expanding army. Ordnance officers saw three choices: take the time necessary for U.S. plants to re-tool from allied designs to American, save time by taking advantage of existing lines producing large numbers of British Enfields, which fired a round inferior to the M1903, or modifying the Enfield to use superior American ammunition thus reducing time needed to produce rifles in volume, but still obtaining a high-quality weapon. Scott, Bliss, Crozier, Baker, Pershing and their advisors decided to take this middle road represented by the third option. And despite production problems, the Army got weapons to the soldiers on time. In a third agreement, Ordnance coordinated with the French to issue Hotchkiss machine guns and Chauchat automatic rifles (both designs were inferior to American models) to U.S. divisions until the summer of 1918. These compromises may have

been politically and professionally embarrassing, but they overcame critical shortages in the quickest way possible at a time when volume mattered more than quality.[190]

As the requirements of the mobilization grew, the bureaus and various civilian agencies formed connections that held much promise. During the first week of the war, the CND addressed the immediate mobilization of resources and energies of the nation. It still had to form many of its subordinate committees. The United States Chamber of Commerce continued to help the bureaus contract for goods and services. The Signal Corps shared ideas for the development of equipment with scientists at the Bureau of Standards. While there was certainly contention among the various agencies over some issues, Frank Scott recalled only one incident of having to go over bureau heads and remembered no arguments with any other officers, other than the occasional heated discussion as to the best course of action in a situation. The Quartermaster Department collaborated with the Food Administration to organize the feeding of troops. The faculty of the Chicago School of Business compiled and published a guide on Ordnance and Quartermaster procedures for businessmen who found themselves in uniform. The introduction of this work explained that some of the variances with civilian practice could be attributed to the accountability challenges endemic to a government agency. The army and industry were learning to work together.[191]

Because of the lack of funding and their obsolete strategic view in this period, communications between the Army and business rarely went beyond issues of purchase

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[190] Coffman, *War to End All* Wars, 38.

[191] Squier, *Telling the World*, 153; Instructors of Army Supply Service Course, University of Chicago, *Quartermaster and Ordnance Supply* (Chicago: University of Chicago Press, 1917).

and did not consider larger topics such as national resource management. General Sharpe and Colonel Littell corresponded with Charles Eisenman of the Committee on Supplies to request cooperation for the purpose of preparing cantonments. They discussed receiving assistance for rail support, materials, and labor needed for camp construction. The Ordnance Department contacted the CND on April 3rd to coordinate the procurement of artillery ammunition. They "advised" the council of their "desire" to place orders with private manufacturers for complete rounds (with the government providing the powder) or to execute separate orders for the various components and their assembly. The Ordnance Department also wanted to place orders for 100,000 rounds for different types of 3-inch seacoast guns and 103,000 rounds, many of them armor or deck piercing, for the various larger caliber cannon that inhabited the forts along the coast. The memorandum requested recommendations as to "what establishments and in what amounts orders for all the above material should be placed provided satisfactory arrangements as to price." The department also wanted to know whether it "would be preferable to place these orders on a cost plus percentage basis, and if so whether the Council is prepared to name a definite or sliding scale considered equitable and to furnish rules" to determine the ratio of profit to cost. In April, concern about price and the quantities requested for coastal artillery still reflected a defensive strategy with a limited offensive and not the major projection of force that later compelled leaders to accept assistance from the French. The Engineer Department did not wait long to work with the CND and other coordinating bodies. On May 10, the Department sent out a telegram to its subordinate offices informing them that the CND would be coordinating the purchases of "certain material for engineer purposes." It

ordered them to report immediately by telegraph the amount of cement required, its rate of delivery, and destination through the end of the calendar year and to report by letter the amount of other raw materials required both for routine civil projects and for defenses. It received prompt reply from the regional and district offices with specifics and in some cases latent recognition that non-priority civil projects would be canceled. These measures were steps in the right direction, but underestimated the just how far the management of the economy would need to go.[192]

At meetings on April 8, the leadership of the CND, the Secretary of War, the bureau chiefs, and key CND members realized that Allied needs were already straining America's economy and that the country needed to increase its production base. Those present also agreed to work to control inflation. Businessmen believed that merchandising methods of purchasing, with negotiations between consumer and producer, provided the best way to keep prices down. To avoid possible conflicts, the group agreed to have military representatives on various committees whose main job was to oversee contracts. Four days later, Baker signed a memo directing the War Department to discontinue bidding and to instead use the merchandising method to procure and purchase supplies.[193]

From May 3, 1917, depot officers stopped requesting bids for contracts to move into the new method of purchasing. In theory, the bureaus would determine the

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[192] Sharpe and Littel to Eisenman, April 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5807; Crozier to CND, April 3, 1917, Office of the Chief of Ordnance, RG 156, Entry 341; District Engineer Office to the Chief of Engineers, May 11, 1917, Office of the Chief of Engineers, RG 77, Entry, 103, Box 2574.

[193] Sharpe, *Quartermaster*, 153.

requirements, inform the appropriate CND supply committee of quantity, specifications, and required delivery date, then wait to find out to whom and at what prices the contract should go. The CND provided this information to the bureau which forwarded it to their officers who completed and signed the contract. Sharpe, for one, made it clear that the officers had final say on prices and that if there was disagreement between them and any committee of the CND with which they were working, they could appeal to him.

A primary challenge in this relationship would be defining roles. Were the business committees and the bureaus' equals? Would the law recognize the committees' work? What would drive production – availability or necessity? The Secretary of War and Secretary of the Navy asked Frank A. Scott to address the assembled uniformed heads of their departments on April 9, 1917. In his remarks to an audience that included Bliss, Crozier, Sharpe and Black, he explained that existing bureau systems were "not going to be sufficient to win the war." He asked for bureau support to "use the great powers and responsibilities reposed in them by Congress" to employ the industrial resources and capacity of the nation for war. The same day, Secretary Baker declared that an emergency existed and ordered the Supply Bureaus to "disregard the competitive system in instances when the national welfare demanded other methods to save time or protect people." In these early phases, the Committee on Supplies, which had come into existence on February 12th, advised the bureaus as to which businesses would be best suited to taking orders and soon dominated the purchasing function of the Quartermaster, supplanting much of the old advertise-bid-award purchase process. Even if the committee sought to coordinate procuring

activities among all the bureaus, it was not equipped with adequate staff and lacked the authority to do so. The CND and its committees had to remain concerned about the legality of their actions in light of laws regarding conflict of interest. Whether from a residue of anxiety over the "Trusts" or the lingering spirit of *laissez faire* and small government, business was still not an equal partner in the American political economy in 1917. If the actions of its primary law making body are any indication, the United States was not yet an industrial democracy.[194]

Congress Responds

From February to June, Congress reacted in traditional fashion to the surge pressing on the Army. The manner in which Congress responded to the situation directly affected the War Department. Besides voting the credits without which there could be no army, they passed the laws and approved the policy that governed the military. Responsible for much in war effort, Congress wanted to guarantee that emergency measures did not threaten the constitution and did not extend any longer than necessary. The swell of events generated so much to discuss, so much upon which to vote, that it threatened to overwhelm the legislative process. In addition to considerations of costs, regional demands, popular issues such as volunteerism, and continued resistance to the war by segments of the population, members remained concerned about the "ways and proprieties" of supervising the executive branch. If Congress did not place its mark, the executive branch and the military could upset the

[194] Frank A. Scott, "Industrial Mobilization for a Great War," lecture delivered at Army War College on December 16, 1926, ASW Course No. 7, 1926-1927, AWC Curricular Archives, USAMHI.

balance of power that had been so diligently cultivated since the Civil War. Although politics may have been adjourned, Congress nevertheless struggled to reconcile differing visions of the war.[195]

Congress had not released funds for the Army before it went into recess on March 4, 1917 even though it was aware that the Army was in debt from the Mexican expedition. When it convened on April 2, members still did not act in a way that would quickly free the bureaus to get into the market to begin mobilization. Shortly after the resolution for war, the bureaus and General Staff had submitted specifications estimated at approximately three billion dollars (to support the first million men), but there were no deficiency bills (formal requests for additional funds) forthcoming. Congress did immediately approve an emergency fund of $100 million for the president, but the War Department only received 30% percent of that total—an amount insufficient to equip one division much less meet increased operating costs. It would be another six weeks before the bureaus had appropriations against which they could legally obtain contracts. Taking a major risk in a bid to save time, the War Department tried to streamline procedures by tendering the next estimate in the same type of lump-sum format that Congress had already approved for the Navy. The committees rejected this attempt and sent the proposal back. While the staffs worked to re-submit the estimate with by-line entries, Congress recessed following the passage of the Army Bill in May. These events helped postpone final approval for appropriations to mid-June and kept money for mobilization from reaching the War Department until July 1, 1917.[196]

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[195] Louis Smith, *American Democracy and Military Power* (New York: Arno Press, 1979), 207.
[196] Palmer, *Baker*, 119-121.

When Congress finally authorized funds, Baker again sought to use a lump-sum method to ease the time-consuming accounting procedures. Congress refused this request as well, requiring the War Department to use the money to buy only the items originally appropriated and to strictly account for every penny. Although the epitome of fiscal responsibility, this adherence to accountability further burdened the already swamped bureaus, keeping them from supervising broader issues and better coordinating their efforts. As the scale of the effort grew, the War Department increasingly lost track of the progress of the overall program and instead submitted a steady stream of deficiency bills needed to pay for the unexpected.[197]

Throughout the early months, the bureaus tried to make important members of Congress aware of the difficulties facing them. On the tenth of April, Sharpe responded to a letter from Senator Chamberlain, the chairman of the Military Affairs Committee, informing him of the absence of reserve supplies for new troops because of inadequate prewar funding. He pointed out the urgent need for appropriations before purchasing could legally begin. Given the response to War Department expediencies, his message apparently had little affect on the outcome of budget discussions. Many of the chiefs appeared before the Appropriations Committee in July and also communicated their concern over the growing number of soldiers given the known shortages of equipment. The bureaus had informed their superiors in uniform, in the War Department, and in Congress, but either no one took them seriously or they felt the strategic situation forced the continued induction of troops regardless of the material footing.

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[197]Cuff, *War Industries Board,* 87; Zimmerman, *Neck of the Bottle,* 147.

Although blatantly pro-Army newspapers such as *Army and Navy Journal* too severely castigated Congress for its "plodding," members continued to conduct affairs at a peacetime pace and in accord with their normal methods. Deliberation over meaning, disputation over key content, the insertion of individual riders, and the exclusion of displeasing measures were part of the give and take of the American political process. But negotiations over relatively peripheral provisions such as Theodore Roosevelt's request to raise a volunteer division and prohibition of alcohol around Army camps detracted from the higher priority of building an army. For such measures, while probably of vital importance to their advocates, muddled larger discussions over the design of selective service and the structure of the force. More serious elements up for consideration centered on issues such as whether a unified food agency would interfere with laws of supply and demand, dealt with the tradition of volunteerism (of which TR's bid was a very personal manifestation), and quelled fears that wording of the bill would make universal military service a permanent policy. Debate also contended with resistance to the idea of a large army, ongoing concerns over the role of Federal government, and issues arising from the Franco-British mission such as legislation covering the embargo, exports, food controls, and markets.[198]

After all the discussion, a large majority voted to pass the bill, but it had taken too much time to allay concerns and garner support for it. When the Army Bill (to include the Selective Service Act) was finally approved on May 18, there were still not appropriations for the Army to begin building up the supplies for the force approved by

[198] "Preserving the Nero Tradition," *Army and Navy Journal*, May 12, 1917.

the legislation even though someone had found time to include a provision that only the Secretary of War could authorize expenditures in excess of $5,000 (while those above $500 required bureau chief approval) and directed that Engineer staff assigned to rivers and harbors stay there rather than help with mobilization. Six weeks after the declaration of war, Congress arguably could have been doing a better job of harmonizing efficiency and principle to make Representative Crago's price "as small as possible."[199]

The cost of protecting important precedents of American government in this most unprecedented of crises was measured in time. The process was critical; Congress would not circumscribe oversight in the name of emergency, nor would they abrogate responsibility for the sake of expediency. But time added up quickly: a day here for negotiations and a day there for testimony contributed to the delay that set back portions of the mobilization process for months. The pace of events seems to have overwhelmed Congress. Accustomed to having time to investigate, debate, and negotiate the details of military matters, they fell behind. In reality their ability to oversee and have final approval was effectively negated for the first three months of the war as the executive branch made many decisions in response to the realities of the coalition rather than in formal consultation with Congress. As the legislative bodies debated selective service, the course of policy, and the bulk of appropriations, the bureaus and business councils went about doing what they felt needed to be done.

[199] See Mr. Crago's remarks from *Congressional Record*, 64th Cong., 1st sess., 1916, 53, pt. 5: 4344 in Chapter 1.

Congress struggled under the strain of events and created a logjam that both increased the pressure of requirements and delayed full response to them.

Congress had an unenviable and extremely complex task before it in the first phase of American belligerency. The body at large had to "reconcile perfect military theory with the actual civic conditions" of the country in order to provide for the common defense and enhance the general domestic welfare of the nation. Thankfully, the institution did not heed those who advocated throwing out principle in the name of winning the war, but it could have attended to the devolving national security situation more carefully and more expeditiously. It was important that Congress stay involved, but the time it took to do this at the normal pace proved costly and the pull of petty politics only enhanced friction. On June 28, 1917, a representative still opposed to the deployment of additional forces overseas submitted a resolution that argued that since the war was for self-defense the United States should send no soldiers beyond its shores. Congress approved the measure. Weeks later, the administration was still explaining the need for forces in France. Congress continued to conduct wartime proceedings like they were part of the everyday peacetime affairs of the nation because it had not yet developed internal ways to cope with such crises.[200]

[200] Rep. Greene, *To Increase the Efficiency*, 185, cited in the previous chapter on hearings about the National Defense Act. Michael J. McCarthy, "'Lafayette, We are Here': the War College Division and American Military Planning for the AEF in World War I" (MA Thesis, Marshall University, 1992) cites House Concurrent Resolution 15, 65th Congress, 1st Sess. Submitted by MR Hilliard, June 28, 1917 and Baker to S. Hubert Dent, Jr. House Committee on Military Affairs, August 13, 1917, RG 165, Entry 88, Box 10050.

CONCLUSION: THE RESPONSE TO A CHANGE IN FUNCTION

In order to achieve success in the circumstances facing them in the late spring of 1917, the bureaus needed to do more than just reorganize. They had gone to war with an organization designed more for economy than for security and had taken time to adjust. But as they converted system, the strategic and domestic environment continued to mutate. In May, French General Joffre had pleaded for men, but those Americans involved in the planning had not been at Verdun or on the Chemin des Dames and do not appear to have comprehended just what he meant. Later that month, Congress had passed the Selective Service Act but recessed before appropriating funds. Pershing and his staff left in June to begin the commitment in Europe, setting in motion a split in the center of American strategic planning between the AEF and the War Department. Congress debated into June and beyond, sometimes threatening to establish a committee to monitor the conduct of the war and unwilling to fully accept a business segment into the military establishment to help manage the mobilization. The CND tried to organize American businesses, many of which were seemingly oblivious to the fact that an increase of U.S. manpower would involve their industrial might. The challenge would be to adapt procedures and organizations fast enough to gain the initiative in the rapidly changing situation.[201]

By the end of June, it appeared that the nightmare of 1898 might be avoided. There was a plan and there was time to fulfill it. The peacetime system had shown stress in response to the increase in volume brought about by the major change in

[201] Paxton, *American Deomocracy and the World War*, 228; Chubb Papers, USAMHI.

American strategy, but so far the bureaus had managed the transition by using traditional methods to modify their structure. They seemed to be adapting the form of their organization and procedure to meet a wartime function. The War Department was not just guessing; granted there had not been a specific plan for a force to Europe, but the forces approved by the National Defense Act had provided a sound base upon which to build. General Pershing's accusation that the Chief of Staff went to look in the secret files and found that "the pigeonhole was empty" was not exactly correct, for there was not even supposed to be a pigeonhole marked "Plan for the Deployment of Millions to Europe as Soon as Possible." The War Department and its supply bureaus were truly in unfamiliar territory, but they had the rough sketch of the National Defense Act and their own experience to guide them through the expanding scale and scope of their activities.[202]

A number of unknowns remained to be resolved. With so many new people and new systems, how could leaders be certain that the organization was functioning as intended? Would semi-autonomous bureaus, a weakened general staff, and barely legitimate business councils be able to manage a program if it became too big for Congress to supervise? Would the bureaus be able to use the powers reposed in them by Congress to collaborate with the CND for industrial mobilization? How would the civilian businessmen of the CND do in the unique environment of military purchase? The next several chapters address how the bureau organizations met the challenge of mobilizing for modern war.

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[202] John J. Pershing, *My Experiences in the World War* (Frederick A. Stokes Company, 1931), 78.

CHAPTER 5

COPING WITH THE SURGE: COOPERATION, COORDINATION, AND COMPETITION IN 1917

As the summer of 1917 waxed and waned, the bureaus' commitments grew. Fully integrated into the military establishment, they worked to support the success of the nation's strategic goals in Europe. They did this in an environment of fog, friction, confusion, and contradiction, some self-inflicted, some imposed. Some of the bureaus found they could quickly adjust to new circumstances; others were sprinting from the start just to regain lost ground. Uncertainty over the size of the army left any attempt to develop a comprehensive program unclear. Some officers poorly executed existing schemes while others experienced unanticipated resistance to long-standing contingency plans. Inadequate communication procedures brought delay and misstep. Some involved in the program worked at cross-purposes because of inexperience; others legitimately disagreed over methods, and some did seek personal gain in the crisis. These normal conditions, combined with other internal and external tribulations, threatened the success of the Army's mobilization effort at a time when it could least afford it.

Such a turbulent environment was not entirely new to veterans of the War Department; they had seen similar events unfold in 1898 and 1916. However, the lower

level of expertise among individuals engaged in the process this time around may have compounded the uncertainty, the fluidity, and the frustrations of the situation facing new and existing agencies. Regardless of familiarity with the bureaucratic system, mass mobilization challenged the viability of the bureau form. How would the bureaus respond? How successful would their performance be in this critical period? Although the bureaus generally cooperated, no amount of ad hoc coordination could prevent competition for resources and overcome deficiencies in the organizational strategy and structure of the military establishment. Under a flood of requirements, the bureaus attempted to make the peacetime system work in war. Accustomed to synchronizing actions informally, the bureaus preferred cooperation—a collaboration that challenges the image of the bureaus engaged in myopic scrambles for advantage. But as complexity increased, effective coordination required more centralized control. While some bureaus achieved a greater degree of control internally, it was not enough to mitigate the natural competition occurring at the national level. In the absence of a workable coordinating structure, the War Department struggled to equip and deploy forces even as it had to fight challenges to its constitutionally mandated control of mobilization. Bureau actions reveal the incompatibility of the old system with a new mission rather than some conspiracy, incompetence, or power struggle.

The bureau response to the flood of requirements was far from perfect. The incidents of competition stemmed more from an increasingly inexperienced administrative force dealing with the challenges of volume than from deliberate acts of jealous generals (as some have suggested). When the goal was clear, the officers of the supply departments cooperated with one another and with others exchanging

information and resources. Although the decentralized depot and arsenal system allowed military representatives to reach across the country to connect with the independent, regional, and local entrepreneurs who were beyond the structure of the business cooperatives, it remained nearly impossible to effectively centralize control and coordinate activities. Those organizations that had some sort of reserve capacity, either from within or from closely connected civilian spheres, were in a better position than those who had to build a structure and stocks from the ground up. Despite the immense challenges and more than a few failures, the bureaus made progress. But every time they seemed to have survived one crest, the waters would rise still higher and they would be forced to reassess their efforts.

COOPERATION

The history of the bureaus shows there was a lack of an effective structure for ensuring the unity of effort necessary for efficient mobilization. However, most historians overemphasize the degree of competition by implying that the bureaus aggressively jostled for favorable position against one another regardless of its larger impact. On the contrary, as we have already seen, the bureaus generally cooperated with each other; that is, they worked together toward the common goal of getting as many forces overseas as soon as possible. This general accord, however, proved insufficient to the task. A spirit of cooperation within the bureau organization had worked for peacetime volumes of operations and many proved reluctant to sacrifice that attitude. Yet, despite good intentions, the more centralized character of coordinating

structures promised a better response to the scale and scope of the task facing the bureaus in wartime.

Within the War Department

The bureaus could work together toward a common purpose and generally continued to do so through the summer and fall of 1917. The tightly controlled web of regulations and procedures often required personal communication to accomplish anything; such informal methods ultimately worked better than an adherence to formalities. Before the war, everyone, from the Secretary of War, to the Chiefs, to the lowest clerk worked together in the same area of the State, War, and Navy Building. People could just walk across the hall to explain needs and arrange solutions. The pace of work and demand for meticulous attention to detail permitted this deliberate approach to administration. The tempo of operations had, of course, increased almost immediately with the start of the war and continued to grow until the size of the bureaus and the volume of work had swelled to many times the prewar size. Despite growing demands, the cooperative process continued a very long time, with the result that the Chiefs often micro-managed tasks in which they could no longer afford to be involved. The cooperative process also proved time consuming, leading to delays in decisions and adding to a backlog that was growing daily. However, the records reveal an organization trying to work together toward a common goal rather than the prevalent perceptions of petty martinets squabbling over power. Because the scale of the "emergency" was entirely unanticipated, the War Department's response was reactive.

War plans provided a glimpse of the tactical requirements, but the vast scope of the enterprise and the time constraints left many steering without a compass.

The Railroad Regiments: common purpose realized

One of the many requests from the Allied Military Missions was for technical support of the Allied logistics systems in Britain and France. The Americans agreed to raise and send nine Railroad Regiments to repair track, operate trains behind the lines, and make up for the shortage of these specialists in the two countries. The Engineer Department was the lead agency for this mission and worked to organize and equip the soldiers headed for Europe. It would need the cooperation of its sister bureaus to complete fielding. The bureaus, with personal involvement from the chiefs, were able to pull together to supply and transport for these units.

The Office of the Chief of Engineers (OCE) took the lead for General William M. Black and attacked the problem aggressively. Because existing legislation did not allow for sufficient numbers of qualified soldiers, the OCE received authority from the War Department to recruit men who would be discharged at "the termination of the present emergency." This plan allowed the Engineers to fill three of the regiments before the Selective Service Law and formation of the National Army were approved on May 18, 1917. Officers in Washington contacted Department Engineers across the country to alert them of the mission and communicated with their counterparts in the Ordnance Department to coordinate the shipping of ordnance equipment for the regiments. The OCE informed the commanders of the new regiments that the Quartermaster General would supply the necessary items from local depots and that

provisions were underway to correct any shortages at the port of embarkation in New York City to include issuing the second set of uniforms, overalls, and overcoat.[203]

General Black was not entirely satisfied with these ad hoc arrangements. He was concerned that the regiments would not have sufficient opportunity "to receive and become thoroughly familiar with their complete equipment and [be] without sufficient drill, discipline, and instruction to enable them to be properly controlled and handled" in performing their mission. He explained to the Adjutant General that he did not believe it was "practicable or safe" to adopt the Quartermaster General's proposal to provide the bulk of equipment for the regiments at the embarkation point. Rather, he felt it was simpler to ship the gear to the mobilization site. This would allow the regiments to be "self-sustaining" when they reached the embarkation point. Although this meant that it would take more time and double the distance the equipment traveled, Black's experience convinced him that this would be the only "practicable, effective, and economic procedure." Perhaps the ghost of Tampa was on his mind, but he would not risk his units scrambling to board ships and losing their equipment in the process. Because of the Engineer's reluctance to accept the exactness proposed by the Quartermaster, the agencies negotiated and compromised to work together.[204]

The cooperation for the railroad mission extended overseas as well. Black had sent an officer to Europe to report on railway conditions and conduct some additional

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[203]Office of the Chief of Engineers, Memorandum for the CHIEF OF STAFF, June 1, 1917; M. C. Tyler, Corps of Engineers, MEMORANDUM for Captain Doniat, Ordnance Department, May 28, 1917; Tyler for Black, Telegram to Department Engineers, May 26, 1917; and Black, MEMORANDUM for the Quartermaster General, June 5, 1917, Office of Chief of Engineers, RG 77, Entry 103, Box 2259.

[204] Black to ADJUTANT GENERAL, May 19, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2598.

coordination with the French and British in order to alleviate the supply burden facing the bureaus. This liaison arranged for the three regiments scheduled to serve in the British zone to be fed and housed by their hosts. Meanwhile, the five regiments slated for duty in the French rear areas would receive horses, mules, tents, fuel, rations, and forage. However, the officer recommended that the regiments obtain additional reserves of clothing in anticipation of the work they would do there. He furthermore suggested that "on account of the difference between French and American rations, some arrangement should be made for providing additional rations for men if considered desirable." Black was acting with an appreciation for the broad challenge of supply and consequently improving the chances of success for all.[205]

Back in the United States, the bureaus were concentrating on the small details and the specifics in order to accomplish this mission. Black shared the reports received from France with Quartermaster General Henry G. Sharpe to inform him of the reduced requirements. General Tasker H. Bliss signed a memorandum of understanding that formalized the arrangements already made between the bureaus. By June 19, two regiments of Railroad Engineer Units were ready to be sent abroad to France, but the continued loss of ships to *U-Boots* delayed the departure. While the Depot Quartermaster pursued commercial shipment of these two units, Bliss sought to reduce the delay by inquiring of Black whether the two regiments in question were earmarked to support the French or the English, since it would be easier to get some of the limited space on British ships if the units were going to benefit the English. Simultaneously,

[205] S. M. Felton, To Chief of Engineers, June 16, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259.

General Black asked his officer in Boston to determine the possibility of obtaining transportation from there to France or England. It was July 21 before the Quartermaster sent instructions for shipping to points overseas. Ad hoc arrangements and informal cooperation were useful, but the flood of requirements and the haste to execute them demanded options from staffs that lacked the requisite planning experience.[206]

Even as they prepared to ship the railroad units overseas, the Engineer Department staff hustled to manage a plethora of self-imposed organizational changes. In a handwritten note, one staff officer explained to Black that, when authorized to increase strength by 10%, he had requested the necessary personal equipment from the Ordnance and Quartermaster Departments, but did not ask for weapons because he thought that the additional men were coming from the replacements already mobilizing (and hence, were already allocated personal weapons) and not from a new levy. Despite his error, he recommended that the Engineers not ask the Ordnance Department for additional weapons for these railroad troops, "especially as [they] may soon ask for the equipment of additional units." Although this unilateral decision to prioritize scarce resources was a sound choice given the realization that the men manning military railroads would not need firearms and that the available rifles could be better allocated elsewhere, Black did not agree. By the 23rd of July the Ordnance Department had the items express shipped from four different arsenals directly to the New York Arsenal for issue. A personal touch, such as General Black's here, had been necessary in the past

[206] Office of The Chief of Staff, MEMORANDUM FOR THE Chief of Engineers, June 19, 1917; Black, Telegram to Colonel Potter, July 3, 1917; Quartermaster General to Chief of Engineers, June 26 1917; and Black to various Colonels, 9 July 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259.

to cut through the red tape, but now it was no longer efficient. The senior leader needed to be focused on the big picture, delegating authority and allowing for variance in action as long as it contributed toward the larger goal. As with the case of General Bliss in the last chapter, General Black's failure to decentralize execution would hinder his ability to maintain effective centralized control.[207]

There were many cooperative arrangements between the bureaus to support the railroad regiments. Although some were particular to this mission, others marked the beginnings of coordinated provisions designed to last the duration of the emergency. The Surgeon General's Office volunteered two ambulances for each of the nine Engineer Regiments. Ordnance had enough resources to supply the first six regiments of reserve engineers and adapt to an immediate increase of 36 men per regiment, all the while remaining confident that the equipment drawn from four different ordnance arsenals would arrive at the port of embarkation on time. The Engineer Depot Officer in Washington had arranged with his counterpart to "purchase directly all motor equipment required by engineer troops in the future, but under contracts made by the Quartermaster General." The Quartermaster would do the paperwork as required by law while the Engineer Department managed the execution to include providing a regular list of spare parts for periods of six months at a time and provisioning other Engineer units as well. The Quartermaster Department strove "to supply the deficiencies in the motor equipment and parts … and to make delivery if possible to these organizations before their departure for France." Such sustained cooperation

[207] Tyler to Black, July12, 1917 and The Ordnance Office, Supply Division To The Chief of Engineers, July 23, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259.

continued as the whole project moved towards completion. However, the interactions were still dependent on interpersonal relationships, not standardized processes.[208]

Black remained personally involved in the railroad issue well into August and reported to Colonel Taylor, the Engineer for the AEF in France, that "all requisitions for railway material [were] filled as promptly as possible and exactly as specified when possible." However, because of Allied demands on the market, Black had to admit that he had been "unable to get the purchases properly coordinated; but [they were] getting better service than anyone else." The procedures demonstrated by officers in this case would work fine if the same people stayed in the same job; they would be able to work around the red tape as they had done before the war. As people moved in and out of positions, office locations changed, and organizations' structure evolved, however, the need for workable procedures (that remained constant even as personnel were replaced) became apparent. If the execution of too many other matters demanded the chiefs' concentration, they risked distraction from other, larger issues. By August, General Black and all the chiefs had more important things to worry about.[209]

Working together

The fielding of the railroad regiments was not the only case of cooperation between the supply departments. There were enough examples to suggest that these informal, personal procedures worked until the surge of requirements finally

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[208] Wolfe, Medical Corps to the Chief of Engineers, July 21, 1917; Ordnance Office, Supply Division to The Chief of Engineers, July 23, 1917; Chief of Engineers to the General Engineer Depot Officer, Washington, D. C., July 18, 1917; and Drake, Quartermaster Corps to Chief of Engineers, July 24, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259.

[209] Black to Taylor, August 21, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2600.

overwhelmed them. A reflection of the division and legalism of the prewar structure, these unofficial methods had compensated for the inconsistencies of commodity based purchasing before the war. As the scale and scope of the task grew, staff officers continued to communicate across bureaus to negotiate a path through the procedural rapids. Although sufficient in the short run, forgotten orders, informal agreements, and absent officers fouled the process over the long term. It would work for isolated tasks, but not for the procurement program as a whole. The bureaus naturally did not always agree on specific points. If the Chief of Staff or the Secretary of War got involved, the resulting delay made matters worse. For most of the first six months, Congress was not available to make the final determination on issues. There was neither time nor an acceptable forum within the War Department for working out differences, despite the fact that most disagreements were part of the legitimate "give and take" that occurs on staffs. The contradictory nature of the system allowed for conflicting visions to fester and fostered inefficiency as the scale of the mobilization grew.

Interbureau cooperation extended from the depots to the District of Columbia and mitigated the divergence inherent between bureaus' visions of the right answer. When the anticipated flow of Americans sent out of country demanded a massive increase in volume of supplies, the Engineer Department was to procure and ship to Europe a large amount of material and machinery to build storage space at ports in France. Black had reviewed his needs and informed Sharpe of his requirements for each port of embarkation. Sharpe proposed to alleviate the shortage of storage space by receiving freight on a tighter schedule. Black saw it as absolutely essential that the storage space be acquired immediately and was doubtful that contractors could be

precise enough to have shipments delivered within a day or two of any fixed date as proposed by the Office of the Quartermaster General. Although replying quickly to the Chief of Engineers, the Quartermaster General did not share his concerns and made no provision at any port for storing engineer material. Instead, Sharpe simply recommended to General Black that his office should establish separate depots near ports, which they promptly did. At one proposed site, the Depot Engineer found an appropriate location and reported that bureau representatives were working "in perfect accord" with one another in order to conduct their business efficiently. He requested that a Quartermaster officer, with "experience in forwarding cargo and handling and clearing vessels," be assigned to his depot to efficiently handle the increased volume "in the same manner as Engineer Reserve Officers, skilled in construction work, [were] being detailed under the orders of constructing quartermasters at cantonments." Until the wave of National Army men erased this familiarity, officers would identify and select by name men from other bureaus whose recognized experience with a commodity would enhance the capabilities of the depot staff.[210]

Construction was yet another example of the bureaus uniting for a mission. As the Engineers shared officers to help the Quartermaster build cantonments, the Quartermaster supported other construction tasks for the bureaus. The Quartermaster Department's Cantonment Division did some of the Ordnance Department's emergency construction work; all that Ordnance officers familiar with the needs had to do was

[210] Black, MEMORANDUM for the Quartermaster General, June 27, 1917 and Bertsch, memo for the Chief of Engineers, June 27, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259; Supply Division to Ballinger and Perrot, October 23, 1917, Office of the Chief of Ordnance, RG 156, Entry 613, Box 56.

provide general plans showing requirements. The Medical Department and Quartermaster Department continued their prewar partnership to erect medical facilities. This generally went well, although the arrangement led to an inconsistent standard for the building of hospitals at the camps. By October 1917, these inconsistencies and other problems managing the volume of new building led to the creation of a more formalized Construction Division as part of the War Department. Although veteran officers of the bureaus were able to work toward a common goal of providing structures to support the growing army, simple unanimity of purpose proved insufficient for managing the volume.[211]

The bureaus shared capabilities and communicated to sustain the flow of supplies. When they needed to inspect the tensile strength of some canvas items under production, officers in the Ordnance Bureau contacted the Office of the Quartermaster General, who allowed them to use some contracted textile testing machines located near the producer in order to save time and trouble. Under the National Defense Act of 1916, the Medical Department received authority to create a Veterinary Corps, but did not receive funds until June 1917. The Surgeon General requested support from the Quartermaster General who, despite initial resistance to losing this function, promptly transferred veterinary supplies that it had previously managed as part of the remount and transportation program. The Medical and Quartermaster Departments worked together to create a better shoe, inspect food, develop disinfecting apparatus, and share

[211] Supply Division to Ballinger and Perrot, October 23, 1917, Office of the Chief of Ordnance, RG 156, Entry 613, Box 56; Gillett, *The Army Medical Department*, *1865-1917* (Washington, D.C.: Center of Military History, 1995), 359; "History of the Hospital Division," Office of the Surgeon General, RG 112, Entry 29, Box 147; Charles Lynch, Frank W. Weed, and Loy McAfee, *The Medical*

common unit level responsibilities. On a daily basis, officers of the Ordnance Department exchanged memos and messages with their counterparts in the other bureaus.[212]

Leaders at every echelon of the bureaus were still training and integrating new personnel into the organizations intended to support the one million-man army when, at the end of August 1917, the War College began to forecast requirements for the even larger force that General Pershing sought. The problem at this point was the continued lack of long-term strategic plans, not conflict and competition. "Every officer concerned [was] trying his utmost to play team work." Growing gaps in the dissemination of information and a general lack of reserve supplies added to mounting delays and inefficiency. The staffs had collectively agreed to the best way to equip the first few division, yet as the target size of the army grew and the AEF clamored for their every whim, the plan repeatedly mutated and made the existing priorities obsolete. In this period, General Black acknowledged that the "Quartermaster General can't get equipment fast enough and the equipment of the two divisions of the National Guard had been ordered in advance of equipment of the special troops." Matters were getting out of hand. The common bureau habit of using informal, personal cooperation as a substitute for sustainable methods of centralized control was proving unable to keep up with the growing scale and scope of operations.[213]

Department of the United States Army in the World War. Volume I: The Surgeon General's Office (Washington, D.C.: Government Printing Office, 1921), 222.

[212] Lieutenant Lewis, to Mr. Lillibridge, October 11, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24; Lynch, et. al, *The Medical Department*, 118; Various memos, June - August 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 52.

[213] From the District Engineer Officer To The Chief of Engineers, August 20, 1917, Box 2670 and Black to Colonel Harry Taylor, Corps of Engineers, American Expeditionary Force, France, August

The War Department General Staff

Within the War Department, cooperation extended between the bureaus, the General Staff, the Adjutant General, and the Judge Advocate General. Normally limited to the rudimentary exchange of information and staff planning, this cooperation was not as natural as that between the bureaus. But because of the division of function common to all subordinate elements of the War Department, such regular departmental interactions were just as critical to keeping the system operating. All departments required the Judge Advocate General to provide the ever-important legal counsel for their activities. The General Staff, short-handed and preponderantly combat arms officers, needed the bureaus for their logistical expertise. The bureaus, in turn, needed policy guidance and intelligence from the Army War College in order to plan procurement and establish a basis for their technical programs. The Adjutant General's Office required harmony as it tried to provide some synchronization for the staffs and the Secretary of War. All of these symbiotic relationships relied on personal communication and correspondence to reconcile the inconsistencies in an organizational structure deliberately divided to ease oversight.

The collaboration of the bureaus with the Adjutant General and Judge Advocate was nearly automatic. As the closest thing to a central clearinghouse of information within the War Department, the Adjutant's office continued to keep information flowing, managed staff actions, authorized publications, and provided administrative support for the Chief and Secretary. The Judge Advocate reviewed every item of

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21, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2600.

policy, every plan, and every proposal drafted by the bureaus to ensure it met the tight legal standards governing the military establishment. In mid-1917 these agencies assisted the cooperative efforts of the bureaus. For example, early in the summer, the Office of the Quartermaster General completed arrangements with the Corps of Engineers to define Army construction responsibilities in the United States and France. On July 2, in a memo signed by Brigadier General Francis J. Kernan, assistant chief of staff, and supported by the Chief of Engineers, the Surgeon General, and the Quartermaster General, the War Department established a uniform system for rail transport forwarding. The Adjutant General and Judge Advocate General were involved in every step of the discussions facilitating communication and providing legal advice.[214]

As was the case while writing the *Proper Military Policy*, most of the teamwork between the bureaus and the General Staff centered on developing mobilization plans and related strategic problems. Officers from the bureaus and the War College were constantly analyzing and amending the list of supplies necessary to equip an infantry division. The bureaus remained fully involved in assisting the General Staff to plan deployment timelines, tables of organization and equipment, the use of technical troops, and designs for items of equipment. Still inadequately manned through most of the summer, the General Staff lacked the capability to independently do more than its own policy staffing, mobilization preparations, and other sundry operational or intelligence tasks (such as the translation of French manuals). The bureaus supported General Staff

[214] Krauthoff to Quartermaster General, June 11, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 8331.

efforts to determine organizations, force structures, and equipment needs, while the General Staff played an increasing role in the distribution of cablegrams from France and shared the information with the bureaus. Although many still believed that the General Staff should be some type of dominant coordinating body that regulated the discourse between the bureaus and the Secretary of War, cooperation on a basis of equality was essential to getting anything accomplished. The bureaus remained what they had been before the war, adjunct members of the Army Staff supporting the Chief of Staff and the civilian secretary.[215]

The examples cited in the preceding pages call into question charges that the bureaus aggressively sought to gain advantage over one another or the General Staff. There is no denying that failure to centralize and thus control purchases at lower levels created inefficiency and confusion, but there were also numerous examples where these professionals cooperated in the face of unprecedented difficulty. The War Department did not suffer from a spirit of "every man for himself," but rather from the process of using the old ways to find solutions to new challenges. In the end, this cooperative impulse broke down as the volume became too much, the CND and War Industries Board became more active, the chaos of the AEF affected actions in Washington, and those doing the work no longer knew one another. Individual personal management could only go so far; those who developed an organization that depended more on institutions and less on persons would perform better in this new environment.[216]

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[215] Sharpe, Memorandum to Adjutant General, May 26, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5807.

[216] See the Introduction to this dissertation for a discussion of the bureaus' critics.

Outside the War Department

The mobilization program reached far beyond the halls of the Army-Navy-State Building. The military establishment continued to work with the Treasury, Bureau of Standards, and others to manage its affairs. Although the CND ostensibly rested under the military secretaries, it was clearly never completely under their control. But it was much easier to combine forces among the agents of the Federal Government when compared to the challenge of bringing business leaders into line. The chance of getting anything other than the most basic assistance from the already overtaxed Allies would require great diplomacy. It was these outside players that proved to be hardest to integrate into an effective procurement process.

The role of business

The bureaus and individual businesses generally worked together as equals during the summer of 1917 while the CND and other agencies attempted to organize the business community as a whole. Patriotic attitudes and the profit motive energized companies to offer their services to the government. The bureaus' pre-war practice of advertising for bids and waiting for companies to reply with offers had left business the initiative to decide whether to produce or not to produce. Of course, those who had accepted contracts submitted of their own volition to government discipline and specifications. This type of open practice continued throughout the year despite the publicized existence of the CND and its campaign to draw producers into its coordinated fold. In many cases an owner would ignore the business councils, using instead the tried and true method of a letter of introduction from the local Congressman

to the bureau chief in order to gain entry to the bureaus' list of potential producers. Both smaller regional firms and larger national companies would not hesitate to bypass the new coordinated buying structures if it served their interests.

A notable example of this tendency was the farm implement producer, John Deere Company, who reached out to the bureaus in early June with an offer to assist producing artillery carriage wheels. The Ordnance Department gratefully acknowledged the offer but pointed out that "it [had] not been practicable up to the present time to [procure] wheels and give orders of sufficient magnitude to make it worth while" (an interesting statement coming from an organization that would be accused after the war of failing to produce enough guns so that the U.S. had to depend on the British and French). It would be another month before the strategic picture matured to the point where it seemed that the bureaus would need Deere's capacity. At the time of the offer, however, Congress had not yet approved money; the vision of a 1 – 1.5 million man army did not justify taking action, and over-aggressive commitments of government funds were guaranteed to invite censure. Low manpower forecasts, decisions to use French model guns, insufficient plans, and flawed communication also contributed to this missed opportunity.[217]

While the Quartermaster Department had initiated cooperative efforts with a number of businesses shortly before the war, it had a long-standing relationship with the railroads industry. **D**uring the deployment to the Mexican Border, the Department had successfully tested the marking system negotiated with the American Railway

[217] J. H. Rice, To Mr. G. W. Mixter, c/o Deere & Company, June 7, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12.

Association in 1915. Officers now communicated these standard to producers, who were supposed to place the cards on the railcars at the point of manufacture before sending the goods to ensure that the right load got to the right depot in the correct order of importance. However, they had not counted on the chaos that would come as the volume rapidly expanded. Producers unfamiliar with government standards sent out shipments with improper markings. Railroads already taxed to capacity with Allied orders could not put the government shipment in the agreed upon place in the queues. Some local Quartermaster officers responsible for oversight were ignorant of the standard. This cooperative program, though the result of thorough research and teamwork between business and the military, would ultimately not impart the systemic discipline needed withstand the massive surge in requirements.[218]

Interaction with the Allies

The bureaus also worked with the Allies to share resources, capabilities, and ideas. By mid-June, the Ordnance Department was completing plans to cooperate with the French for production. They received advice on recommended allocation of ammunition per gun, requested that French machinists come to the United States to help develop the manufacture of French designed fuses, and to have the French supply guns. They also discussed an adaptation to the U.S. 3-inch shell that would permit it to use either a Russian or French fuse since those were already being produced in America. The Medical Department explored the opportunity of going into foreign markets to

[218] Motivated by the inability to use railroads effectively in the Spanish American War, the Quartermaster Department concluded a series of agreements with the American Railway Association, one the nation's largest railroad cooperatives, to improve troop mobility. To organize shipments, the two groups had developed a series of cards to mark railway cars identifying the type of supplies, the bill of lading number, the priority, and the destination. See page 42.

purchase medicines. The bureaus pursued such prospects to compensate for the growing realization that they lacked the ability to equip the army at the speed and volume required.[219]

Meanwhile, chaos in Russia brought an opportunity for cooperation between the Navy, the Army, and other Departments. In September, the War Department learned that over 50 eight-inch British Mark VI howitzers manufactured by Midvale Steel for the Imperial Russian Government remained in the U.S. The Secretary of War contacted the Secretary of State and asked him to secure an agreement with the representative of the Russian Government to receive fifty of the guns on a cash or replacement basis with a follow-on contract to manufacture 16 per month. The Ordnance Department also obtained sixteen 3-inch rapid-fire field guns from the Russian Artillery Commission to be used to train troops. This process accelerated as the Bolsheviks took power in Russia. Crozier sent letters to the Russian ambassador requesting transfer of an initial shipment of the guns in order for U.S. crews to begin training. Ordnance staff officers solicited the support of the War Industries Board (WIB) in negotiations with the "representatives of the Russian government." In early December, the Navy Bureau of Ordnance contacted the Chief of Ordnance giving the Army "first call" to the guns and informing them of the person to contact to obtain them. Shortly thereafter, the Ordnance staff contacted Midvale Steel by telephone and letter to arrange the delivery and the continued production of the howitzers with their carriages. They also staffed

[219] MEMORANDUM FOR MOBLIE ARTILLERY AMMUNITION DIV, June 18, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 2556.

the possibility of canceling an existing contract with Midvale for 9.5-inch howitzers if cancellation would result in an accelerated rate of production of 8-inch guns.[220]

The CND and other government bodies

The administration and execution of tasks by the War Department had not been a self-contained operation. Among other economy-oriented divisions, the Treasury Department provided external audit, the Bureau of the Interior posted contracts, and the Bureau of Standards provided research assistance. The bureaus were full participants in the larger federal system.[221]

Ordnance officers actively worked with the Bureau of Standards' Laboratory to increases in output of optical glass for Army and Navy gun sights. They sent new officers there for a week or more to familiarize them with the bureau procedures for inspecting the quality of various materials. The department even proposed placing trained officers there for the duration to assist with testing while taking advantage of the bureau's excellence in personnel, processes, and equipment. The Bureau of Standards was quite obliging, however, it could not provide complete support because, even after augmentation, it lacked the people and facilities to do all the jobs available which eventually caused the Ordnance Department to seek its own lab for testing.[222]

The Quartermaster energetically cooperated with the Council of National Defense but did not subordinate itself to it. Although many businessmen believed they

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[220] Secretary of War to Secretary of State, September 24, 1917; Navy Department Bureau of Ordnance to Chief of Ordnance, War Department, December 6, 1917 and to Midvale Steel Company, December 12, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12.

[221] See chapter two for a more detailed explanation of the integrated federal purchase system.

[222] Department of Commerce to Frankford Arsenal and Frankford Arsenal to Chief of Ordnance, May 25, 1917, Entry 341, Box 12 and K. B. Lamb, MEMORANDUM FOR MAJOR MAISH, August

should be the ones running the industrial effort, the wording of the National Defense Act of 1916 had called for bureau chiefs and civilians to work equally under the Secretary of War. Baker wanted unity of the war effort "without creating a dictator or removing control of priority and procurement from hands of the War Department." The members of the Quartermaster Department followed that guidance. While some realized the CND provided "great assistance", others were generally suspicious of the businessmen who were not always correct in their recommendations. Overall, relations between the two organizations were good, but not always harmonious; differences in opinion hindered total cooperation.[223]

Even when relations among the central leadership in Washington were in harmony, the situation in the field could frustrate matters. The biggest challenge of these committees was getting business to gain confidence in taking government contracts. Many did not want to do work for the government because of the strict methods employed in contracting and the difficulty in filling exacting government specifications. Not all businessmen cooperated with the committees and some did not want to do work with the government at all. Others, like Henry Ford, wanted to participate on their own terms.

The advice and negotiations of the depot committees or any other CND office were not binding. Consequently, if depot or camp quartermasters chose, they could ignore the recommendations and support of the committees leading to two kinds of

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21, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

[223] Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917-1919* (Lincoln: University of Nebraska Press, 1966), 77; Littell to the Quartermaster General, Sep. 7, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 8335.

activities that frustrated the cooperative process. In cases where the local quartermaster preferred to do the contracting alone or businessmen on the committees were less than aggressive in their support, no coordination occurred. In other instances, the individual quartermaster would accept an offer other than one negotiated by the committees if it provided the best deal for the government. Such incidents initially made it very difficult to coordinate purchase but their frequency gradually dissipated as the process centralized in Washington.

The Medical Department was closely linked with the civilian medical community through the American Medical Association and the Red Cross. There was no debate over standards for medical and dental equipment; the only challenge lay in expanding production because of the prewar dependence on foreign producers for these high-quality items. But cooperation also eased the burden of the Medical Department's expansion for they were able to call on Red Cross-organized base hospitals, re-flag them as Army, commission those medical personnel not already in the reserve, and send them overseas. These methods allowed the Medical Department to be ahead of requirements in this area for most of 1917.

The Signal Corps cooperated with the numerous agencies involved in its wide range of responsibilities. However, its structure was too narrow to effectively link itself to everything from the production of binoculars to radios to aviation. Civilian agencies increasingly took the lead in these efforts. The Postal Service handled much of the internal communication tasks while the National Weather Bureau contributed most of

the officers who served in the meteorological section. This cooperation allowed the Signal Bureau to focus its attentions on the production of radios and aircraft.[224]

Support of the AEF

Cooperation with the forces in France was critical and the bureaus responded. In August, General Black composed a personal letter to Colonel Harry Taylor, the Chief Engineer of the AEF, in France. Black updated Taylor on events in Washington and assured him that "the (Engineer) office and its branches are well organized and capable of meeting whatever demands are made." He explained some of the problems they were experiencing because of competing Allied orders and the priority purchases going to infantry divisions over special troops like engineers. He appeared to have accurate information as to the timeline for embarkation and the status of engineer battalions headed for Europe. Finally, in a handwritten message at the bottom of the typed letter, he wrote,

> Give my best regards to the other officers of the Corps with you. Please tell (General) Pershing that insofar as possible all requests from him are complied with at once. I want you both to feel that all in our power is being done to help you.

The Chief of Engineers was not alone in his commitment to the success of the AEF. As the AEF became the de facto strategic center of the effort to identify, organize, and equip forces for France, communications over the ocean became increasingly essential and challenging. The bureaus generally recognized their need to subordinate themselves to support Pershing's force, but the distance

[224] Rebecca R. Raines, *Getting the Message Through: a Branch History of the U. S. Army Signal Corps* (Washington, D.C.: Center of Military History, 1996) 168 ff.

contributed to delay, misunderstanding, and ineffective efforts to coordinate the whole war program. The General Staff was not sufficiently manned to be a "central brain of the army" and the impermanent nature of the Chief of Staff did nothing to help stabilize this situation. Many recognized that "[the] supply departments are making a real effort to do their part. If they are to be successful the intelligent cooperation of line officers must be secured." Although this may have been true, it was not going to be enough.[225]

The cooperation that occurred between the offices of the War Department challenges the image of the supply bureaus engaged in myopic scrambles for advantage during the opening months of World War I. Rather, it supports the idea that the problem centered on attempts to adapt one type of organization to another function. Regardless of intentions, cooperation and informal procedures would prove insufficient to meeting the challenge of massive mobilization. Many recognized the need to gain a tighter control over purchase activities, but could only pursue this reform in the most inconsistent way.

COORDINATION

The success of an organization in action depends on its ability to be alert to the changing situation while maintaining a single-minded orientation on the overall objective. In business and managerial systems, the principle of centralized control with decentralized execution has proven time and again to be the best way to achieve this

[225] Black, to Colonel Harry Taylor, Corps of Engineers, American Expeditionary Force, France, August 21, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2600; Captain Frank Moorman, *Notes on Supply*, (Fort Leavenworth, KS: Army Service Schools Press, 1917), 3.

balance of responsiveness with focus. To be both centralized and decentralized demands coordination, by definition the harmonious working of all parts of the enterprise. This is more than cooperation which, while implying that parts do work toward a common goal, does not incorporate the degree of unity that coordination does. The current Army definition calls for "an exchange of information to inform and integrate, synchronize, and de-conflict operations." Historian Alfred D. Chandler called it "the Visible Hand." Coordination entails formal, disciplined cooperation with oversight from a central head, and purposeful, directed communication. However one describes it, the best method to achieve coordination depends on the entity's function; harmony varies in relation to purpose. Disharmony prevailed in 1917, not for lack of trying, but because of the changing scale and scope of bureau function.[226]

The prewar bureau approach had bolstered the goal of maximizing economy while attaining adequate security for the nation. There was some decentralized execution in purchases, but it achieved an economy of scope, not of scale, in order to operate across the vast distances that the Army did at the time. Centralized control rested primarily in the office of the Secretary of War, upheld by detailed laws and Congressional oversight. The system attained a degree of harmony that managed to synchronize information, decisions, and execution, but did it in a way that was legalistic, cumbersome, and time-consuming. As the scale of the U.S. commitment to the war gradually expanded beyond the forecast of all but the most extreme preparedness advocates, the rationale behind the bureau system became inappropriate.

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[226] Headquarters, Department of the Army, Field Manual Number 101-1-5: *Operational Terms and Graphics* (Washington, D.C.: GPO, 1997), chapter 1, page 40 and Chandler, *Visible Hand*, 3.

By the time the priority purpose of the military establishment had become maximum security with adequate economy, this organization was problematic at best.

The efforts of the War Department and the bureaus were generally not well coordinated in 1917. All pursued a common goal of security and victory, but there was not true harmony. The organizational structure lacked a unified head to provide the necessary synchronization. Those with the potential to do so, such as the Secretary of War or Chief of Staff were either distracted by seemingly more pressing issues, too weak to be effective, or simply not meant to be the ones in charge. Struggling under the old system, the bureaus had poor information flow, made a number of inadequate decisions, and experienced increasing friction in execution at the War Department level. Nevertheless, some bureaus adapted their internal organizational structures and doctrine to sustain efficiency.

The prewar War Department manifestation of centralized control and decentralized execution was small scale, legalistic, deliberate in communication, and oriented toward economy. When the bureau function changed, legalism should have taken a back seat, economy should have been balanced against results, information flow should have been streamlined, and the civilian Secretary of War should have centralized decision-making in his office. But in reality, it took most of 1917 for enough evidence to accumulate to prove that these changes were worth the turmoil that a restructuring would have entailed.

Coordination inside the War Department

At the start of the war, the old method of coordination continued. Under these procedures, every bureau had a chance to comment on an action whether it directly affected them or not. Any member of the General Staff, the supply bureaus, the Adjutant General, or the Judge Advocate could delay the resolution of an issue. Neither the Chief of Staff or the Secretary of War led the decision-making process. Just as in peacetime, this cumbersome attempt to gain administrative harmony usually occurred for critical events such as when disagreements arose, the War Department was completing a plan, or information required dissemination. In wartime, these important decisions needed to be resolved quickly, but the time it took to integrate all the different viewpoints could delay the process considerably. When Black's reservations about some of the plans for supplying Railroad Regiments to France got too great, he contacted the Adjutant General, who forwarded the Chief of Engineer's concerns to the Chief of Staff. Bliss, as acting Chief of Staff, discussed the matter with those involved, completed a memorandum to the bureaus, and Baker endorsed it. Nearly every staffing document sent from one bureau to another passed through the offices of the Adjutant General who might comment on the history of the issue under question. The proposal then went to the Judge Advocate for an opinion even before it went to the Chief and the Secretary. If either the Adjutant General or Judge Advocate had concerns, they could send it back to the bureau in question for additional comment. This type of synchronization applied to estimates for funds from Congress as well. Money concerns brought the Chief and the General Staff into the equation to confirm the numbers of troops upon which to base the request and orchestrate requests with long-term

programs. But even these actions went back through the Adjutant General and Judge Advocate channels to the bureaus, not to confirm the logistical feasibility of the numbers but to inform them of the requirements. The approval of the estimates normally would have eliminated further need for coordination in the execution of purchases since they were already governed by detailed regulations which had been analyzed, approved, and published well beforehand. However, the new and vastly larger requirements altered this procedure and procurement timelines because the routing and staffing could take weeks or even months.[227]

Legal oversight, circular communication, and approval of actions by the Secretary of War managed to centralize control, but also stifled initiative to respond to the emergency. The increase in volume did not immediately end the strict rulings by the Judge Advocate or stringent application of regulations by the various staffs. For example, the senior officer at the depot in Mobile, an Engineer officer who had ordnance and quartermaster officers assigned to his office, had lost travel privileges for his staff after charging a trip to negotiate prices against the wrong fund. Now he had to contact Washington to learn who would pay, Engineer or Quartermaster, before he could purchase forms, make phone calls, and initiate other essential administrative tasks. Bureau attempts to coordinate purchases at a fixed price went through the Adjutant General and Judge Advocate. After the Chief Signal Officer requested guidance on the procedure for making purchases of supplies whose prices had been

[227] See chapter two for a detailed discussion of the pre-war system. Office of the Chief of Engineers, To THE ADJUTANT GENERAL May 19, 1917, Box 2598 and Office of the Chief of Staff, MEMORANDUM FOR THE CHIEF OF ENGINEERS, June 19th, 1917. Office of the Chief of Engineers, Record Group 77, Entry 103, Box 2259.

fixed, the Judge Advocate communicated to the Adjutant General that, in his opinion, no advertising would be necessary because of the fixed price and the items could be procured on the open market if they were available below that price. Bliss endorsed this memo by the authority of the Secretary of War and all bureaus received a copy as well as Colonel Palmer Pierce, the army liaison to the War Industries Board. The Ordnance Department showed their acceptance of the results by forwarding it to its divisions for their "information and guidance." Many sought decentralized control in order to alleviate this encumbrance and arrange the infrastructure improvements necessary to allow depots to handle their missions. In 1917, it took an inordinate amount of time before the War Department reached a decision, but it was legal, synchronized, and safe.[228]

The incompatibility of this system with the expanding volume of the War Department's work became more apparent as the summer progressed. On July 16, the Engineer Department received a cablegram from Pershing's office in France requesting piles and timber for wharf construction by August 15. The Office of the Chief of Engineers forwarded the message to the Engineer Depot with verbal instruction to "rush" the purchase. In a letter delivered across town by special messenger, the Engineer Depot alerted the Office of the Quartermaster General of the need for an agent to be at the port to handle the paperwork and other support functions for the shipment. Once the Engineer Depot knew the specific ports, they informed the Quartermaster

[228] District Engineer Officer, Mobile Ala., To: The Chief of Engineers, August 20, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670; Staff Memo, War Department, Judge Advocate General To The Adjutant General, October 6, 1917, sent to OD divisions "By order of the Chief of Ordnance," Office of the Chief of Ordnance, RG 156, Entry 503, Box 250.

General's office and later the Embarkation Service of the details. By September, there was "complete and effective cooperation," but there was not effective coordination "due to congestion of business in the Quartermaster General's Office [and] to the confusion incidental to the establishment of the Embarkation Service." The mass of ongoing business between the three offices, communications from Washington to distant Depots, the large number of mills (over 30) filling the contract, the division of the material between St. Naziare and Bordeaux, the need for all this lumber to be cut from the forests, and the fact that this was the first transaction of its kind conspired to congest the system. Although the offices in Washington and at the ports communicated, they only conveyed bad news. They could not coordinate effectively even when they did cooperate because there were not sufficient numbers of experienced personnel in the organization to manage the large increase in the flow of information.[229]

The process slowly began to change as needs became more acute. As the requirements from the AEF ballooned, it was necessary to synchronize the use of basic commodities (such as lumber) that affected the mission of more than one bureau. But not only would the War Department structure prove to be ill-suited to an increase in volume, turbulence within the organization further hindered adaptation.

Turbulence in the War Department

The prewar method of coordination between the elements of the War Department slowly broke down over the summer of 1917. Expansion disrupted the

[229] General Engineer Depot, Washington D.C. to Chief of Engineers, Sept. 1, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670.

routine, personal nature of operations while communication overload obscured the exchange of information. The central brain of the department was in disarray, which hampered clear decision-making. The War Department was not an organization whose system could operate automatically with its structure providing stability through the turmoil. Under conditions of rapid expansion, synchronization of effort became a hit and miss affair.

Basic issues of integrating new personnel, expanding offices, and adjusting lines of communication impinged on efficiency. Many experienced officers had left to accompany the AEF; those replacing them had little practical experience in War Department work. In an organization built on personal contacts rather than structural ones, the rapid turnover lent to the confusion. Limits on the number of officers in Washington remained and clerks could not be hired. When the housing situation became so acute that it deterred people from taking jobs, the Medical Department created a Welfare Subsection to help integrate newly appointed clerks, particularly women, into the area. Unplanned expansion required Congress' approval and led to haphazard realignment of facilities; one officer moved three times to different locations around the city between July and November as his section grew. "These and many other similar relatively petty restrictions formed real barriers to prompt and efficient action. None of them were automatically removed upon the advent of the emergency. The restrictions caused delay when time was of the greatest importance."[230]

[230] Lynch, etc. al, *the Medical Department*, 133; James C. Longino, *A Study of World War Industrial Procurement and Industrial Mobilization* (Washington, D.C.: Army Industrial College, 1939), 64.

More delays arose as War Department staffs (often receiving more than 100,000 pieces of mail each day by midsummer) foundered in paperwork with reports and letters piled in stacks unopened and often lost. On average, it took six days for a cablegram to get from the mailroom to the Chief of Staff. Most of General Pershing's cables from France lay about unanswered. Politicians of every level of government clamored for Bliss's time to discuss everything from the location of camps to requests for personal favors. Businesses ignored the CND and flooded the bureaus with requests for contracts and specifications. Internal messages were often simply lost in the shuffle. By September, some offices still struggled to get control of the flow and placed action on cables in "*precedence over all office duties*"(italics mine). This loss of information had definite negative repercussions on the ability of the bureaus to anticipate requirements and regain the initiative in the direction of the mobilization process.[231]

The Chief of Staff, General Hugh Scott, had been sent to Europe almost immediately and was not on the scene to orchestrate the effort. General Bliss, while an extremely competent and professional officer, could not keep up with the flow of information before he left for France to serve on the Allied War Council. The acting Chief in his absence, Major General John Biddle, had a good reputation, but had little authority. In fact it does not appear that either President Wilson or Secretary Baker felt they needed a strong Chief of Staff at the time. The General Staff, still with only sixty-four staff officers in Washington, was not capable of supervising the operations of the

[231] Signal Office, Equipment Division, Office memorandum no. 13, Sept. 27, 1917, Office of the Chief Signal Officer, RG 111, Entry 77, Box 1.

bureaus, leaving the Chiefs of Bureaus with two choices: continue to follow the rules, which would impede effectiveness, or let commitment to the mission take precedence over form and structure. With the urgent rush to get things done and the General Staff in turmoil, it is not hard to understand why the bureaus bypassed this body to go straight to the Chief of Staff or the Secretary of War. It was just such a realization that motivated Quartermaster General Sharpe to address the vast majority of his correspondence to the Chief of Staff, while his staff remained responsive to requests for information from the General Staff, but did not wait for guidance from them. Most actions the bureaus took outside normal channels appear warranted and justified in light of the existing laws.[232]

The bureaus sought to coordinate directly with their counterparts in France. Ordnance staff communicated with the American Ordnance Base Depot in France which sent its requisitions to the Ordnance Supply Division in Washington. Officers in the Engineer Department recommended that their staff plans be sent to their bureau counterpart in the AEF for "his comment and suggestions." The Office of the Chief Signal Officer was calculating needs by contacting the Chief of Signal, AEF, because information received from Europe through regular channels was up to six weeks old. The commitment to support the AEF could lead to some frustration as Pershing and his staff assessed the situation and gained a greater appreciation for the truth of the matter facing them. The Ordnance Department Equipment Division was continually receiving requests from officers in France to design new items of personal equipment. In one

[232] Edward M. Coffman, *The Hilt of the Sword: The Career of Peyton C. March* (Madison: University of Wisconsin Press, 1966), 44; Harvey A. DeWeerd, *President Wilson Fights his War: World*

week in September, the Division received over ten requests to design and produce items such as hand grenade carriers, carriers for trench lights, carriers for Very lights (flares), and a holster for the Very pistol. It was not the volume of requests that was the problem; the real challenge was that no one on the staff had appropriate training and experience in production, drafting, and field service to properly develop these items.[233]

The AEF and CND contributed to the turbulence by challenging attempts to centralize coordination within the War Department. Pershing's staff demonstrated little appreciation for resource considerations; if they wanted something, they demanded that it be provided regardless of the cost. Many businessmen on the CND and especially members of the WIB, believing that the pursuit of victory began in the mine and factory, thought they could do a better job than veteran officers. While the future head of the WIB, Bernard Baruch, was undoubtedly an expert in the management of high-volume processes and therefore beneficial to the mobilization effort, he was also seeking to enhance his power and that of businessmen in the war program.[234]

As it evolved a new management structure, the War Department organization continued to search for a new center of control. No longer could the Chief of Staff and the Secretary of War personally coordinate affairs. Congress was not in a position to oversee material matters as they had for the previous fifty years. The Adjutant General

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War I and the American Intervention (New York: The MacMillan Company, 1968), 204.

[233] C. B Wheeler to COLONEL KING, October 11, 1917, Office of the Chief of Ordnance, RG 156, Entry 613, Box 62; General Engineer Depot, Washington D.C. to Chief of Engineers, Sept. 1, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670; Office of the Chief Signal Officer to Chief Signal Officer, Expeditionary Forces, Aug. 30, 1917, Offfice of the Chief Signal Officer, RG 111, Entry 77, Box 1; Ordnance Office to Commanding Officer Rock Island Arsenal, Illinois, September 21, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

[234] Cuff, *The War Industries Board*, 87.

and the Judge Advocate were increasingly focused on manpower issues. The bureaus were slowly drowning under the volume of information that they could not manage individually. The dilemma surrounding the issue of centralized control had myriad facets: the WIB (although not legally vested to do so) challenged the authority of the service Secretaries, the weak Chief of Staff provided little direction, the AEF in France remained too remote, the President had more pressing domestic and foreign policy concerns, some on the General Staff still believed they should supplant the Secretary of War, and Baker was not focused solely on internal War Department operations. The peacetime form collapsed under the burden of wartime functional requirements and the conflicting pressures within the organization.

Coordination within the Bureaus

None of this means that the bureaus did not seek to coordinate their internal operations. Rather, some were more successful as they navigated different challenges and used different approaches to meet the hazards. The Medical Department, in particular, enjoyed a reserve capability in personnel and equipment that alleviated the stress of expansion. For the Engineers, supply had been such a small part of their mission that it did not pose a major concern. Regardless of the distinctions, all of the bureaus dealt with great change over a short period of time under conflicting information and guidance. The dispersion of depots and arsenals, struggles with communication, clear direction, and internal discipline presented other trials. The more successful supply departments managed to sustain effective information flow, provide clear supervision, and maintain sufficient order to persevere.

The Ordnance Department adapted well given the volume of their production, its wide differentiation, and their influx of staff. The bureau took steps to refine its organization even more closely along functional lines and sought to centralize coordination of all internal transactions. On May 23, Crozier established a Supply Division to monitor specific procurement actions and receive full updates regarding the current status and plans for its completion. This office checked progress on orders place by all offices, identified problems, and corrected deficiencies. Other Ordnance divisions separated along lines of function instead of classes of munitions under the supervision of the Chief of Ordnance and his assistant. An Engineering Division took over all design, a Procurement Division made orders and contracts while the Production Division supervised manufacturing, and an Inspection Division handled quality control for all contracts. A Personnel Division managed all Ordnance personnel, both in Washington and in the field.[235]

As the Ordnance Department expanded, its lines of communication initially did not grow with it. In July, an officer sent a memorandum to his superior asking about the process within the Ordnance department "to instruct every department or section at once of any changes made in drawings, specifications, and any other matter pertaining to the letting of contracts or affecting contracts let." At the time, contracting officers had no formal way of knowing whether the plans on which they were negotiating were

[235] Ordnance Office To Commanding Officer, New York Arsenal, June 29, 1917, Office of the Chief of Ordnance, Record Group 156, Entry 341, Box 4. The mission of the Supply division was "to take charge of all Ordnance and Ordnance stores procured by purchase or manufacture for issue to the military service; to arrange for shipment of this material to the proper points and for its storage and custody; for its preservation from deterioration and for its issue for the use of troops or other persons in the military service; to organize the personnel for carrying our the preceding objects, to assist commanders of organizations to handle stores which are issued to sufficiently large organizations to

the most current. This deficiency could have caused serious production problems as the sources were dispersed and the designs often changed quickly in the fluid environment that accompanied the expansion of the army. In some cases, officers went to the plans office themselves and obtained copies, but a centralized process was needed.[236]

Ordnance refined its internal and external communication systems to meet the new situations. The Finance Division communicated directly with sections to correct flaws it identified in the flow of information. In July, a change in the processing of invoices streamlined paperwork methods across the department: invoices would no longer be separated for distribution to the various divisions; rather the Supply Division would circulate one invoice among the appropriate divisions, file the statement, and then monitor its progress. Divisions were encouraged to send clerks to reconcile this invoice log for accuracy to ensure nothing was forgotten. By November, the Production Section of the Gun Division was able to reply quickly to a request from the Supply Division for information as to where DuPont was loading and assembling shells. The other Divisions worked within their organizations to meet the standards laid out by Crozier's office in May.[237]

For centralized control with decentralized execution to work in a coordinated system, the members of the system needed education and discipline. While the functional reorganization appeared nice on paper, it took a commitment from the

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require officers of the Ordnance Department for their staff service."

[236] Capt. Askew to MAJOR SIMPSON, July 25, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

[237] Supply Division to Carriage Division, July 2, 1917, Entry 341, Box 4; Production Section, Gun Division to Supply Division, November 12, 1917, Office of the Chief of Ordnance, RG 156, Entry 603, Box 49.

officers in the bureau to make it work. That dedication was there. One Captain from the Equipment Division informed his counterpart in the Supply Division that they were "taking steps to eliminate the complications" in the transition. He sent a message to members of his Division that explained how procedures had changed and encouraged further communication between the divisions in Washington. As previously mentioned, the Quartermaster had its new officers attend a series of lectures on procedures and standards.[238]

General Crozier directed his officers to clamp down when necessary to keep the system on track. Officers identified problems in the flow of information and sent instructions to correct them. When an inspector at a plant in Minnesota contacted the Rock Island Arsenal directly to get specifications for production, a lieutenant with the Inspection Division informed the rogue inspector in no uncertain terms that he had "absolutely no connection with Rock Island Arsenal and will request absolutely nothing from them except through [the Washington] office." He repeated twice more in slightly different language that the inspector should communicate with "nobody but this office" in the future. It was increasingly clear that the Supply Division was the central point for procurement. This division was reiterating to others the need to keep it informed about any alterations to outstanding procurement orders such as changes in quantity, substitutions, and changes in delivery schedules. It urged the others to help by insuring it was receiving notice of all such changes without delay, so it could keep records current. Memos with short reminders traveled between the various Ordnance

[238] Capt. Lang, EQUIPMENT DIVISION to CAPTAIN KENDRICK, Supply Division, October 6, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 25.

Department divisions requesting clarification of status of procurement orders. There was even a form that the Supply Division used to track open and closed transactions.[239]

By October, the Ordnance Department was making this kind of directed coordination routine. In a series of memos and endorsements, the Carriage Division communicated directly with three other agencies within the Ordnance bureau. It sent a producer a letter to warn them of an upcoming order, informed the Finance Division of the allotment for the purchase, and requested that the Supply Division issue the shipping instructions to the company for this particular order. Some members of the Supply Division were tasked to investigate problems in the process identified by other officers. A major in the Supply Division contacted his counterpart in the Carriage Division about an internal purchase order for vehicle straps form Rock Island Arsenal. He explained that his division had requested the arsenal to specify delivery dates and actual cost, but "owing to the confusion in order numbers incorrect information was submitted by the Rock Island Arsenal." He promised that the problem had been corrected and that proper information would be forthcoming. If coordination implies formal, disciplined cooperation with oversight from a central head, and purposeful, directed communication, then the Ordnance Department was approaching that by the fall of 1917. When one agency did not receive its copy of a particular procurement order, it was able to reference an internal order number to request it. The responding

[239] MEMORANDUM FOR MAJOR HUGHES, July 2, 1917, Entry 341, Box 4; Inspection-Equipment Division, Ordnance Office, to Inspector of Ordnance at Scheffer & Rossum Co., St. Paul, Minn, Sept. 25, 1917, Box 24, Entry 503; Supply Division, MEMORANDUM TO THE EQUIPMENT DIVISION, September 28, 1917, Office of the Quartermaster General, RG 156, Entry 503, Box 25.

agency was, in turn, able to provide the necessary information to complete the record, even though it was unable to find an original copy of the specific order.[240]

By November, the officers of the OD had made great progress in their internal processes. The Equipment Division had charted and was tracking the dates by which they would complete 100% of the required purchase orders. While they could not perfectly ascertain every category, they were better able to develop and manage estimates of future requirements. The Supply Division was developing its own forecast to coordinate resources with production and shipment. Before the war, one would have expected the Finance Division to program estimates based on money. This new focus reflected the change in purpose from economy to security and was the kind of management necessary for a large organization. The officers on the staff of the Ordnance Divisions showed their commitment to increased efficiency, reduced friction, and effective coordination.[241]

Other examples of internal coordination

The Medical Department's coordination challenge was primarily in terms of its specialized personnel. Equipment and construction played a relatively small portion of their mission at the beginning of the war and relatively less as the summer progressed. To handle the increase in the volume of activity, it consolidated some of its prewar offices and created a number of new divisions over time. In terms of procurement, it

[240] CARRIAGE DIVISION to FINANCE DIVISION, Oct. 23, 1917, Entry 603, Box 49; Simpson TO CARRIAGE DIVISION, October 31, 1917, Entry 503, Box 25; and Supply Division, to SMALL ARMS DIVISION, November 5, 1917, Office of the Quartermaster General, RG 156, Box 49, Entry 603.

[241] Equipment Division TO CAPTAIN EATON, Supply Division, November 6, 1917, Office of the Chief of Ordnance, RG 156, Entry 603, Box 49.

merged offices, but at the same time expanded operating divisions. On September 20, 1917, the Medical Department created a Finance and Supply Division to handle all claims, accounts, vouchers, returns, disbursements, property management, and supply purchases. This allowed the Department to centralize control over medical supply in the Surgeon General's office. Thanks to prewar efforts to coordinate standards with its civilian counterparts and shared professional attitudes, the Medical Department could realistically expect doctors and dentists to report for military service with their personal equipment. This policy prevented a major shortage in dental supplies from undermining the care of soldiers and permitted the Department to focus on expendables. Hence, it could concentrate on medicines, antiseptics, unit equipment, and the few items requiring government standardization. And since these items were the same design as civilian types (there was no difference between civilian medicines and military ones, no need to outline detailed specifications for the manufacture of a scalpel), the process was significantly easier to administer. "While the expansion was enormous, it was not found necessary during the war to change the system in its essential details."[242]

Not all the bureaus were given complete independence within their organization. One of the solutions imposed on the Quartermaster Department by the War Department involved splitting agencies away to make their own independent departments responsible directly to the Secretary of War, Newton D. Baker. It

[242] Lynch, et al., *The Medical Department: The Surgeon General's Office*, 119-225. The Surgeon General's Office arranged to purchase the personal supplies brought by the newly appointed dental officers and doctors.

experienced mixed results as these attempts to consolidate under Baker amplified communication problems and the negative aspects of decentralization led to more confusion. This initiative only undermined the attempts of Quartermaster General Sharpe to get things back under effective control of his office. On October 16, 1917, the Quartermaster Department formed the Warehousing Division to take the responsibilities for storage from the Supplies Division, handle cable communication, and manage overseas shipments. By this time the Supplies Division had increased from two branches (Supplies, Clothing and Equipage) to four branches (the original two plus a Conservation Branch and Contract Branch), and added a fifth, Fuel and Forage, in December. In July 1917, the Contracts Branch came under the Estimates Branch to unify control of costs. Numerous reorganizations at the tactical level (such as the creation of division level support units) also made the Quartermaster Department more responsive to the supply of the camps.

The Office of the Quartermaster General met the changing conditions that summer on a day-to-day basis emphasizing a procedural rather than an organizational approach. In the midst of trying to get purchases going, reacting to a reduction of his staff, and facing shortages**,** Sharpe sought to make the organization as efficient as possible, given the recent changes and the fluid situation. The Quartermaster Department simplified accounting, facilitated property management procedures, worked with the CND purchasing agency, reduced paperwork required of depots, and streamlined various financial procedures. Getting the situation under control took time. In the rush to meet immediate needs, the Quartermaster made many mistakes: it split some shipments and had no records of the first supplies sent to France. Eventually, the

Office of the Quartermaster General developed a system that used cablegrams to track the status of supply shipments and also made adjustments in packing methods to reduce space, resources, and time required preparing goods for movement. At the beginning of the war, no one in the War Department was familiar with the science of statistics, Quartermaster personnel built a record and stock-keeping system from the ground up.[243]

From D.C. to the depots

The crux of the challenge was exemplified in the relations of the bureaus in Washington with depots and arsenals located around the country. Centralized control with decentralized execution only worked if effective communication and institutional discipline extended to these satellites as well. The bureaus needed to "provide for a systematic and orderly control, as well as an accurate record of the …stores now on hand and of those which will be procured hereafter." The timing of communication with outposts was even more difficult than within the offices in Washington.[244]

As part of their effort to equip the Railroad Regiments urgently needed overseas, the Engineer Office in Washington had sent instructions to the Depot Engineer in San Antonio on June 1 to redistribute particular items of equipment left over from the Expedition against Mexico. When the Depot Engineer received the letter five days later, much of this material was in transit to other depots to equip newly forming units in accord with prior instructions. Because they had not been directed to

[243] Dallam to Administrative Division, Sep. 26, 1917, Office of Quartermaster General, RG 92, Entry 1888, Box 5881.

[244] Ordnance Office to Commanding Officer, New York Arsenal, June 29, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 4 and Crozier, *Ordnance and the World War: A Contribution to the History of American Preparedness* (New York: Charles Scribner's Sons, 1920), 14.

pack items in standard sets, it was impossible to inventory the items as quickly as the situation demanded to determine how many complete sets were available for shipment to New York City. It took a day to clarify some of the instructions via telegraph, but on the 7th at least one regiment's worth of equipment was finally on its way to New York. This then left the initial requisitions unfilled and the San Antonio Depot so depleted that it estimated that it would be unable to equip the regular regiments and mounted battalions of engineers to be formed in its area of responsibility and did not expect to be able to do so until it had received information and re-evaluated what was needed for these regiments. In response to this event, at least one Depot Engineer requested more decentralized control of fiscal matters which would have given him much more latitude than the norm before the war when officers took great risks making independent decisions regarding the expenditure of government funds. The number of depots and the increasing volume made coordination of stock levels problematic.[245]

The depot system also highlighted the nature of coordination because there was often more than one bureau represented. The Depot Engineer in Mobile informed his department that a quartermaster officer from Charleston and one from New Orleans both reported to him to arrange for the unloading of a shipment. Neither officer was in touch with the other nor knew of the other's efforts. A shipment of lumber arrived at the depot before there was a quartermaster officer to receive it. The invoices and bills of lading went out promptly, but the post office had no advance notice of the Quartermaster establishing an office. As a result, the information was sent to every

[245] Purchasing Depot Engineering Officer to the Chief of Engineers, Washington, D.C., June 15, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259.

Army and Navy office in the state. Depot officers wanted to reduce this "confusion due to lack of unity of authority and consequent lack of information."[246]

By October, the Office of the Chief of Engineers was receiving its messages from subordinates in a timely fashion. Some would send brief situation reports, others would attempt to coordinate procurement, but the question was what happened with the report once it reached Washington. The bureaus were inundated with information from above and below, from the AEF and from the depots in addition to correspondence between each other. One District Engineer waited a month for approval from Washington to award a contract to the lowest bidder for fuel oil. Delays in prompt approvals for bids could jeopardize the completion of the contract and contributed greatly to the production lag.[247]

To counter an early trend toward uncoordinated decentralization, the Office of the Quartermaster General in Washington took control of purchasing for thirty-three principal items to keep depot quartermasters from competing among themselves for the same article. Quartermasters at depots or camps simultaneously made bids and then wired them to Washington for approval, which allowed the central office to control prices without doing the purchases. If all prices were too high, the central quartermaster staff could find alternatives. By late October 1917, a Purchasing and Manufacturing Office in Washington made all awards and contracts for clothing, camp, and garrison equipment. It had been a rough summer and autumn for the Quartermaster

[246] District Engineer Officer, Mobile Ala. to the Chief of Engineers, August 20, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670.

[247] Sanford, District Engineer, To Chief of Engineers, October 29, 1917, Box 2600, Entry 103, Office of the Chief of Engineers, RG 77.

Department and, indeed, the War Department as a whole. But they were moving ahead and seemed to be getting control of the mobilization process. The bureaus had overcome lack of congressional support, dearth of funds, differences with the CND, and an unclear military program to get back on schedule.[248]

Bureau attempts to redesign their organization for smoother coordination extended down to the depots. The leadership had discovered that the best way to control subordinates was almost opposite the way that they had controlled the Depots and purchase officers before the war. At that time, the bureaus could decentralize execution through fiscal controls since it was unlikely that anyone held personally liable for all expenditures was going to get out of hand. Indeed, even as the more liberal flow of appropriations made monetary control ineffective, officers accustomed to the old way remained true to their training and stayed in very close contact with the central offices. However, many new officers, unfamiliar with the Army methods and not from large corporations that practiced coordinated buying, often went and procured in a more independent manner, which aggravated the lack of information, the uncoordinated regional purchases of items that could impact on the national economy, and the generally higgledy-piggledy nature of procurement. A coordinated, priorities-based system had not been standard process for these officers, new or old, and their actions reflected this fact. Individual bureaus could make structural and procedural improvements, but the inability to sufficiently bring subordinates into line contributed greatly to the eventual bottleneck.

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[248] Sharpe, *Quartermaster,* 155.

Civilian Boards and the market: coordinating purchasing?

Synchronizing purchases with the civilian agencies and business was problematic because of the question of subordination. Initially, the civilian agencies ostensibly worked for the Secretary of War and therefore worked with the bureaus, but with the rise of the WIB, civilian "experts" became more independent and powerful. Despite increasing WIB pull within the military establishment and perceived authority over the industrial sector, each business remained its own master or collaborated with cooperative organizations on its terms. Neither the military nor the business communities fully understood or trusted the other. Although there was communication and a spirit of cooperation, the lack of institutional discipline on either side prevented full coordination between government agencies and business.

The claim by observers and historians that the bureaus deliberately went into the market without regard for anything else is extremely questionable. Sharpe and the senior leaders of the Quartermaster Department knew that decentralized purchasing would not work, and that they needed the help of the CND to be successful. The Ordnance Department, as we have seen, had changed its internal organization to better centralize control. Prior to the war, the bureaus could afford to go through the ninety-day process of advertising, bidding, and contracting for supplies; they could fabricate many of the items, including uniforms, at their depots. The magnitude of the current mobilization required a different approach and the bureaus were willing, but they faced limited alternatives, each with advantages and disadvantages. Army purchasers could secure contracts without negotiations or bids--the height of fiscal irresponsibility-- or

negotiate through the CND. This second option, while possibly more time-consuming than not taking bids, promised to be quicker than the prewar methods and definitely more financially sound.

The challenge lay in reconciling the existing purchase system with the merchandising method. After the bureaus and the CND leadership had agreed to use this process (in which the consumer and producer negotiated the best price) in April, depot officers had stopped advertising for bids and started to send their requests to the corresponding CND Supply Committee. Military officers on the committees and in the field gave final approval on contracts in accord with regulations. Often, matters that could have been delegated for resolution between the CND and the bureaus still went through the office of the Secretary of War for approval because the authority for purchase remained legally vested in him. For example, a memo from the army representative on the WIB to Baker sought his decision on the price for a lumber contract let by the Lumber Committee of the CND to the Southern Pine Emergency Bureau for pine to construct cantonments. The Signal Corps tried to place large orders of wire and cable through the Council of National Defense but was delayed as the committee divided the order among a number of concerns to expedite ultimate delivery. These preliminary arrangements consumed a large part of the time actually required for filling orders, but the bureaus needed every moment they could spare after Congress finally released funds for purchases in June; they could not afford any delay.[249]

[249]Pierce, MEMORANDUM FOR THE SECRETARY OF WAR, June 1917, Box 2670, Entry 103, Office of the Chief of Engineers, Record Group 77 and Office of the Chief Signal Officer to the Chief Signal Officer, Aug 14, 1917, Office of the Chief Signal Officer, RG 111, Entry 77, Box 1.

On the bright side, the new system proved to be less time-consuming than advertising for bids. On May 29, the District Engineer from Portland, Oregon informed the Office of the Chief of Engineers that he anticipated a shortage "in quantity" of fuel oil and lumber. Within a week of receiving the report, the Office of the Chief of Engineers forwarded it to the General Munitions Board to get clearance to purchase these articles on the restricted list. The next day the Munitions Board granted clearance for the lumber purchase, while deferring on the question of the fuel oil. Two days later, the Engineer Office sent this information to the District Engineer, who acknowledged receipt on the 20th of June. The office of the Chief of Engineers filed it on the 26th. The Engineers were not stonewalling or rubber-stamping requests to the Munitions Board; they examined and rejected those with insufficient information for the board to make an informed decision. When one request for lumber went forward, the Office of the Chief of Engineers emphasized that this material was important to maintaining the locks on the Monongahela River down which a volume of coal was shipped and sought a better price than was available locally. The Munitions Board's reply indicated it had done a thorough analysis in authorizing a local purchase because even if it could find lumber at a lower price, the shipping costs would offset any savings. Part of the reason it took a month for this routine transaction to transpire was that, rather than further overwhelming the telegraph network, the officers relied on the postal system.[250]

[250] District Engineer Officer (Portland, Oregon) to Chief of Engineers, U. S. Army, May 29, 1917; O. C. of E. to the General Munitions Board, June 12, 1917; District Engineer Office, Pittsburgh, PA to Chief of Engineers, June 8, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2574.

The WIB sent Crozier a list of approximately 30 items on which shortages existed at the end of August 1917 and updated three weeks later with instructions that these items "should not be ordered without first consulting with the War Industries Board." The order did not apply to contracts already let or to small orders, but it did include sub-contractors to general contracts. Crozier supported the efforts of the WIB to manage resources. The items on the list are a mix of end items (machine guns and motor trucks), key components (cotton thread and optical glass), unfinished goods (steel and sheet tin), and raw materials (raw rubber and aluminum). The Office of the Chief of Ordnance quickly distributed this list to all its subordinate divisions.

In practice, the merchandising method for purchasing had its drawbacks. Sharpe found the secrecy of it (the bureaus could not openly carry out negotiations for fear of influencing commercial competitors) "abhorrent." The Office of the Quartermaster General requested that the War Department delay public notification of contracts to keep manufacturers from raising prices, even though, by law, they were supposed to file contracts immediately in the Returns Office, Department of the Interior. The resulting pause displeased many officers, but helped insure that prices stayed as low as possible. Coordinating with the CND still took more time than was available and was not responsive enough to changes in demand on short notice. In July, Office of the Quartermaster General asked the Committee on Supplies to renegotiate a contract with a woolen mill that expired at the end of the month. The CND did not complete negotiations until late September. In frustration, Quartermaster General's Office directed depot quartermasters to buy the necessary woolen items (mainly underclothes) directly on the open market, a move that upset the Committee. In a

meeting on September 9, when the committee leaders protested to General Bliss promising they could deliver adequate clothing in forty-eight hours, Sharpe told the depots to stop purchases. The items did not arrive until late October. When blankets were needed immediately in early October, Sharpe went again to the depots and ordered them to purchase the items, ignoring the protests of the Committee. The excessive time spent preparing the contracts damaged the spirit of cooperation between the Office of the Quartermaster General and the CND.[251]

The merchandising method did help curb corruption. Thanks to the initial volume early on, middlemen had been able to step in and purchase items in excess of what the government bid. When the government sought the item again, these dealers offered their stock more quickly than the manufacturers and at a higher price. When the CND's direct negotiations with the producers squeezed out these opportunists, quite a few solicited support from their Congressman for a return to the old bidding method, who then communicated on their behalf to the Committee on Supplies, which politely demurred. Resentment to such rebuffs may have been another factor that would contribute to Congress's aggressive stance during the crisis in December.

The efforts to improve coordination seemed to be bearing fruit as the supply situation appeared to be improving by mid-June. The CND approved the removal of coal from the limited list and purchase officers could now be buy it "as heretofore." While a subordinate in the field might castigate the centralized purchase system in effect, the central offices of the Engineer Department in Washington saw that purchases

[251] Sharpe, *Quartermaster,* 160.

had been "handled through the Cooperative Committee on Lumber of the Council of National Defense and that [the office of the Chief of Engineers] must, under existing orders, consult that committee before making purchases of any large quantities of lumber." Even though these criticisms were "not the only ones that have reached this office," the author of the report also reassured the leadership that "on this particular purchase, this office followed in every respect the recommendations of the Cooperative Committee on Lumber as to the placement of orders."[252]

Before winter, the WIB and Ordnance Department had a system in place with the bureau working through the Priorities Committee to get priority authorization for shipments. Ordnance officers found available contractors, conducted initial negotiations with them, and then sent the terms to the WIB for review and adjustment. After completing the review, the WIB sent a letter of approval to the Ordnance officer who completed the contract. In some cases, the Ordnance officers supported the contractor by encouraging the WIB to sign off on contract. If the item required design, there involved additional staffing with a section of the Explosives Branch and the Ordnance representative also had to coordinate with the Raw Materials branch. At the higher levels, the Ordnance Department and other bureaus were willing to subordinate themselves to the civilian committees.[253]

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[252] Office of the Chief of Engineers to the District Engineer Officer, Philadelphia, June 11, 1917, Entry 103, Box 2574 and General Engineer Depot, Washington D.C. to Chief of Engineers, Sept. 1, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670.

[253] War Industries Board To Crozier, September 24, 1917; Official copy furnished on order of Chief of Ordnance to Divisions (Equipment, Carriage, Gun, Small Arms, Nitrate, and Supply) on Sept. 26, 1917, Entry 36, Box 1410, and "War Diary," Office of the Chief of Ordnance, RG 156, Entry 580.

Some tried harder than others to make the new systems work. From the beginning of the emergency, the Medical Department had sustained a very close relationship with the medical community to coordinate standards of care, equipment, qualifications and selection of military doctors, purchase of medicines, and the like. The Lever Act that caused many of the businessmen so many headaches in August 1917, did not affect the Medical Department as much because the medical supply officers were able to rely on pre-existing professional relationships and equipment standardization. Members of medical manufacturing concerns eagerly attended meetings chaired by the CND because they had not devoted a large portion of their capacity to the Allies. The Surgeon General's Office allowed a great part of the disbursements to occur outside the central office, but audited the accounts of all disbursing officers. While the expansion was huge, it was not deemed necessary during the war to change the system in its details as long as medical supplies remained under the jurisdiction of the Medical Department, which they did with no decentralization of purchases at home.[254]

Not everyone had it so easy. By June, the Equipment Division of the Ordnance Department was receiving "constant" requests for information regarding production of equipment. On Crozier's directive, they had already aggressively attacked the problem by revising specifications to take advantage of the "new sources of supply" that were offering their services to the war emergency. The staff of the Equipment Division had sent unsolicited specifications, blueprints, and an invitation to bid for horse harness,

[254] Lynch, et. al. *The Medical Department,* 222-225

saddles, and straps to almost every maker of these products in America. Some replied that they had too much business, although it is unclear whether this business was government, civilian, or that the company was so small it would not matter. Nonetheless, there was no mention within the Ordnance Department divisions regarding coordinating this effort with committees of the Council of National Defense. This omission could not have helped the CND's goal of bringing discipline to production and resources. It appears that the cause was unbridled and misdirected initiative on the part of purchase officers rather than a deliberate attempt to circumvent the CND; for the Equipment Division actually appears to have been one of the more organized, better directed, and finely tuned Divisions of the Ordnance Department. The result for the Equipment Division was that it was "overwhelmed" with requests for samples and other information necessary to complete the bids. The already difficult transition from an organization that was favorable to oversight by Congress but not designed for rapid expansion and high volume processes to one managed by a committee of businessmen who demanded the commensurate high level of performance was rife with these types of problems.[255]

Officers expressed concern over working with local CND-sponsored commodity committees. Some of those agencies consisted of members of the companies that were the largest and most influential in a particular market sector. Although the process gained expertise by employing these knowledgeable men in key positions, it also risked collusion by having people still actively engaged in a business determine prices,

[255] Various letters, June – September 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

arrange contracts, and distribute orders. The officers believed that the problem could be avoided by the "timely and adequate provision for the establishment of depots" whose officers could more closely oversee purchase operations. Some argued that "the methods… so thoroughly tried and proven in time of peace, and so well suited for the purchases of enormous quantities, as well as the smallest bill of materials (as well shown by the purchase of materials for the Panama Canal) should not be cast aside as inadequate and a system substituted therefore which inevitably gives rise to the dangers of extravagance." One Engineer Depot officer received "numerous complaints made by the small and independent mills concerning the arbitrary methods of awarding or allotting orders, the levying of 5% commission by some local committees, and the inflation of lumber prices without any corresponding increase in the cost of production to justifying such inflation, are too numerous and too definite to warrant dismissing them without consideration." The engineer identified part of the problem with the centralization of price setting and resource allocation. He had gone out in early August and obtained oak lumber at $30 per thousand board feet for a local shipbuilder already under government contract. Before he could sign, his supplier learned that the price set by the CND in Washington was $60 per thousand board feet – effectively doubling the price in one day. Small and independent mill owners were losing out because of the government preference for dealing with larger, seemingly more efficient companies. This preference increased the cost to the government by limiting competition. As an alternative, the Depot Engineer recommended the purchase methods used to supply the Panama Canal project because he could not "point to a dollar extravagantly or

wrongfully spent in the purchases made" to build the Canal. He felt there would be "fewer occasions for hasty purchases and consequently less excuse for high prices." He recommended the continued reliance on depots as providing the "greatest amount of flexibility."[256]

Such advice from an experienced operator in the field held some merit given the success of the decentralized approach before the war. The prewar practice of centralization through control of allotments had allowed the dispersed depots executing purchases to spread the wealth of the government budget across the country. For while national companies may have been the commercial vanguard, local and regional concerns still dominated the economy of the country. In dealing with these smaller regional firms, bureau officers may have paid a bit more, but actually saved shipping costs and delivery time by procuring items closer to where they were needed. As pressure on the national market increased, the difference between depot purchases from a region's assets and purchases initiated in Washington became obvious: there was still plenty of slack in regional economies from which the purchasing officer could draw. If all local depot officers were as in touch with the market as most seemed to be, then it is unlikely that they would have overloaded a local market with orders and, thus, the centralization espoused by the WIB may have been unnecessary except for those resource intensive industries such as steel. However, such ideas directly contradicted the intent of the CND and WIB who sought to consolidate purchase as much as possible. "Consequently the higher is the price the government must pay, and the more

[256] District Engineer Officer, Mobile Ala. To The Chief of Engineers, August 20, 1917, Office of the Chief of Engineers, RG 77, Box 2670, Entry 103.

intense becomes the sense of injustice on the part of the mill owner who was excluded from direct participation in the business…" Resource producers were influenced by direct government contracts, contracts with concerns producing end items for the government, and commercial production with a result that the small producer got squeezed because they could not compete in overhead and scale. Instead of maximizing its resource base by spreading the burden, the government inadvertently supported monopoly.[257]

Even larger businesses organized along more modern lines could prove difficult to coordinate effectively. The Ordnance Equipment Division had problems in the summer of 1917 with the Aluminum Company of America (ALCOA). The company had "disappointed greatly in the matter of deliveries, both of meat cans and canteens with cups." In early August, company representatives had traveled to Washington from their New Kensington, Pennsylvania plant to discuss their contract and justify the causes of their failure to deliver material more promptly. The explanation did not satisfy their military counterparts, so the Department sent one Lieutenant Fabens to investigate. Before joining the Army, Fabens had supervised two ALCOA plants, so he spared no punches in his report. He saw three principal causes for the slow work: difficulty in the maintenance of tools, problems with the standardization of parts, and "a tendency to try to scrape through on a too small stock of metal in order to avoid having any stock on hand at the conclusion of the contract." He noted that the general foreman of the plant was away on vacation during his inspection and that there was no one

[257] District Engineer Officer, Mobile Ala. To The Chief of Engineers, August 20, 1917, Office of the Chief of Engineers, RG 77, Box 2670, Entry 103.

person at the plant who knew all the details about the government contract despite the "present emergency." The Department had been more than helpful providing specifications from the aluminum finishing machines used at Rock Island Arsenal and even coordinating to obtain welding flux to alleviate a shortage that had prevented the company from completing the canteen order. Members of the Ordnance Department were willing and able to coordinate the elements of production and reduce friction for companies when necessary. However, given the time it took to accomplish, they could not be expected to do this for every contract with every company.[258]

Other bureau procedures toward potential producers did not translate as well to the increase of volume. The practice of having models available in Washington for potential producers to send representatives to study had helped familiarize a business with Army specifications. This was less expensive than producing and sending something to the few businesses that inquired, especially since most prewar producers had either a representative in Washington or an office in New York City from which an agent could come to study the item. When the number of producers and the area from which they came increased, many requested that samples be sent to them, which added yet another layer to a process that while efficient at this scale, certainly would not have been economical for the needs of an army of 100,000.[259]

The bureaus maintained internal controls as they endeavored to keep the system going. The Ordnance Department had officers who reviewed files and initiated

[258] Equipment Division to Colonel Babbit, August 16, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

[259] Fuller to Crozier, September 3, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

correspondence to fix discrepancies. For example, when a company had acknowledged receipt of a purchase order, the responsible officer suspected that the order had been mailed to the company unsigned by the Chief of the Equipment Division. He sent a letter to the company requesting they return the contract for signature. One officer was busy sending out form letters to companies that were delinquent in returning signed contracts to the Ordnance Office. Many of the recipients were apparently challenged to handle the volume as well since this was their second notice on contracts sent six or more weeks earlier. In addition, the Ordnance office checked on transactions between Rock Island Arsenal and business, requesting from the Mills Woven Cartridge Belt Company a statement regarding the debits and credits on outstanding orders in order to settle the unpaid balance when the arsenal was late with some reports. Two months into the war, the Ordnance Office first officially informed Watervliet Arsenal that they would have to furnish samples to manufacturers who would produce equipment for the department. The purpose of the endorsement was less to coordinate the provision of samples, than to cover their expenditure by using "a copy of this endorsement… as a voucher to the property return of the Arsenal" -- accountability and economy were still very important.[260]

Hampered by strategic uncertainty, counterproductive legal restrictions, and competing power centers, the bureaus attained varying degrees of success. They could work together as equals under the leadership of the Secretary of War, but really could

[260] Lieut. E. A. Brehm to Dornan Bros., October 31, 1917, Equipment Division to Nashua Saddlery Hdw. Co. and others, October 30, 1917, and Ordnance Equipment Division to Mills Woven Cartridge Belt Company, October 25, 1917, Entry 503, Box 25; Ordnance Office to Commanding Officer, Watervliet Arsenal, June 13, 1917, Office of the Chief of Ordnance, RG156, Entry 36, Box 2253.

not coordinate their programs. Adequate degrees of centralized controls and decentralized execution did not yet occur in the War Department at large. Again, it is not that the bureaus did not willingly subordinate themselves to the Secretary War, but that his office lacked the staff to manage their efforts. The existing staff agencies within the War Department had focused more on oversight and economy and were unable to shift to the degree of centralized efficiency that operations on a broad national scale required. The CND might have helped, but in the interest of unity of command, it should have remained subordinate to the service secretaries rather than attempting to take over the industrial program as an agency separate from the military one. Note in this discussion there is no discussion of strategy, arguably the thing that should have determined the structure and program of procurement. With the center of strategic planning for the war in France, there were too many obstacles to identifying a clear goal, streamlining organization, and centralizing control. All the while Congress hinted that it might get involved with another "Committee on the Conduct of the War," as had occurred during the American Civil War. The fear of monopoly prevailed among bureau officers who were not pleased with the seeming domination by larger concerns and cooperatives. Many procurement officers, used to working with regional producers, grew impatient with the wait for the committees to sort out possible producers and proceeded to buy, especially if they had a letter of introduction from a Congressman or word from a contact that there was a company willing to do business.

Centralized control and decentralized execution only work when oriented toward a common purpose. In war, that purpose requires coherent policy and strategic

objectives, two things which took months to identify in 1917. Unfortunately, because key participants never met to reconcile these objectives with production capability in order to calculate the structure, pace, and program for procurement, the administrative structure of the military establishment responded in a disjointed manner to the evolving foreign situation. The inherent differences between business and the War Department were in terms of time, purpose (profit versus security with economy), communications, and discipline. An emphasis on economy and oversight before the declaration and the increase in volume after -- not bureau prerogative, jealousy, or the organizations per se – presented the obstacles to coordination manifested in the difficulties presented by communication, legal constraints, personnel turbulence, and lack of direction. The restricted prewar focus had created a brittle structure not fully expansible, internally or externally. Although the bureaus retained detailed instructions for accountability, they lacked formal coordination procedures to compensate for a disruption in the informal personal connections that had previously cut through the red tape. To respond to its new function, the War Department organization would have to build new connections from the ground up.

COMPETITION

As discussed in the introduction, competition is the third of the four flaws generally attributed as a cause for the problems with War Department procurement in 1917. Indeed, in the absence of a viable, coordinating structure, there was ample opportunity for competition of almost every shape and form during the early months of the war. The trial of creating, equipping, training, and deploying massive forces to

fight a war far away would have been difficult in the best of circumstances and competition did bring additional friction. However, the phenomenon was much more complex than the deliberate, almost petty, hoarding cited by most observers. While some did maneuver selfishly and short-sightedly for advantage, most of the competition reflected the military establishment's struggle to deal with the burgeoning mission and the corresponding volume of changing requirements, estimates, specifications, and contracts, rather than some conspiracy or base power struggle.

Every facet of the competition that occurred reveals the incompatibility of the old forms with a new and vastly different function. Without an accepted central authority that matched resources with need, rivalries developed over many portions of the market. The haste of mobilization and the absence of plans upon which to orient purchase efforts greatly decreased unity of effort and would have challenged any organization regardless of its structure. Institutional restraints only increased the difficulty of providing support when the crisis arose. As they sorted out who would govern the mobilization program, those involved did not shy from conflict. Some businesses and agencies simply acted in their own best interest, disregarding the potentially broader implications. And, there can be no denying that ignorant and ill-disciplined individuals contributed to the discord. But, given the general willingness to cooperate and legitimate efforts to coordinate, competition was clearly more reflective of the challenges of dealing with the flood of requirements than an indicator of pathological flaws in the pre-war system. The situational and institutional pressures that led to competition and hampered the success of the mobilization were inadvertent, unintended, and unavoidable at the time.

Caused by Volume

At its core, most of the competition can be attributed to the increase in the volume of transactions conducted by the supply bureaus. As was the case in 1898 and 1916, the large and rapid growth in purchasing fostered the situation that ultimately revealed the flaws of the prewar War Department institution; however, in 1917, the expansion was both much larger and more sustained. As the mobilization program rapidly enlarged the mission of the supply bureaus, it overwhelmed individuals, derailed processes, obscured information, and distorted market systems. The pressing need to respond to the surge inhibited coordination and discouraged cooperation. In many cases, bureau officers had to work from scratch to modify their structure to deal with the change in their own function as well as compensate for market factors, Allied needs, and Navy requirements. By the end, many administrators realized that certain antebellum processes were incompatible with the requirements of their wartime mission.

The volume of business done by the bureaus multiplied by factors of hundreds and thousands without any comprehensive mobilization plan. On June 10, 1917, the Quartermaster Department, which in the previous year had reported to Congress the mileage on every one of the several dozen trucks in the Army, opened bids in Chicago for 70,000 vehicles and received replies from over 200 companies which promised delivery anywhere from 30 days to six months. In July, the Signal Corps obtained 4,000 miles of single strand wire in one week—more than it had previously ordered in an entire year. The Cantonment Division spent more in September to build camps for

1.5 million men than had been expended in an entire year on the Panama Canal. By November, the Ordnance Department was analyzing and rejecting requests to procure 25 millions of rounds of rifle ammunition because it would interfere with higher priority orders. The bureaus dealt with quantities never seen in the history of U.S. mobilization on a timeline that rivaled anything done by the Europeans. Because the projected number of men to be mobilized was constantly fluctuating, the bureaus initially had to proceed with limited guidance using the most current General Staff estimates and their corresponding plans. The Ordnance Department accelerated the plan stipulated in the National Defense Act from four years to one (though three months passed before Congress even approved this action). To keep pace with an expansion of the air service that "was so rapid, and … so frequently modified or even broadened to meet changing conditions," the Medical Department had to often build additions to hospitals it had just completed for aviation units. Such lack of certainty combined with mushrooming volume to create fertile ground for competition over resources and sources of supply.[261]

The massive increase in requirements under an outdated plan occurred in a market already approaching full capacity in some sectors. Though not deliberately (and in many ways very necessary), Allied purchases were rivals for American production and transportation capability. Their volume had influenced the American economy since 1915 and caused a bottleneck in the Eastern rail network in the winter of 1915-

[261] "Bids for Motor Trucks," *The Army Navy Journal,* 23 June 1917; "Extract of COL Russel for July, 1917," Office of the Chief Signal Officer, RG111, Entry 77, Box 1; Littell to OQMG, Office of the Quartermaster General, RG92, Entry 1888, Box 5807; Supply Division to Small Arms Division, November 6, 1917, Office of the Chief of Ordnance, RG 156, Entry 603, Box 49; *Story of Ordnance*, 28-

1916. By 1917, most truck manufacturers were engaged in contracts for the Allies, as were most gunpowder plants. The four main arms manufacturers were just finishing an Allied contract for five million rifles and had committed to producing more when the U. S. declared war. The few munitions experts in the country were already involved in the effort by civilian companies to supply the "Associated Powers." In July 1917, there were 1.1 millions tons of freight at five seaports awaiting shipment, with about 20% of that sitting in freight cars. Secretary of the Treasury McAdoo had a difficult time trying to curtail the competitive bidding by Allies against U.S. needs. Even with the establishment of the Purchasing Commission for the Allies in midsummer, some wondered whether indiscriminate competition would leave any capacity available by the end of the year.[262]

These market challenges and other issues compounded the effects of increased volume on the internal organizations of the Army's supply agencies. As we have seen, few of the bureaus had reserves of equipment making the need to get into the market even more urgent. All had dual civil-military functions they could not ignore that drew off talent and distracted from the primary mission: the Medical Department was still the proponent for public health, the Signal Corps managed the cable and telegraph networks to the territories, the Engineers had to maintain harbors and waterways. The bureaus still had to send staff officers to support operations in U.S. territories,

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36; "History of Office of Chief Surgeon, Air Service," Office of the Surgeon General, RG 112, Entry 29,. Box 149.

[262] Unknown to Quartermaster General, June 1917, Office of the Quartermaster General, RG 92, Entry 2000; Crozier, *Ordnance and the World War*, 11; Quartermaster General to Adjutant General, July 2, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 8329; *Army and Navy Journal,* March 17, 1917; Frederic L. Paxson, *American Democracy and the World War: America at War, 1917-1918* (Boston: Houghton Mifflin, 1939), 120 & 193.

especially Cuba. By late summer, Ordnance was having trouble getting quality personnel in sufficient quantity to serve as maintenance specialists in the AEF. The larger, less experienced staffs multiplied the errors as they simultaneously wrestled with a huge mission and sought to integrate their civilian experience with the vagaries of government procedures. Such unavoidable internal stresses made competition even more likely.[263]

Growing volume undermined the bureaus' ability to do the basic things necessary for coordination. By the end of June, the absence of information caused by failure to anticipate problems, lack of an overall program, communication breakdowns, and friction with the organizational structure hampered the effectiveness of the bureaus to plan and execute. In June, the Ordnance Department staff, in an example of aimless staff impetus, published a manual for manufacturing guns that no one would never use in France. Message transmission became increasingly difficult and slowed bureau response to requirements. A reply sent by the Quartermaster General to the Engineer Department on June 26 to coordinate the shipment of the Engineer Regiments did not find its way out of distribution until July 9th, too late to help alleviate the crush of transportation at the ports. In August, the Ordnance was a month late with progress reports. The Office of the Chief Signal Officer was still gathering statistics from which to build its programs (most notably aviation) into October. Communications problems and lack of information played a part here, but it was more fundamentally an issue of

[263] Office of the Chief Signal Officer to Chief Signal Officer, AEF, Aug 30, 1917, Entry 77, Box 1 and Brett to Dept of Justice, Sept 5, 1917 and subsequent letters, Office of the Chief Signal Officer, RG111, Entry 45, Box 417; Secretary of War, to Hon. S. H. Dent, Chairman, Committee on Military Affairs, House of Representatives, September 6, 1917, Office of the Chief of Ordnance, RG 156, Entry 36, Box 64.

coping with expansion within a structure poorly suited to accommodating such growth. The friction induced by the significant change in function generated examples of competition that would have probably existed in any situation facing the War Department. In other cases, the institutional form of the military establishment directly contributed to the growing bottleneck.[264]

Situational Competition: Market Forces and Organizational Discipline

The gigantic expansion of priorities, purchases, and personnel invited competition. An overburdened system struggling to stay afloat could not ensure the level of control necessary to synchronize efforts. Inadvertent market competition arose between the bureaus as they reached out to producers in economic sectors that were initially underutilized and resistant to the cooperative impulse. The growth of requirements necessitated the extension of bureau staffs which magnified the opportunities for friction because so many new officers needed training and experience in War Department methods. Even after learning the nuances of federal law, these newly commissioned officers lacked the expertise to compensate for the flaws of the system. The bureaus continually faced a challenge to integrate new producers and new officers into the supply program.

Although the distribution of resources and finished products continued to plague the government because the majority of larger companies had already committed to Allied supply, the total productive capacity of the nation had not been absorbed by the

[264] OD, *Gun Materiel Table* (Washington, D.C.: GPO, 1917). These tables were for prewar calibers (such as six-inch, etc.) that were never produced in quantity. Quartermaster General to Chief of

fall of 1917. A steady flow of small, owner-operated companies sent inquiries for contracts to any government agency they could -- from local depots to the Secretary of War. Some were routed to the CND, while the bureaus dealt directly with others contacted by the active recruiting of local bureau officers. The bureaus continued to receive numerous queries by smaller companies well into the winter. While many of these businesses had office managers, accountants, and other positions that indicate they were in the early stages of an organization built around middle management, they still lacked a structure favorable to coordination. Such regional concerns may have represented an impressive reserve capacity, but their independence also increased the chances for competition within national markets.[265]

The potential available in these firms appeared promising. Over fifty smaller enterprises from around the country requested that the Ordnance Department send blueprints and specifications for leather goods during the summer of 1917. One company that manufactured various accoutrements for horses sent a letter to the Ordnance Department seeking specifications and blue prints for about fifteen items. They did not anticipate significant trouble finding the resources to sustain production for the Army. Local companies sought contracts for nearly everything the Army needed, from automobiles to wire. Yet hope that these mid-sized businesses could satisfy demand dissipated amid the conflict between federal methods and market forces. Price fixing hurt such companies because most could not generate sufficient economy

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Engineers, June 26 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2259; Montgomery to Ordnance Office, August 17, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 14.

[265] Ingraham to The Fairbanks CO., June 21, 1917, Office of the Secretary of War, RG 107, Entry 175.

of scale to reduce production cost to profitable levels. In addition, until price controls reached regional sources of raw materials, the producer could be at a double disadvantage- paying more and earning less. One producer complained that the Quartermaster was offering prices 20% below his actual cost. He could not produce on a scale necessary to turn a profit, he could not re-tool efficiently to adjust for the contract, and since the government was unwilling to subsidize him or compromise on its production standards, he would not participate. More than any real or perceived competition between the bureaus, situations such as the incomplete price controls, which drove away producers, contributed to the derailing of the procurement process.[266]

The demanding specifications for many War Department items that had served as a method of control in the past now repelled some prospective clients. One smaller producer was reluctant to adjust his design for what appeared to be limited return and did not want to reduce the quality of the product to reduce his losses for fear of it being rejected by inspectors. Clearly disappointed with government methods that essentially squeezed him out of the procurement process, he remained hopeful that he could contribute and promised to confine his future bids to the Ordnance Department. The very stringent standards of quality before the war had often kept many producers from even considering a government contract. Now the Ordnance Department was trying to compel companies with which it was doing business to purchase testing machines in order to reduce the time between completion of a batch and acceptance of the product by the government. The bureau would gain by quicker delivery and reduced wear on its

[266] Southern Saddlery Company to Capt R. Kirk Askew, AUGUST 28th, 1917, Office of the Chief of Ordnance, RG156, Entry 503, Box 24; Dorfman, *Economic Mind in American Civilization,* 480.

testing equipment while the manufacturer would gain by faster flow. Nevertheless, an elastic fabric manufacturer from Massachusetts politely refused the request because no such machine was readily available. It was "rather expensive" and the short-term profit it would receive from the two contracts it had with the government did not justify the long-term investment. Business could not always be the patriotic partner it wanted to be without guarantees from the government; the bottom line still had to drive decisions in a competitive economy. This type of competition increased the bureaus' challenge and motivated some to call for government subsidies and government plants, as it had motivated the development of arsenals in the past.[267]

Competition for market share plagued the relationship between these small businesses and the bureaus. Some declined bids because they were already working on Navy or other government contracts. Companies refused to give up their civilian work (and with it their future market share) for the war effort. Quartermaster and Ordnance competed in markets in which they had common requirements, such as leather and canvas. Yet, because of the distinctive nature of most items bought by the bureaus, there was not as much conflict over finished goods as one might imagine. The

[267] P. R. L. Hardenbergh & Co. to Capt. Askew, Aug. 20th-1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24. In this personal letter, the president of a small leather manufacturer from Minnesota apologized for refusing a request for bids from the OD. He had been bidding on QM supplies because he "did not feel like bidding on russet leather equipment in case (they) were going to put any black leather equipment through (their) factory." He also could not believe "that specifications will be strictly followed in making these goods." He acknowledged that his company's horse halter was "a trifle heavier than specifications… as (the QM) require 25 pounds to a dozen while (his) weigh 27 pounds, but this difference is so trifling that it would make little difference in the prices bid." Conant, Houghton, & Co. Inc. to LT. S Harvey Day, Oct. 27, 1917, Office of the Chief of Ordnance, RG 156, Entry 530, Box 24.

competition between the bureaus primarily manifested itself in rivalries for a few high-demand common commodities and basic items needed by all.[268]

Not every business was excited about working with the government. Many were indifferent, some downright hostile toward the idea of industrial preparedness and the restrictions it entailed. While most large producers had already committed to the Allies or quickly aligned with the CND, there remained a silent majority of small, local enterprises still available to take Army business. The bureaus and depot staffs left no stone unturned seeking these potential producers, who wanted no part in the cooperative organizations that gravitated toward the CND, but preferred to deal directly with the military. These mavericks provided an opportunity to maximize production capacity, but also exacerbated the strain on efforts to coordinate. These smaller producers for whom government contracts were optional could court bureau suitors further fragmenting unity of purpose and provoking natural rivalries for customers and markets. Without a level of government intervention unimaginable in 1917, there was little chance this resource would be fully utilized.[269]

An effective functioning of the procurement system required willingness by those involved to follow procedures; the absence of this sort of discipline invited competition during the summer of 1917. The influx of new officers unaccustomed to War Department regulations and the independence of producers serving their own interests already encouraged strife, but even veteran officers, ill-prepared to handle the

[268] Harlan & Hollingsworth Corp. To Chief of OD, July 2, 1917, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12.

[269] Longino, et. al. *A Study of World War Procurement*, 46.

large volume of purchases, conducted what can be best described as panic buying. The oft-cited example of the officer (a member of the Adjutant General's Office and thus not even authorized to purchase) who went out and bought every available typewriter to keep others from getting them illustrates the difficulties of enforcing procedural controls. What remains in doubt is just how much damage they did. Colonel George Burr, the Ordnance officer "who without regard for the needs of the other supply organizations, gained control of the nation's leather market in the early days of the war," apparently did not do too much damage since restrictions on leather purchase were lifted by the CND in December. After the war, this same Burr would be promoted to brigadier general and lecture the War College on supply issues. Yet although these two examples may not have been as individually damaging as generally portrayed, they do reflect the problem and its effects. Participants in the purchase process required discipline to follow procedures, plans, and instructions. Without this restraint, anarchy threatened any system no matter how modern or efficient. Too often in 1917, expediency ruled and fueled individual competition as increasingly diverse agencies forgot the bigger picture and concerned themselves with their individual objectives.[270]

It is apparent that competition on the part of the bureaus came from individuals reacting to the substantial volume of purchase orders and was not a systematic attempt to push the other bureaus out of the way. Bureau offices exchanged numerous memoranda requesting clarification of information. There is evidence of leaders

[270] Sharpe, MEMORANDUM FOR THE CHIEF OF STAFF, Sept. 29, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4139; Meirion and Susie Harries, *The Last Days of Innocence: America at War, 1917-1918* (New York: Random House, 1997), 101; Edward M. Coffman, *The War to End All Wars: the American Military Experience in World War I* (New York: Oxford University Press, 1968) 34; Burr, "Lecture on Procurement," AWC Curricular Archives, USAMHI.

disciplining those who failed to follow established procedures. Individual agents who negotiated contracts and made purchases while only informing the central offices after the fact would, of course, upset any resource plan worked with the CND or WIB. The central offices were losing track of the flow of goods because of gaps in the reporting and tracking process that resulted in items being shipped to support the wrong project. Bureaus responded in different ways to this lack of discipline. The methods used by the Ordnance Department to enforce standards within its organization succeeded for purchases and contracts. General Gorgas was quick to remove those who failed to enforce the system. General Sharpe's efforts to maintain control within the Quartermaster do not seem to have been particularly effective. For although he had begun a comprehensive education program in June, he failed to ensure compliance. He reminded and requested; there were no teeth to his discipline. The Signal Corps was already in disarray when the war started and General Squier did not get the situation in hand until much damage had been done.[271]

The detailed routing regulations worked out by the bureaus and railroads were a significant victim of this indiscipline. Although there was a plan for prioritizing shipments, in too many cases it was not followed. Attempts to enforce it were weak, insufficient, and too late to ensure an efficient flow from producer to user in France. Producers were not well informed and often sent out their shipments with no prior coordination. New officers exercised little judgment in approving and prioritizing

[271] Office of the Chief of Ordnance to Arsenals, various dates, Office of the Chief of Ordnance, RG 156, Entry 503, Box 25; Holland, MEMORANDUM for the A-A, October 30, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4456 and Daly to all Officers, October 29, 1917, RG 92, Entry 1888, Box 4508; Gorgas to Medical Department, July 9, 1917, Surgeon General's Office, RG 112,

shipments, forwarding finished orders just to get them to the ports as soon as possible. Afraid to underestimate requirements, many officers and dollar-a-year-men would add a liberal margin of safety to avoid being accused of "falling down on the job." This lack of control directly contributed to the bottleneck of December.[272]

Institutional Competition

Few would dispute the competition brought about by the inadequacies of the organization of the War Department. As revealed in the earlier analysis of its prewar form, the structure of the War Department supported the pursuit of economy and the maintenance of oversight within the military establishment. When these goals were no longer preeminent, the institution proved incapable of fulfilling its primary function. Old centers of power struggled to adapt to the new circumstances while new agencies entered the mix. Structures and procedures diverged into duplication or converged to try different ways to cope. As the flood of requirements unceasingly caused pressure in every corner, the procurement system still lacked a legitimate forum in which to synchronize the needs of the fighting front with the capabilities of the home front.

In the midst of uncertainty over the size of the army, centers of power collided. The infighting and conflict reveal a government sometimes almost at war with itself. Congress did not let its prerogatives die. Many individuals sought to promote their interests and their vision for the country over all other considerations. Politicians and

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Entry 69, Box 18 and Office of the Chief Signal Officer to Divisions, Oct. 8, 1917, Office of the Chief Signal Officer, RG 111, Entry 45, Box 981.

[272] "Mass Procurement" lecture by the Assistant Secretary of War at the Army War College, January 20, 1923, Office of the Chief Signal Officer, RG 111, Entry 45, Box 940; Quartermaster Department to Engineer Department, July 1917, Office of the Chief of Engineers, RG 77, Entry 103,. Box 2259

other powerful players debated the course of the program, the size of the army, and the timing of its deployment. Congress, the Secretary of War, business leaders, the General Staff, General Pershing, and the bureau chiefs had differing opinions on the particulars of the army program. These competitions for directions of the program degraded the efficiency of the bureaus as they struggled to contend with the pull of the rival entities.

Congress properly remained very active in military affairs, but the competition inherent in the democratic process added to the burden facing the bureaus. In addition to flooding the bureaus with their endorsements of companies, various Congressmen redundantly monitored War Department operations. Whether it was a member of the Committee on Naval Affairs asking the Secretary of War for the total requirement of cotton, the periodic attempts to establish a Committee on the Conduct of the War, the distrust by many members of the CND (as exhibited by amendments to the Lever Act that sought to curtail the cooperative committees), partisan struggles over the positioning of the camps to be built by the Cantonment Division, or "constructive criticism" of the Wilson administration, the threat of Congressional investigation and intervention hovered over all efforts to mobilize the economy in support of the war effort. If they hoped to accomplish anything, the bureaus had to satisfy members of the legislature. Without a strong chief of staff or general staff to protect them, these conflicts distracted the chiefs and their departments from focusing on their operational responsibilities.[273]

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[273] Rep. Estopinal to Baker, September 26, 1917, Office of the Chief Signal Officer, RG 111, Entry 45, Box 921; Paxson, *America at War*, 27; Cromwell to Rosenwald, July 19, 1917 copy in Office of the Quartermaster General, RG 92, Entry 1888, Box 5882; "Congressional Investigations," *The Army and Navy Journal*, June 30, 1917; Seward W. Livermore, *Politics is Adjourned: Woodrow Wilson and the War Congress, 1916-1918* (Middleton, CT: Wesleyan University Press, 1966), 10-14; Ronald J. Barr,

General Pershing and the American Expeditionary Forces headquarters became an increasingly powerful competitor as they established themselves in France and began a realistic estimate of the situation. Pershing made full use of the authority granted him by the President and Secretary Baker. His staff soon was the real strategic and operational center for the American war effort. They cabled adjustments to requirements almost daily, demanding changes after the bureaus had made contracts or purchases. On occasion, Pershing's people bypassed the Secretary of War and the Chief of Staff by asking the bureaus directly for items not approved by the War Department. The staff in France demanded the building of reserve stocks in the war zone at the cost of sufficient initial issue to mobilizing troops. They even attempted to negotiate directly with producers in the United States. The initiative of the AEF contributed to a fair share of confusion and competition in the summer of 1917 through their disregard of acknowledged procedure and failure to prioritize their demands.[274]

The rise of the CND, and especially the establishment of the WIB, created a potent contender to management of the war effort by constitutionally appointed civilians. Although these non-military advisory agencies were officially subordinate to the service secretaries, the aggressive leadership of Bernard Baruch put them on a path to power in their own right. As much as any patriotic duty or commitment to

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The Progressive Army: U.S. Army Command and Administration, 1870-1914 (New York: St. Martin's Press, 1998), 114.

[274] Sharpe to Chief of Staff, September 8, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4139. On October 25, 1917, Sharpe forwarded (with his comments) to the Chief of Staff the text of one of Pershing's cables. Attributed to Pershing (but more likely drafted by a staff officer in his name), the cable recommended that silk thread be used in uniforms rather than cotton because the cotton thread had faded on uniforms worn in the Philippines. Sharpe defended the decision pointing out that silk thread had risen so drastically that it was no longer cost effective to use just to prevent fading. He speculated that some member of the Silk Association of America might have stirred

efficiency, Baruch had the interests of business and his own personal aggrandizement in mind as he pursued his national campaign. Politics dominated the Council of National Defense at the national and, particularly, the state level. These agencies, designed to support the procurement program, often added to the competition and friction as they struggled to find their way in the emergency.[275]

The Secretary of War, Chief of Staff, and General Staff were in much the same position as the bureaus. They were under strength and struggling to adjust to the increased tempo. None of these individuals stood in a position to exert other than the most basic influence on the course of the mobilization. The attempts of the General Staff to bring mobilization under their control were unrealistic when it took them over four months to determine the size of the American manpower commitment to the war.[276]

These different agencies contributed to competition as they worked at cross-purposes with one another. A great example of this occurred from June through September 1917 when Crozier had tried to cut through red tape in order to negotiate a contract for gunpowder with DuPont even though the projected size of the army kept changing. His office completed the contract only to see it halted in November by Robert S. Brookings and the WIB, who claimed it violated excess profits rules.

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up this trouble. Adjutant General of the Army to the Quartermaster General, November 15, 1917, RG 92, Entry 1888, Box 5961.

[275] Cuff, *War Industries Board*, 87; Livermore, *Politics is Adjourned*, 42.

[276] Frederick Palmer, *Newton D. Baker; America at War* (New York: Dodd, Mead, & Company, 1931); Michael J. McCarthy, "'Lafayette, We are Here': The War College Division and American Military Planning for the AEF in World War I" (MA Thesis, Marshall University, 1992); See some repetitive correspondence between the bureaus and the Chief or General Staff in Office of the Quartermaster General, RG 92, Entry 1888. The bureaus often had to ask repeatedly for basic information which they needed to develop their plans.

Congressional delay over funding and threats to prosecute businessmen in government, however principled, created friction. This competition was not a deliberate attempt to derail the war effort, but it had the effect of forcing the bureaus to compete with other agencies to achieve their missions.[277]

The evolution of the structure of the War Department aggravated the competition between agencies. As the leaders of the military establishment responded to the challenge by creating new agencies, eliminating others, and transferring roles from one branch to another, traditional functions diverged and converged into new arrangements. Leaders tried to apply old laws to new situations, which blurred ones of control and encouraged struggle between the bureaus. Prior to the war, the Quartermaster had acquired most of the common items needed by the divisions of the War Department. In an attempt to speed responsiveness, the Secretary of War loosened this monopoly and created what Sharpe believed was the primary cause for the direct competition between bureaus over producers. While the Quartermaster and Medical Departments had cooperated in some elements of reorganization, they fought one another over others. The Quartermaster had inspected rations for health and nutrition as part of their commissary mission. The Medical Department assumed this role in 1917 to considerable objections from the Quartermaster, who believed that, since it handled all these purchases from start to finish, it could provide the most effective quality

[277] William S. Dutton, *DuPont- One Hundred and Forty Years* (New York: Charles Scribner's Sons, 1942), 230-245.

control. The Medical Department maintained that since the ration was more than a piece of merchandise, and rather a key to soldier health, it should assume the role.[278]

The habit of close supervision over even the most minor transaction threatened to paralyze more than one bureau chief in the summer of 1917. Well into the summer, reports on matters that could have been decided by lower level staff went to the bureau chiefs' offices for their endorsement and often requested signature. Even if the bureau chief was not personally reviewing and deciding on the issue, his personal staff was usually poorly equipped to handle this much information. They could not sustain the meticulous attention to the minutest detail that they had in the past. These practices distracted the bureau chiefs and kept them from effective supervision of activities to reduce competition and promote efficiency. The loss of experienced officers to the AEF encouraged further competition within the bureaus as their replacements struggled to understand the bureaucratic environment. Some bureaus' attempts to replace these losses with experienced reservists were defeated by the Chief's interpretation of the limits on the number officers who could be stationed in Washington. Other bureaus wrestled with the decision to slow down to ensure proper training or rush in new personnel to deal with the immediate crisis. Too often, the structure encouraged the short-term solution over the long.[279]

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[278] "Brief Administrative History of the Division of Food and Nutrition," Surgeon General's Office, RG 112, Entry 29, Box 148.

[279] For example, there is a whole stack of documents on matters such as routine shipping releases, review of contracts, and individual personnel decisions requiring the attention of General Black in Office of the Chief of Engineers, RG 77, Entry 103 that he could have done nothing else some days, but sign letters. Ordnance Office to Adjutant General, July 2, 1917, Office of the Chief of Ordnance, RG 156, Entry 507, Box 2; Harries and Harries, *Last Days of Innocence,* 101.

The flood of requirements coupled with the absence of adequate staff presented itself in a myriad of ways. The institutional side to the story of one officer buying every typewriter can be more easily seen as inadvertent when senior leaders in the Ordnance Department were not realizing until the end of August that "to date no specific authority (had) been given as to just how to handle the purchase of [office] supplies." The Ordnance Department's response to "numerous requisitions to issue desks, typewriters, adding machines, blank forms, stationery and other office supplies" was to centralize the effort under the one officer in the Supply Division, which by then already existed as a clearing house for Ordnance purchases. An additional form of competition lay in the constant struggle over contracts. By September, the Chair of the Purchasing Bureau in New York City notified the Chief of Ordnance that the cost plus method of contracting was proving unsatisfactory in making purchases. The ultimate cost of articles would be a guess because of the continued uncertain circumstances surrounding purchases and would "undoubtedly lead to misunderstandings with the manufacturing companies before the present orders (were) filled." This was an unacceptable risk because the Ordnance Department could not afford to jeopardize contracts.[280]

The wrestling about to see who would take the lead in these processes combined with genuine attempts to reorganize in response to the new situation fostered competition. Veteran officers lost track as new procedures arose. New officers tried to

[280] Memorandum for Colonel Babbit, August 28, 1917 (received Sept. 15, 1917), Office of the Chief of Ordnance, RG 156, Entry 613, Box 49; Col. O. B. Mitcham, Chairman Purchasing Bureau, Governor's Island, New York Harbor, To Chief of Ordnance, Sept. 26, 1917, Office of the Chief of Ordnance, RG 156, Entry 613, Box 49.

understand a system that demanded legality before responsiveness. Divergent power centers encouraged jockeying for position within the hierarchy. As people realized that just how ineffective the War Department structure was for this volume of operation, they were faced with the difficulty of determining what to change and how to change without too much turmoil.

The competition arose in some ways because even with a council to coordinate purchases with resources and producers, there was no legitimate forum available for airing differences, determining solutions, and linking these factors with larger strategic issues. Strategic decisions were made in France and sent to Washington for action without a determination of their feasibility. If two leaders had disagreements, it was not generally possible for Secretary Baker to take time to negotiate or for the matter to be brought to a general meeting of business representatives, the bureaus, and the staff for adjudication. Even relatively minor differences in vision could lead to the old process bogging down in the new environment.[281]

In their continuing effort to coordinate actions within the War Department, the War College Division cried foul to the Chief of Engineer's attempt to recommend the organization of Engineer troops to the Secretary of War. On July 13, Baker had approved a proposal by Black without referring it to the War College Division first. On the 19th, the War College dutifully submitted the draft of the general order to put the organization in to effect, only to have it returned to them the next day "for study and

[281] It took a month for four bureaus to determine whether antiaircraft units would require special requisitions to receive equipment at the point of embarkation, Various memos, Oct 29 to Nov 30, 1917, Office of the Chief of Ordnance, RG 156, Entry 346, Box 1.

report as to whether the creating of these special troops could be accomplished without further delaying the clothing and equipping of the National Army." In the interim, the War Department received recommendations from the Chief Engineer of the AEF, endorsed by Pershing, for an organization different from that proposed by the Chief of Engineers. The offices in Washington fully supported General Pershing, then attempted to plan how to synchronize the filling of Engineer units with the simultaneous creation of the National Army divisions as quickly as possible. Even with relatively effective negotiations, they acknowledged that this would delay the clothing of the National Army as planned for August 2nd. The Chief of Engineers concurred with this plan but one has to wonder whether the General Staff needed to get involved because all the functions could have been handled by the Adjutant General, Quartermaster General, Chief of Engineers, Chief of Ordnance, and Secretary of War. Meanwhile, as August rolled on, although there was talk of two million men, the General Staff still thought the draft would only bring up one million men. The ad hoc staffing of decisions muddled priorities and stalled significant decisions.[282]

Sharpe was becoming increasingly frustrated as the summer wore on. He repeatedly warned Bliss of the need to decide between meeting Pershing's need and equipping incoming draftees. Apparently his cautions went unheeded. He was aware that the economy was approaching maximum capacity and that something had to give. Seen in light of his ignored warnings, the attacks on Bliss and the General Staff that would occur during the December investigations were not surprising. The lack of a

[282] MEMORANDUM FOR THE CHIEF OF STAFF, August 6, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2600.

responsive way to clear legitimate disagreements broke down the last remaining links in the old system.[283]

A degree of competition between the bureaus through commodity-based organization and market purchases had been the intent of Congress. It kept the military establishment dependent on Congress and the civilian secretary for the authority to act. It spread the wealth of military procurement across the broadest possible area. This decentralization backfired in 1917 as it had in 1898. Even with all its flaws, it is possible that the system could have survived given a disciplined acceptance of it and a diligent application of the existing the staff process. The institutional weaknesses combined with the situational challenges of mass expansion made the organization of the War Department and its supply bureaus unacceptable to many influential leaders by the fall of 1917.

CONCLUSION

In this situation, how effective could one expect the bureaus to be at managing a vast expansion over a short period? This was another "come as you are" war. Although most observers recognized and had announced that the organizational structure was not suited to this kind of mission, there was not sufficient time for introspective assessment and reorganization. There was no realistic, pre-existing war plan upon which to model a program. Even if procurement were the only task, there was not a sufficient stock of reserve supplies to provide breathing room. Under these conditions, the War Department supply bureaus cooperated, tried to coordinate, and

[283] Sharpe, Memorandum to Bliss, Oct. 18, 1917, Office of the Quartermaster General, RG 92,

sometimes competed while barely staying ahead of an ever-increasing volume of work. They purchased supplies and performed their specialized tasks, informally working with one another when practical in order to adapt to the situation at hand and accomplish their missions.

By November 1917, signs of overload in the system abounded. From basic administration to research and development to procurement to maintaining existing items, the backlog and loss of control were becoming increasingly troublesome. There was an Ordnance lieutenant colonel at Fort Meyer who was testing a "smoke bomb outfit." He had requested musket caps to use as an ignition device. After six weeks of fruitless waiting, he found the item at a hardware store and received approval to purchase the caps on the market. A major from the Supply Division sent a message requesting reimbursement to the Gun Division, who was responsible for all arms and munitions. In his message the officer lamented the fact "that the Ordnance Department had fallen down badly in supplying the right kind of caps." The Supply Bureaus would soon find out that the problem was not limited to just the Ordnance Department, and that people much more important than a major would be complaining publicly that the whole establishment had "fallen down."[284]

Entry 1888, Box 4139.

[284] Norton, SUPPLY DIVISION, MEMORANDUM FOR GUN DIVISION, Maj. Thummelton, November 1, 1917, Office of the Chief of Ordnance, RG 156, Box 49, Entry 603.

CHAPTER 6

THE SECOND CRISIS: FALL-WINTER, 1917

In his recollections of the war from 1917-1918, World War II Chief of Staff George C. Marshall recounted some of the pains of the rapidly growing American Army in France. "Men were ordered away almost daily to new assignments with the Services of Supply or General Headquarters throughout the summer and fall of 1917. In November, after the First Division had completed its trench warfare training, every remaining field grade officer (major and above) except for two new regimental commanders left the Division." Marshall, still a captain, and his comrades were left to conduct elaborate staff planning with little practical experience. Few had the natural ability and training of Marshall. All the while the French, eager to see Americans replace the *poilus* in the trenches, oversaw operations and never hesitated to offer advice to the inexperienced Americans. Marshall, too, suffered the effects of the continuing evolution of the AEF: after spending a week arranging for the billeting of the Twenty-Sixth Division, he learned from Pershing's headquarters that the strength of infantry companies had been increased by twenty-five percent forcing him to adjust all his arrangements. As he went to prepare billeting for the Second Division, he learned of yet another change in organization compelling him to alter his plans again. While poor staff work could be the blame, Marshall recognized the difficulties as reasonable

after effects of the hasty deployment of troops to Europe and the growing recognition of the real requirements. As the year went on, now Lieutenant Colonel Marshall and other staff officers continued their efforts to obtain the equipment --trucks, horses, shoes, socks, and even hats—that the men lacked. Marshall knew throughout that the real cause for this game of catch-up stemmed from "the great difficulties under which General Pershing was then operating, and the tremendous pressure which was being exerted to force premature action on his part" to commit American forces to battle before they were ready. Shortages continued throughout 1917 as the forces in France and the United States learned to adapt to a war different from any they had experienced, prepared for, or even imagined they would participate in.[285]

Marshall's challenges mirror the problems at AEF headquarters and in Washington. For the AEF, the difficulties would culminate in the emergencies of March 1918 as the Americans hastily dropped the training originally designed to prepare them for campaigns in 1919 and rallied to counter the German advances made during Ludendorff's desperate Michael Offensives. The moment of truth for the War Department arrived at the end of 1917 when an apparent crisis in the mobilization effort led to investigations and major changes in the War Department's organization for the war. What led to the Winter Crisis and the loss of confidence in the War Department? Although the War Department could count some successes in their struggle with the increasing scale and scope of the American commitment, public leaders demanded visible change because they believed that the supply system was on the verge of

[285] George C. Marshall, *Memoirs of My Services in the World War, 1917-1918* (Boston: Houghton Miflin Company, 1976), 39. Although not published until many years after his death, General

collapse. This perception may not have been true, but it did not matter. If for no other reason than the need to retain public confidence, leaders needed to change. Among the many ironies of the Winter Crisis of 1917 was the fact that the bureaus had made great strides toward building the nation's response to the German threat. These successes mattered little in the investigations and reforms that followed.

This chapter examines events that occurred primarily in the last three months of 1917 to show how the bureaus were adjusting to the continued increase in volume. It remained difficult to adjust forms to new functions and structure to changing strategic needs. By and large, the bureaus continued to cooperate. They evolved systems to better coordinate their actions. Competition continued to dog their efforts, but much remained beyond their control. In the meantime, the staffs in Washington and at the depots adapted. They sought solutions to deal with the rapid un-programmed expansion. Eventually, the challenges and frictions combined to move the President and Secretary Baker to advocate changes to the organization of mobilization that they had been previously unwilling to risk. The friction experienced in the growing of the American military effort of 1917 should be recognized as the norm, not an aberration. The War Department's search for solutions as it responded to the crisis in 1917 varied only in size and speed from those experienced in every American war.

SEEKING SOLUTIONS

As the bureaus continued to seek ways to control the ever-increasing flow of requirements, their form evolved to more closely resemble that of larger corporations.

Marshal penned the manuscript before World War II.

They sought to adapt their organizational system from one designed for financially accountable and economical purchase in support of a small peacetime force to one able to manage operationally efficient high-volume procurement at an accelerated tempo for a large force overseas. To do this, army officers were willing to use the civilian agencies to help them organize producers and suppliers. Individuals were working hard to equip troops. The institutions did not hesitate to adjust their internal organization and processes. They were willing to make some changes in the structures between themselves in order to handle the still growing volume and tempo. Solving problems, the bureaus were adjusting their form to the new functions while trying not to throw out the good with the bad.

The Flood of Information

For the managerial hierarchy of the War Department to monitor and coordinate the work of the units under their control, it had to be able to direct the flow and use of information. Business experts realized this was essential to the coordination of complex widespread activities and the monitoring of the performance of subordinate entities. Before the war, detailed procedures, manifested by red tape and the tight oversight of funds, provided adequate proof that the bureaus were meeting their objectives. The massive increase in the volume of activities and the uncertain conditions of war made it increasing difficult to use such methods to analyze performance and program future requirements. In addition to this difficulty, planners often operated without adequate direction from civilian and military leaders who should have defined the capabilities and the intermediate goals necessary to achieve victory.

The increased variables brought about by the demands of coalition warfare prevented them from providing such guidance to an efficient degree. As a result, not only did the means of directing information have to expand toward an unknown end, but also those managing the process had to develop programs from a constantly shifting set of requirements. The second and third order effects of this confusion were seen in the number of emergency appropriations, the abrupt transformations of the structure of the AEF, and the inability to set a stable standard for equipment.

The bureaus worked to meet the numerous challenges threatening the good communication necessary for effective coordination. The biggest single challenge was the sheer volume. By fall, the various elements of the AEF and their War Department counterparts exchanged hundreds if not thousands of cablegrams daily. The bureaus had initiated efforts to centralize this information almost immediately. The Quartermaster Department had started a Cable Service (later adopted by the whole War Department) to process all cablegrams between the central offices in Washington and the AEF. As the cables arrived, the staff deciphered the coded contents, forwarded them to appropriate parties, and maintained a track on the message to make sure the divisions followed up on the action. The Signal Corps had taken to tracking every requisition, receiving updates by letter and telegram informing the central office of what was still in production, what was being delivered by the manufacturer and what was moving to the port of embarkation. Such measures helped, but there was still too much traffic from France on matters of dubious import such as widening the skirt of the service coat in order to "prevent unsightly gaps." Missed communication could go both

ways: in December 1917, the AEF still did not know that the Quartermaster had ceased handling the transportation and shipping of supplies in July.

Unrestrained interaction by Congress still distracted. Before the war and through most of it, congressmen would routinely contact bureau chief to ask questions, recommend constituents, or give guidance in a clear demonstration of the vital influence the Congress had over the military. However, the practice became increasingly disruptive as members of Congress began to bypass the central War Department offices and contact lower-level bureau officers directly. On Monday December 24, 1917, for example, Representative James McAndrews, a Democrat from Illinois, called an Ordnance Department purchasing officer informing him that the Chicago Automatic Machine Company would have a representative in town to meet him on Wednesday the 26th. Congressmen sent messages with little restraint, sometimes to the wrong office, always risking the disruption of operations because of the immediate attention they required. Plenty of business coordination still occurred verbally, either by phone or face to face. Most of the time an official notice of the exchange followed, but given the volume of contacts, there were breaks. Sometimes offices would correct them in a routine review, but one can imagine the implications when officers did not catch the discrepancies. Personal contacts that had mitigated the effects of the red tape before the war remained useful to facilitating action, but could not substitute for valid coordinating structures and processes.

Finally, in addition to the deluge of cables from France, mail and telegrams from within the United States threatened to submerge the War Department in a sea of letters. Into December, companies bypassed the CND and cooperative committees to

send queries seeking War Department business. People trying to get mail to the troops overseas addressed it to the Adjutant General's Office, deepening even further the backlog of messages and information. The number of pieces of mail received by the Adjutant General's Office increased from 3,036 to 38,570 per day that fall and was expected to increase to 350,000 per day! Given the stresses on the system coming from so many directions, it is a wonder that the bureaus accomplished anything.[286]

The effective flow of information was just the first step, though. Once the message got to the appropriate manager, someone had to analyze the data and recommend actions that would contribute to the effectiveness of the entire operation. Bureau officers needed to understand the overall situation, their capabilities, their requirements, and the priorities of each.[287]

The Americans had not truly realized the import of French Marshal Joffre's plea for men until Pershing and his staff arrived in France to see firsthand just how exhausted the French were from the furnace of Verdun and the failed Nivelle offensives. The French constantly pressed Pershing to get his forces in the fight; the Americans would have to accelerate their deployment if they wanted to win the war.

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[286] Henry G. Sharpe, The Quartermaster Corps in the Year 1917 in the World War (New York: Century, 1921), 285; Office of the Chief Signal Officer to the Chief Signal Officer, August 14, 1917, Office of the Chief Signal Officer, RG 111, Entry 77, Box 1; Quartermaster General to Chief of Staff, October 6, 1917, RG 92, Entry 1888, Box 4139. Sharpe refused to consider the request, citing "the decision of the Secretary of War, contained in a memorandum of May 16, 1917, that he will give up consideration to proposed changes in organization, equipment, uniform, or anything else during the war, which are not of vital importance." Sharpe to Honorable W. E. Cox, December 19, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4139; Representative Juul to Quartermaster General, Office of the Quartermaster General, RG 92, Entry 1888, Box 29; Supply Division, MEMORANDUM TO EQUIPMENT DIVISION, November 11, 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 25; *Army and Navy Journal*, September 8, 1917.

[287] In the business manuals, writers talk about knowing market conditions. When one is discussing the strategic situation at a particular time in a particular one, they are doing essentially the same thing.

The military's "inability to forecast potential requirements" upon which planning depended and was essential to coordinating business arose from the deteriorating European political situation. This instability and turmoil hurt the relations between government and industry. But in reality, could it have been foreseen and prevented? Who would have predicted the Russian's capitulation that November or the loss of over 3.4 million gross tons of Allied shipping to submarines in the first six months of the U.S. war effort?[288]

The request for more troops to be fielded as soon as possible caused a shock wave that directly led to the perception of a crisis as 1917 drew to an end. Pershing's staff demanded new equipment, the General Staff directed maximum support, and the bureaus reacted to the changes on a day-to-day basis. The difficulty in ascertaining the situation extended into the calculations of many factors at the base of building an army. From mid-August and into the fall, the General Staff still sought to determine the exact structure of an infantry division, changing its strength, the size of companies, or the composition of support units as it struggled to determine what was appropriate. Members of the AEF staff constantly tinkered with designs, made minor changes, and demanded that they be implemented immediately. Unfortunately, too many, like the directive to change the design of the coat, had little if anything to do with improvements in effectiveness and were certainly not worth the time or effort devoted to them. Subordinate staffs deferred decisions until the General Staff could provide

[288] Robert D. Cuff, *The War Industries Board: Business-Government Relations during WWI* (Baltimore: Johns Hopkins University Press, 1973), 72; Salter, J. A. *Allied Shipping Control*, (Oxford: Clarendon Press, 1921), 355-359. Accessed at http://www.gwpda.org/naval/stats002.htm in April 2003, "Losses of all classes of vessels in Gross Tonnage." Note that Gross Registered Tonnage (GRT) is a measure of carrying capacity (volume).

guidance. One finds it hard to blame engineer officers for delaying decisions when their counterparts in the Signal Corps had let a contract for 14,0000 phones, only to get a change in specifications from France a few days later. In some offices, if the staff did not move fast enough to implement the change, they risked being accused of not properly supporting the AEF. Pershing's ongoing stream of unforecast requirements kept the entire system off balance throughout 1917.[289]

In October, after digesting the War College memo for an army of one million men, plus the new information from the British and French missions, the Ordnance staff presented General Crozier with an analysis of estimated cost for mobile artillery ammunition. They planned requirements out to September 1, 1918 and factored in an additional 15% for "losses in transit, target practice expenditures, and other contingencies." They forecast expenditures of approximately $1.07 billion, of which there was $390 million on hand at the time or enough to provide ammunition out to February 1, 1918. The assumptions that influenced their analysis included the addition of certain calibers of guns, an initial supply requirement for fifteen days of fire based on the latest French figures, and a deployment overseas in four equal increments -- one each in December 1917, March, June and September 1918. The staff did not intend to increase the supply of four other calibers of artillery because the War Department did not anticipate their use. They had also considered production capacity in their calculations, and were not concerned given the relatively low numbers of new guns

[289] Sharpe, Confidential Memorandum to the Chief Of Staff, December 13, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4139; General Engineer Depot to Chief of Engineers, September 1, 1917, Office of the Chief of Engineers, RG 77, Entry 103, Box 2670; Office of the Chief Signal Officer to the Chief Signal Officer, August 14, 1917, Office of the Chief Signal Officer, RG 111, Entry 77, Box 1.

required. But the General Staff continued to analyze the proportion of artillery required for each division. It was not until December that the Allies agreed to a force of roughly twenty-four divisions, plus corps headquarters and support troops by June 1918. In this case and others, the inability to forecast requirements came not from a lack of planning or from inadequate systems, but from the rapidly worsening strategic situation in 1917. At the end of the year, officers in some divisions of the Ordnance Department still had not seen a "definitive schedule of requirements for materials of different classes" upon which to coordinate and prioritize purchases.[290]

The perilous strategic situation that the United States inherited from its associates in 1917 affected the air program as well. A telegram from French Premier Alexandre Ribot had encouraged the United States to set an ambitious goal to produced over 16,000 planes by June 1918 in order to help the Allies to dominate the air. Although many planners were skeptical, they deferred to the expertise of the industrialists on the CND, who seemed confident of success. There had been a lack of information from Europe before the U.S. declared war because of the great secrecy that the Allied governments retained. When the U.S. proposed its air program, technicians went overseas to learn techniques in aircraft production from European industry. They chose to build designs that were mature, but were by that time arguably less capable types of aircraft. In an manufacturing sector that was experiencing great innovation with almost every product run, fixing on the less effective aircraft only set the effort further behind. Such decision-making contributed to the helter-skelter nature of the

[290] "To Increase the Artillery Ratio," *Army and Navy Journal*, October 20, 1917; Jamieson, Production Division to Dickson, Control Bureau, Jan 26, 1918, Office of the Chief of Ordnance, RG 156,

program that would continue to the end of the war despite re-organization and revamped procedures.[291]

Unforecast external requirements played havoc even when an organization was able to manage its internal information flow. In October, the staff in France had directed the Quartermaster to procure a horse harness with a breast collar instead of the standard collar in use at the time. Officers in Washington saw this new collar as inferior to the one currently in use and had, in any case, ordered 450,000 of the existing harness design. Nevertheless, to support the Army in France, officers had gone out to purchase the new collar. The officers failed to find a contractor because there were no factories that could make the fittings for the collar. After a futile eight weeks of searching, Sharpe sought to convince the Chief of Staff that, even though his officers had managed to craft in their depots one thousand sets that would be ready for shipment in a few days, the overall requirement was unrealistic. The requested change was simply not cost effective. Unfortunately, it took hundreds of wasted man-hours to realize this.[292]

The pre-war methods to maintain the flow of information had been designed to ensure a high degree of accountability and thoroughness. These had largely worked: everyone got the information, everyone who needed to saw the documents and could comment on them, but this had been extremely time consuming taking weeks to review

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Entry 34, Box 1410.

[291] Charles F. O'Connell, "The Failure of the American Aeronautical Production and Procurement Effort during the First World War" (MA thesis, Ohio State University, 1978), 44.

[292] By fall, the Quartermaster could routinely provide replies to queries from the CND for statistical data. Quartermaster Department to Statistics Division, Council of National Defense, September 19, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5881; Sharpe to Chief of Staff, December 13, 1917, RG 92, Entry 1888, Box 4139.

a document or process a request. While regulations had established stringent tactical controls and the bureaus were part of the policy and higher strategic processes, the establishment had not matured to a recognized standard for grand strategy and operational processes. The U.S. was in an interesting intermediate state; information, organization and procedures at the tactical level were well developed. They certainly needed some adjustment to the current war, but a company remained a company and regulations at the unit level changed very little. The methods for determining military policy were a hallmark of the republic merging legislative, executive, and technical centers. While in retrospect, it did not always result in the best policy for a given period; it did keep the system of checks and balances intact. With the coming of this war, however, the military needed to expand its organizational and procedural ability to analyze the environment, identify requirements, set priorities, and manage the flow of information toward the goal.

Efforts at Reorganization

Although General Sharpe had created new branches in the Supply Division in the summer to manage some of the new tasks, the majority of internal reorganization done in the Quartermaster Department was imposed from outside. The bureaus by no means lacked the ability or desire to innovate, but Sharpe had resisted any sweeping overhaul of the process for fear it would bring even greater chaos. Several examples show how he tried to make the existing organization work. The bureau seized the German-owned Hamburg American Lines Terminal and connecting railroad at Hoboken, New Jersey, to use as an embarkation point. Sharpe heard a lecture about

modern storage systems and asked the author to develop a plan for the Quartermaster Corps to solve its problems in the storage of goods. Given the acknowledged shortage of clothing, Sharpe got British firms to prepare some quantities for use by the AEF. He also sought and received the support of an officer of the British Army, a Colonel Puckle, to advise operations at every level. Subsistence officers did an outstanding job of keeping soldiers fed, working with U.S. Food Administration to have local growers sell food at camps across the country. In accordance with plans developed before the war**,** the Cantonment Division (although it began construction in April with barely enough manpower to maintain permanent posts in peacetime) provided housing in six months for 1.5 million men at thirteen different locations – an accomplishment that depended on creating the proper supervisory organization at each individual site. By August, the Louisville depot was producing 90,000 shirts a week by relying on piecework sent out to local women and was seeking to expand further. Where adequate local sources of supply in the lumberyards, construction companies, and farms existed, decentralized execution as practiced by the Cantonment and Subsistence Divisions could be successful. The Quartermaster Department was more willing to change processes than organization, perhaps because they had divisions pulled from them and brought directly under the War Department.[293]

There were two basic quartermaster functions that the War Department centralized under its control in the fall of 1917. During October, the Cantonment Division became the Construction Division, now separate from Quartermaster

[293] D. Brainard, Memorandum to U.S. Food Administration, Dec. 28, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 29; Littell, Memorandum to the Quartermaster General,

Department and under War Department control. In November, the War Department announced the creation of a Warehousing Division designed to monitor the flow of goods for all the bureaus. Depots would report daily their stock on hand and usage to the staff of the division who would record the information on a rotary card system. By tracking this movement, the bureaus would be better able to determine where they could find supplies in an emergency, eliminate mistakes in ordering, and improve the speed of delivery. On December 1, the War Department announced the creation of a Government War Council composed of the CND plus the Shipping Board, Food Administration, Fuel Administration, Secretary of the Treasury McAdoo, and Chairman Willard of the WIB in an attempt to further centralize control of industrial mobilization.[294]

The Signal Corps completed a reorganization of its system in November aimed at harnessing research and development of signal equipment. Chief of Signal George O. Squier established a Science and Research Division in October after establishing Radio and Equipment Divisions from elements of its Engineering Division. The Signal Corps refused voluntary enlistment but used a civilian committee appointed by the Secretary of War to identify candidates for the highly technical work of the branch and directly appointed many members of the National Research Council and Bell Telephone. Squier was not afraid to reorganize and made numerous changes during the course of the war in overall organization of the Signal Corps.

Sep. 7, 1917, RG 92, Entry 1888, Box 8335.

[294] 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), 72; Sharpe, Memorandum to Chief of Staff, Aug. 4 1917, Office of the Quartermaster General, RG 92,

Chief of Ordnance General William Crozier believed that within his department there had been no difficulty in attending to all the functions of different types in a single division and that the old divisions had each embodied a business of sufficient magnitude to include all the principal functions internally. The tremendous expansion in these activities compelled him to change his mind. By November, the Ordnance Department had revamped its divisions along lines of function instead of classes of munitions: the Engineering Division took over all design, a Procurement Division made orders and contracts, the Production Division supervised manufacture, and an Inspection Division handled quality assurance. Each continued to be supervised by Chief of Ordnance and his assistants. Although Crozier accepted the need for the change, he remained skeptical because he found that the functional arrangement created difficulty in assigning responsibility when there was a problem in the system with a particular commodity. Crozier and his officers also added a cost accounting section under a Mr. Lester W. Blyth of Ernst and Ernst to supervise the "cost plus method" of contracting that the government began to use.[295]

General William C. Gorgas and the Medical Department had adjusted their organization early in the war. As the year progressed, they continued to take advantage of the professional kinship that military and civilian doctors shared to flesh out these structures. When he needed to establish an advisory board to help reorganize the Veterinary Corps, he chose the State Veterinarian of Pennsylvania, the deans of the

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Entry 1888, Box 4139; *Army and Navy Journal*, November 3, 1917; *Army and Navy Journal*, December 1, 1917.

[295] The divisions had been Gun, Carriage, Small Arms, Equipment, Personnel, Finance, and Supply. William Crozier, *Ordnance and the World War: A Contribution to the History of American Preparedness* (New York: Charles Scribner's Sons, 1920), 16.

Veterinary Schools of the Ohio State, Penn State, and Cornell Universities, plus the Assistant Chief of the Bureau of Animal Industry. He called upon civilian physicians to enroll as temporary contract surgeons to assist with examining the troops undergoing mobilization. He was ultimately able to capitalize on his existing associations to meet his primary challenge of developing the best organization and finding the most qualified personnel to provide medical care. The acquisition of supplies remained secondary to his purpose and presented only the most minimal of challenges. Controlling venereal disease was more critical and very successful through efforts to equip the forces with medical officers prepared to treat cases. The department had already developed the system of veterans' hospitals to treat the wounded after the war and was helped along by actions such as the acquisition of the "splendidly equipped Columbia University Hospital." Gorgas approved a decentralization of the hospital system to the control of department commanders and upgraded regulations that governed their administration. The integration was so seamless that when the annual meeting of the civilian Clinical Congress of Surgeons met in October, General Gorgas could convene a meeting of the General Medical Board of the Council of National Defense at the same time.[296]

The Engineer Department did not initiate a major reorganization of its structure in the first months of the war. By November 1, it had expanded its existing Washington purchase office staff 1,000 percent from one officer and twenty-one civilians to fifty-two officers and 193 civilians to meet its growing requirements. As far as new

[296] Frederic L. Paxson, *American Democracy and the World War: America at War, 1917-1918* (Boston: Houghton Mifflin, 1939), 209; "Improve Methods, Care of Wounded," *Army and Navy Journal*,

organizations, the Department was busy enough creating the railroad regiments mentioned earlier, wood cutting units, construction units, and fulfilling its functions with the Services of Supply in France while improving rivers, harbors, and coastal fortifications at home.[297]

While the bureaus adapted to the increasing flow, the CND and later the WIB wrestled to develop their own systems. By fall, the CND had essentially unseated the Treasury, Postmaster, and Interior Departments from their position in the oversight and review of contracts. Under the leadership of Bernard Baruch, the WIB sought to consolidate its influence over the mobilization process. The WIB began changing the committee system in September and effectively ended cooperative committees by November. The WIB itself underwent a restructuring in the fall and winter of 1917. The committee on supplies continued to work to rationalize production, counting among its accomplishments the organizing of the mills producing cotton duck by encouraging hundreds of manufacturers who were making carpets and other kinds of cotton textiles to retool their plants. When this increase in demand had created a shortage of yarns, the committee then went down and organized the mills making the yarn. This trend toward a vertical integration was also seen through contacts with wool producers. In fact, the only portions of the process not integrated by December were the coordination of the tailoring of uniforms and the transportation of goods.

Part of that transportation sector had been centralizing it efforts for some time. In 1915, at the request of Secretary of War Lindley Garrison, the American Railway

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September 29, 1917; *Army and Navy Journal* October 6, 1917.

[297] "Work of the Corps of Engineers," *Army and Navy Journal*, November 24, 1917.

Association had created a committee to advise the Secretary of War on troop movements. Around the same time, the Interstate Commerce Commission had been pressing Congress for permission to pool and control freight cars. Yet as the war had approached, there were still 32 railroad systems across the nation and no two were organized alike. In early 1917, the members of the association had established a council to further voluntary cooperation. But before acting, leaders of the council had requested and received assurances from the Attorney General that they would not be prosecuted under the Sherman Antitrust Act. As the end of the year approached, the Railroad War Board still struggled to coordinate railway operations.[298]

While Bernard Baruch and the WIB certainly did contribute to American victory in World War I, theirs was not the only right way. During 1917, the centralization represented by the WIB faced reservations of Congress, concerns from the public, and resistance from regional firms concerned about their interests in the face of large business monopolization of the mobilization base. Some civilian agencies, such as the American Chamber of Congress, actually promoted decentralization by focusing their efforts at the local level with little consideration for the overall program. Popular political tradition opposed the concentration of emergency power in a state agency dominated by businessmen. The kind of cooperative alliance envisioned by Baruch faced resistance form the Attorney General and from Congress.[299]

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[298] Paxson, *America at War*, 22-24; K. Austin Kerr, *American Railroad Politics, 1914-1920: Rates, Wages, and Efficiency* (Pittsburgh: University of Pittsburgh Press, 1968).

[299] Cuff, *War Industries Board*, 68 & 147-155.

Congress had most forcefully expressed it reservations to business centralization of the mobilization process in the Pomerene Amendment (Section 3 of the Lever Act of August 1917). Wealth distribution was being taken out of congressional hands and placed in the hands of the military or business (depending on one's perspective); neither could stand unchallenged. Congress sought limitations on the committee system because they feared conflict of interest and refused to believe that Dollar-a-Year men only accepted their symbolic pay for patriotic reasons. Congress had put responsibility for purchase in the hand of the military departments so they could oversee it and was unwilling to give the CND the same legal authority. By requiring changes to the organization of the cooperative committees as they existed at the time, legislators intended to maintain a separation of public and private economic power much as Congress had desired the purse to remain separate from the sword in military affairs.[300]

There was much debate about the merits of an organization that facilitated centralized control with decentralized execution and what it exactly looked like. For such a balanced system to work, the leader at the top needed to be more like Bernard Baruch: energetic, in command of facts, actively involved, with hands on the reins. Although the leaders of the War Department all deserve respect for their achievements and abilities, not all were comfortable or able to maintain that type of leadership. The various Chiefs of Staff, who were certainly best positioned to centralize operations were sent from Washington on numerous errands that prohibited them from gaining control. Hence Scott was sent off to Russia, Bliss to England and France, and John

[300] Robert Higgs, *Crisis and Leviathan: Critical Episodes in the Growth of American Government* (New York: Oxford University Press, 1987), 112; Cuff, *War Industries Board*, 118.

Biddle played the part of caretaker—willing to watch the shop and handle routine, but not authorized to take decisive action. While this to an extent reflected the opinion of the civilian leadership toward the need for strong control in Washington, it also reflected the dearth of leaders with the rank and experience able to represent the nation on footing equal to their associates overseas. Nor was the true center of the War Department, Secretary Newton D. Baker able to stay and run the show. The bureau chiefs also varied in their abilities and their challenges. One could not have hoped for a more effective Surgeon General than Gorgas. He used his connections with the civilian sector to the utmost, was respected around the country, understood the need for organization and administration from his time in Panama and in hospitals, and was willing (and able because there were enough doctors in the country) to be ruthless in discipline. Of course, he also enjoyed arguably the easiest transition of any of the bureaus because of existing military-civilian connections and available capacity. Sharpe, on the other hand, comes across as the weakest bureau chief. Although capable of farsighted and pragmatic thinking, he had a difficult time staying atop the myriad functions and vast expansion of his agency. However, he also had one of the more difficult transitions and lost initiative almost immediately as agencies and staff were taken from him. If the tenor of his personal correspondence is any indication, he asked subordinates to do tasks rather than directing or ordering, which led to a breakdown in the disciplined adherence to procedures. The absence of strong, committed leadership at the top and mixed ability in the middle only further aggravated the inappropriate organizational form of the mobilization effort.

The effort to organize the air program faced challenges in addition to those faced by the other procurement programs. Aircraft design had not yet developed to a point where the mass production techniques that so revolutionized auto making were effective. The image from World War II of the rows of bombers under production and the famous Willow Run plant were not yet an achievable reality. In 1913, the Chief of Signal had discussed the issue of moving aviation to a separate arm of the military, but ultimately argued that it was not yet ready to be an independent organization since the senior aviator was a captain. As the war approached, the Aviation Section had already been under intense scrutiny for the problems experienced in Mexico and other problems. In 1916, Congress had investigated and censured the senior Signal Corps officers who had led the War Department to recall Squier from Europe to take over the Aviation Section and reorganize it. When he became Chief of Signal, Squier had to take an organization that had almost no experience in procurement and turn it into an agency that could manage the vast and technically complex program of building an air force for the United States. To meet the challenge, he took existing structures and built upon them making sure that civilian and navy interests were included. The Aircraft Production Board (APB) of the National Advisory Committee for Aeronautics (NACA) created in March 1915 already acted as a clearinghouse of inventions for Army and Navy. In May 1917, the services formed the Joint Army and Navy Technical Aircraft Board (consisting of military officers) to standardize design. The CND had approved its creation and Squier used it as a point-of-contact between the War Department and the civilian boards. Eventually, the civilian Aircraft Production Board assumed the procurement duties of the NACA. Squier served on this important board and its

successor, the Aircraft Board which replaced the APB in October 1917. Like the Quartermaster Corps' relation with the Committee on Supplies, whatever contracts the boards recommended, Signal officers generally approved in accordance with the regulation that only duly appointed officers had the legal authority to commit the funds of the War Department.

The greatest similarity, though, between the aircraft program and the others was in the failure to balance capabilities with requirements. The air program had begun under extremely high expectations and had captured the imagination of the people. Leaders of the Signal Corps, General Staff, CND, Congress, and industry set goals well beyond the existing ability of American industry. These goals stemmed from an overly optimistic assessment of the requirements and the capabilities necessary to achieve so much in so little time.

The retardation of American aviation at many levels led to setbacks. The air industry was in extreme disarray because of efforts by Orville and Wilbur Wright to sustain their early lead in the market through litigation. Though they did not hesitate to work with the bureaus to keep purchase regulations current, the General Staff had not pursued any modification of regulations governing aviation between 1914 and July 1917. Until 1910, the General Staff had seen little promise for military aviation, identifying its primary function to gather intelligence. The general disdain for the offensive capabilities of aircraft matched perfectly with overall strategy that continued even after the fighting in Europe began. As information gather by Squier and others began to filter back to the United States, the General Staff and Signal Corps further analyzed and considered the implications of the operational uses of air power.

Nowhere was the prewar lack of funds and clear policy more damaging than the effort to build an air program.[301]

When the money did begin to flow, Congress appropriated quickly for ambitious goals before the Signal Corps even organized for the task which tainted the army's ability to truly do the detailed analysis necessary to formulate a coordinated production program. Those programs that did arise were based upon foreign advice, some research on conditions abroad, and a guess on the total need but not on a thorough examination of capabilities. Although their idea of phasing-in American production was sound, the time available limited the ability of the program to prove itself. The air program ultimately experienced the same delay that other production plans had-- it took time from the decision to fight to chart a course. The shortage of material did not hinder progress; in fact, the United States produced a massive volume of material that supported both the US and Allied aircraft production efforts. Later complaints that the War Department leadership was totally ignorant of the proper course may have stemmed from those seeking to protect Congress and pilots from scrutiny for their early enthusiastic promotion of American potential. Without a mature infrastructure upon which to build, like that enjoyed by truck manufacturers, aviation production faced an uphill battle.[302]

Congress had been just as reluctant to spend on aviation as it had on any other military program, but the effect was doubly detrimental to an industry which was

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[301] Herbert A. Johnson, *Wingless Eagle; U.S. Army Aviation through World War I* (Chapel Hill: University of North Carolina Press, 2001), 141-154.

[302] Johnson, *Wingless Eagle*, 141-154.

evolving so rapidly; not only would there no funds for reserve stocks or production lines, but research lagged as well. Aviation research and development had been so retarded by congressional economy and the state of the industry that there had previously not even been a need for an office in the aviation section to devote itself to procurement. Although Congressional delay in approving appropriations in the summer had prevented the establishment of the Equipment Division of the Aviation Section, there was pressure immediately for results.

The Americans were willing to take advantage of existing Allied capacity. They coordinated to send resources from America to French and British factories which made sense particularly in the French case since their capacity had begun to exceed the pool of personnel available to use the equipment. Like so many others involving procurement, this process proved to be very fluid. The AEF contracted directly with the French in August 1917 for 5,000 planes and 8,000 engines to be delivered from November to June 1918. In December, this contract was reduced by about 75% and completely cancelled in May 1918. A September contract for 3,000 Spads was cancelled in November after AEF advised that no single seat pursuit planes be built because such a plane would soon be obsolete. However by February, a call came to restart production.

The program did not begin to materialize until mid September. By the end of the month, the outline of the program had been drawn and contracts let. However, as with so many other procurement programs, the specification and requirements began to change almost immediately. Frequent alterations to designs hampered the effort to construct an item not easily adaptable to mass production, while the Signal Corps could

not even obtain blueprints for some models from the Allies. Uncertainty about the size of squadrons continued until May 1918. Some producers did not heed the results of the advice of those who had gone to Europe to observe production methods. In a vain effort to try to produce the most state-of-the-art aircraft, they produced none at all. The desire to stress standardization did lead to the immensely successful Liberty engine. As with the military program in general, it proved to take more time to produce equipment than mobilize and train soldiers.[303]

Adjustments in Procedures

As the commitment to the war grew, the bureaus evolved their procedures more than organization. The bureaus' contracting process changed as they interacted with and received advice from the CND's committees, but it did not necessarily get faster. Some would have been happy to match the prewar average of 90 days from initiation of a contract to receipt of goods. While it was no longer necessary for bids to be open, the Army still needed to ensure that the producer could deliver. For many contracts, the factory lost time as it adjusted its production lines to meet military specifications. In the case of wool blend cloth for uniforms, the Committee on Supplies determined the composition of the cloth based on its analysis of requirements and available resources. The Quartermaster General's Office approved the recommendation under the condition that the new cloth met the same standards for durability and color fastness. When a report from the wool committee advised that the percentage of wool in the cloth should be further reduced because the shortage of wool was growing, the Quartermaster's

[303] O'Connell, "Failure," 43.

office accepted this too. Once they received a list from the Council of National Defense with the names of companies, quantities, and the approved prices, the army purchase officer then proceeded to complete the contract. Despite the decrease in the percentage of wool, the cost remained the same because of rising prices. Sharpe believed that without the CND serving as the middleman in this process, he could never have contacted and dealt with all the factories necessary to produce at the volume required. He was, however, disturbed about some of the terms, especially in quality and cost. The two largest purchasing bureaus were not alone in the concerns on the compromises.[304]

The Signal Corps was experiencing contracting problems of its own. The civilian board that supported it was not as proficient as the CND's Committee on Supplies, probably because the aviation industry was not as mature as that of clothing. Converting from one weave of cloth to another was less difficult than changing lines from the manufacture of automobile components to airplane parts. The board gave out some contracts without any apparent analysis of the factories' capability while missing some firms that could have clearly contributed to production. In December, the Signal Corps was still requesting guidance from the Judge Advocate General's office on the legality of contracts beyond appropriations.[305]

The Ordnance Department's prewar commitment to inspecting products for quality assurance and quality control continued into the war. To compensate for the

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[304] United States, Senate, Committee on Military Affairs, *Investigation of War Department, Hearings,* 65th Congress, 1st and 2d session (1917-1918) (Washington, DC: Government Printing Office, 1918), 592-595. Known hereafter as Senate, *Investigation of War Department*.

[305] Office of the Chief Signal Officer to Judge Advocate General, December 17, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 5881.

increased volume, it had been doing business with civilian agencies such as the United States Conditioning and Testing Company of New York City, which was testing the durability of cloth including its rate of shrinkage and it exposure to ultraviolet light. There was active communication and cooperation between Ordnance officers and this company to identify standards for production. The Office of the Chief of Ordnance coordinated with the Quartermaster Department for one of its inspectors to use a tensile strength testing machine in the Bronx and was also working to establish its own laboratory to analyze a number of items. Officers of the bureau were actively recruiting chemists and other scientists for the jobs. This quest for quality was not impractical. On one occasion and after careful review, Ordnance accepted a batch of cloth that was 10% below the accepted tensile strength because it was "most urgently needed," but warned the company that it would not accept "inferior material" in the future. The Department sent officers to inspect a plant to identify any problems with production. As the volume of production mounted to astronomical levels, this practice continued but ultimately not at the risk of failing to provide equipment for the soldiers. The Ordnance Department tested all production batches to ensure uniform quality and fulfillment of the contract's specifications. In the summer and fall of 1917, inspectors still sent daily samples to the Ordnance Department and waited for approval to release the lot. Although this time consuming practice may not have been worth the quality gained once a knowledgeable inspector was on site and the company had proven itself, the government was sending contracts to unfamiliar producers and the inspectors were new officers inexperienced in government specifications. The trade-off was seen as a

necessary evil in an organization that had been conditioned to ensure quality to the minutest detail.[306]

The building of camps, a great cooperative success of civilians and military officers, revealed a core misunderstanding between the two groups and their practices. Those civilians who helped build the camps were "used to running large affairs and getting things done right on the spot." They were ready to go ahead and build the camps themselves, but it was a responsibility mandated by the legislation to the Quartermaster. Many civilians on the projects could simply not understand the reluctance of officers to ignore laws or bend regulations when it appeared necessary to accomplishing the task. An editorialist in the *Army and Navy Journal* summed up why the mindset of regular army officers differed,

> My word! If they had had their pay stopped a few times by an arbitrary decision on some fool law, or been court-martialed for cutting a corner to get things done, they would have realized the situation better. The Army serves the people, yet the Congress, the people's agent, has a way of telling the Army to do something and then treating it with suspicion -- limiting its funds and laying down to the last penny and petty detail just how they shall be expended.

For some, habits acquired while working through the red tape died hard.[307]

Initiative among the decentralized depots and arsenals had been a cornerstone of prewar purchase and helped alleviate some shortages, reduce transportation costs, and find new sources of supply. This same latitude could prove detrimental to efforts to

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[306] Various correspondence, September to October 1917, see especially Lieutenant Lewis to Mr. Sutton, Hope Webbing Co., October 15, 1917 and Conant, Houghton, & Co. Inc. to LT. S Harvey Day, Oct. 27 1917, Office of the Chief of Ordnance, RG 156, Entry 503, Box 24.

[307] "Getting Things Done," *The Army and Navy Journal,* June 2, 1917.

maintain unified control of higher-volume specialty goods that were produced only in certain areas. Arsenals continued to purchase materials independently for manufacture, repair items, and even issue equipment without informing Washington. In an effort to decentralize execution, Sharpe had delegated all clothing procurement to the Philadelphia Depot. The depot quartermaster met there with the CND representatives and agreed to contracts that they forwarded to Washington. Sharpe signed many of these without further review showing a high degree of confidence in his subordinate, but critics perceived this as a perfunctory execution of his duty to safeguard government interests. When trying to coordinate the purchase of wool for coats, the Quartermaster's office in Washington had to beat back a well intentioned but disruptive attempt by the AEF to purchase wool in Spain. At the time that the officers in Europe were communicating their idea directly to the CND, the Quartermaster had already committed funds to order large quantities in the United States. The proposal subsided when the CND declared that the Spanish wool was inferior and should not be purchased.[308]

Guidance from Washington and negative experiences encouraged depot and arsenal commanders to resist centralization under the WIB. The decentralization continued under an addition to paragraph 193 1/2 to Army Regulations dated July 6, 1917, and reported to depots in September. The bureaus would assign certain depots to receive requisitions from geographic departments, divisions, and districts for articles not purchased under centralized bureau contracts that the bureau chief were expected to

[308] Senate, *Investigation of War Department*, 594; Rorty to Dickson, Jan 17, 1918, Office of the Chief of Ordnance, RG 165, Entry 36, Box 1410; Senate, *Investigation of War Department*, 919ff.

furnish without delay. If the depot could not fill the requisition in a reasonable amount of time, the department commander could, "if he thinks the public interests require such action," purchase on the open market "at the lowest obtainable rates." One commander complained about how his staff had concluded negotiations for white pine lumber for packing boxes, only to have the WIB reject the contract because yellow pine was less expensive and just as effective. However, several days after canceling the contract, the officer received a message stating that he could now purchase white pine for boxes if he chose.[309]

Many leaders of the CND wanted the power to discipline industry in order to force it to cooperate and improve the predictability in the system, but many in Congress and in business wanted the opposite. The CND was slowly reconciling the law of supply and demand with administrative control, risking lawsuits for their efforts and encouraging Congressional ire. Too many in the business world were seeking short-term gains over long term capitalization because they did not trust the government to take their risks into considerations. Although some contracts did include the costs of conversion, the rapid termination of contracts following the armistice would confirm their suspicions. In the first six months of the war, the Department of Labor had identified at least 500 strikes or labor stoppages compared to 144 in the same period one year earlier. The WIB was considering legislation that would compel factory owners under contract with the War Department to immediately request that the Secretary of War intercede to adjudicate such matters. Some factories were having

[309] "Decentralization of Administration," *Army and Navy Journal*, September 8, 1917; Frankford Arsenal to Chief, OD, December 26, 1917, Office of the Chief of Ordnance, RG 156, Entry 36,

trouble producing to specifications, the *Army and Navy Journal* reported in September that up to one third of small arms ammunition produced to that point might have defective primers. Problems extended to the productions of relatively simpler items such as wheels, carriages, and other basic equipment.[310]

Because of a lack of system in buying and forwarding of goods from place of origins to ports, the Quartermaster had anticipated trouble if they did not plan. They sent a memorandum to the other bureaus proposing that if the "needs of our forces abroad are ascertainable to a close degree of approximation; the adjustment of supply to those needs ought not to present a task beyond the easy administrative accomplishment provided the matter is gone about in time and in an orderly way… the control of supply must rest in one mind and that mind must be in possession of all the relevant data." The other bureaus saw no difficulty in keeping the Quartermaster General's Office, charged with the duty of furnishing transportation, informed of their particular requirements. Although everyone supported this proposal, reality proved to be much more difficult. As the Ordnance Department continued to standardize its procedures between divisions into November 1917, it pursued its own arrangements for managing transportation.[311]

A number of the developments in purchasing process can be seen in the journals of two officers who worked in the Ordnance Department in the fall and winter

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Box 1410.

[310] "Labor and the War," *Army and Navy Journal*, November 3, 1917; Higgs, *Crisis and Leviathan*, 143-145, identifies 4,450 strikes or stoppages in 1917 overall. Numerous memoranda, Office of the Chief of Ordnance, RG 156, Entry 341, Box 12.

[311] Sharpe to Chief of Staff, July 2, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 8329.

of 1917. Major Paul Moore was a member of the Procurement Division. He purchased parts for artillery shells -- primarily bands, fuse sockets, adapters, and booster casings for eleven different sizes of shell from 37mm to 10 inch. Moore's duties concentrated on this one portion of the entire process for the manufacture of components and assembling artillery shells. Captain C. B. Peters was in the Purchase Section of the Gun Division dealing with gunpowder; his function was highly specialized as well. A review of their records shows that the fixation with red tape was no longer a priority, probably because they were new to the department. Accountability, while still a standard, was secondary to the need to get as many contracts completed as soon as possible.[312]

For all the growth of the organizations and the continued red tape inherent in the process, the personal side of business mattered as they still needed to carefully shepherd contracts from advertisement to award. Agents and representatives of companies regularly visited the offices of War Department purchase officers to make offers, discuss contracts, or make other arrangements. The ability to negotiate face to face was still valuable. On November 22, General Crozier's office received an urgent telegram from one of their contractors, which generated immediate action on a missing contract. A Major Cook asked Captain Peters to give his "personal attention" to the matter. Peters poured over contract records, finding the original procurement order and mailing it to the American Cyanamid Company "in the presence of Mr. Rosecrans, their representative." From November 15, 1917 to January 15, 1918, Major Moore regularly

[312] "War Diary, Procurement Division, 1917-1919," Office of the Chief of Ordnance, RG 156, Entry 580; "Diary of Major Paul Moore," Office of the Chief of Ordnance, RG 156, Entry 581.

interviewed companies in an attempt to encourage their business. He mailed "invitations" to companies to solicit offers to manufacture these components, negotiated the terms, and prepared the "memorandum of order" for the completed contract. He also occasionally increased the quantity or adjusted prices in follow-on discussions with companies.[313]

This was clearly a busy time. It was normal for Moore to conduct eight interviews per day by telephone and complete the paperwork for one or two orders. One also gets the impression that he is "cold calling" companies to confirm their capacity, explain the government's needs, and get a commitment from the company to assist. On occasion, agents representing one or more businesses from a region would meet with Moore in Washington to negotiate contracts. He went to New York City twice in the month of December to discuss terms with suppliers. As if Moore did not have enough to do, he also moved his office on two occasions—once on November 30th from offices on 621 G Street to 1800 Virginia Avenue and again on January 14th to 6th & B Streets, each move costing him at least one day's work. Captain Peters worked just as feverishly with the WIB and industry to walk contracts through the bureaucratic process. He often made personal trips to the offices of members of the board or called companies to adjust terms. Peters was just one of a number of officers whose primary responsibility was tracking the actions and progress of the WIB, pushing the contracts through so they did not get lost in the system like the one from American Cyanamid. In a conflict with a potential producer of picric acid for explosives, one businessman

[313] "War Diary, Procurement Division, 1917-1919," Office of the Chief of Ordnance, RG 156, Entry 580.

claimed that Mr. Summers of the WIB had approved his proposal. Peters called Mr. Summers at the WIB who confirmed that this was not the case and encouraged Peters to handle the matter properly.[314]

In the month from November to December 15th 1917, Moore negotiated contracts with twenty-four different companies and interviewed over 73 businesses. It is interesting to note that the majority of his contacts were with smaller companies; none was among the 200 largest in the country. Most, based on their name, were owner-operated. He ordered from companies with machining capabilities such as the American Tube and Stamping Company of Bridgeport or Connecticut and Toledo Screw Products Company, hardware companies, smelters and refiners, and automobile producers (including Studebaker and Willis Overland**).** Anyone with tool and die machines was a potential customer. During his busiest day in December 1917, he negotiated 16 contracts for $436,425.00 worth of artillery shell components. The next day, December 12th, he completed one contract for $830,000 to make one million adapters and casings for 75mm gas shells and another for $95,000 to produce 2 million booster casings for artillery rounds.[315]

In the past, the bureaus had done local purchasing for common items that might have enjoyed some competition between sources of supply; normally there was little competition or pressure to open the bidding process to a wider pool of applicants.

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[314] In Harvey A. DeWeerd, "Production Lag in the American Ordnance Program" (Ph.D. dissertation, University of Michigan, 1935), the author states that the Ordnance Department had 15,000ft^2 office space in April 1917 but that by December there was 600,000ft^2.

[315] "War Diary, Procurement Division, 1917-1919," Office of the Chief of Ordnance, RG 156, Entry 580.

Those conditions were changing. In response, Moore worked to keep the contracts flexible and uniform. There was room for variation on prices between orders, but these were minimal and usually related to the size of the order. The practice of splitting one order between companies was also new. For example, on December 11, he negotiated a contract for copper bands for 6-inch shell with three companies. The smallest contract was for 70,000 bands at 9 cents each, the next was for 100,000 bands at 8.75 cents each and the largest contract was for 200,000 at 8 cents each. On the same day, however, he also managed to negotiate one order of 10,000 copper bands for 3.8-inch shells at 10 cents each and another for 140,000 at the same rate. The difference appears to be that the initially smaller contract had a clause to increase to 200,000 at the same price if the company could manage it. He did issue at least one "cost plus" contract. Some of the specific limitations of purchase had been lifted, but the basic principle of best quality for lowest price prevailed.

Given the level of demand that fall and winter, the government was seeking business much more actively than it had in the past. Moore left no stone unturned in his effort to find new sources of production. He was considering a "small concern" recommended by another producer, contacting a company with a "small quantity of screw machines" that could be employed to machine the fuses and fuse sockets, and negotiating with one firm to provide 10" cupro nickel for another to manufacture into bands. Moore did not have to use much coercion to get the companies to accept the terms of a contract or take on War Department business, although, amazingly, some businesses still declined bids to produce items. The process of establishing the contract took about one to two weeks from initial contact to the preparing of the formal order.

Before Moore contacted potential producers, he received the amount of an item to be produced and the list of possible companies to contact from the WIB. On at least one occasion, he contacted Colonel Palmer Pierce of the board to get signatures for approval to order 37-mm shells. On December 24th, Moore received drawings from the Design Section for a Mark V adapter. He began to negotiate production on the item three days later with five different companies. The designers wanted an initial run of 10,000 assembled along with booster casings by February 1st. By December 31st, Moore had negotiated an order with Manning, Bowman, & Co. for 225,000 adapters and booster Mark V to include the first 10,000 by the desired date. The order called for the manufacture of all the bushings, boosters, sockets and holders except the first 10,000, which were to be supplied by the government (this was one of the 10% of orders that Moore prepared which provided for the government to provide some supply or component).[316]

In November, Captain Peters was part of a team of officers trying to negotiate a contract for smokeless powder. He met with representatives of Aetna corporation to "discuss various explanations necessary before getting approval" in order to ensure smooth sailing of the contract. After some fine-tuning, it went before the WIB. The process went well until Peters received word that the committee had accepted the contract, but placed a condition on it that any profits in excess of 8% would go back to the government. Peters had not expected this stipulation and immediately contacted the company's representative to alert them. Later the same day, one of the businessmen

[316] "Diary of Major Paul Moore," Office of the Chief of Ordnance, RG 156, Entry 581.

called surprised about the conditions placed on the contract because he had learned earlier that the WIB had concurred with the contract as originally presented. That evening, in another interview, there was a further adjustment to the contract; the cap was not for 8% of profit, but that the minimum price would be set at six cents and the maximum at eight cents per pound. It took almost another month of negotiations between the Ordnance Department, the company representatives, and Mr. Brookings of the WIB to sort out the mess in order to get the contract through on its original terms. It would be another six months before the company could complete the contract.

Under extreme pressure in 1917, the War Department Supply bureaus had been willing to innovate to meet new challenges. Across the War Department, subordinate agencies had made progress in managing the information necessary to balance capabilities with requirements. Bureau leaders were willing to reform their organizations and change their operating procedures, but were unwilling to pursue some sort of revolutionary modifications. Although all the bureaus had sought solutions to their dilemmas, some clearly accomplished more than others. None were successful enough to avert another crisis.

THE WINTER CRISIS OF 1917-18

Throughout the United States' participation in World War I, there was continuous effort to make the mobilization more effective. Nowhere was this more apparent than from April through December 1917 as everyone involved in the process struggled with the challenge. Unfortunately, consensus as to the correct course of action never developed. By the winter of 1917-18, three schools of thought concerning

the proper management of the mobilization process had evolved. Some still wanted the War Department to retain complete control. Baker envisioned a system of civilian boards integrated with the military establishment to supervise mobilization. Others, led by Bernard Baruch and the War Industries Board, believed the process was solely a task for business and not a military job. Baker still sought ways to get the mobilization program on a clear path. His establishment of a War Council to advise the Chief of Staff in coordinating the operations of the AEF and the War Department regarding supplies came too late to make a difference. As the leadership of the nation experimented with how to effectively build an army, the situation continued to deteriorate. It was much like engineers arguing over what to do about the train as it hurtles down the track to a collision. This railroad analogy is appropriate for a major cause of the crisis was the collapse of the railroad system.[317]

The Quartermaster Department's techniques for marking train cars, processing bills of lading, and establishing priority of shipment were great if the others involved in the procuring and shipping goods for the war used them correctly. The risks of decentralization were fully realized as inexperienced depot officers and independent producers made every railcar a high priority or failed to properly identify the cargo. In December, a memo from Sharpe to the depots told them to enforce the standards and threaten the producers if they did not comply with procedures, but it was too late for memos as the situation experienced at Tampa in1898 threatened to repeat itself. Within a network already stressed by the volume of Allied purchases and the continued loss of

[317] Edward M. Coffman, *The Hilt of the Sword: The Career of Peyton C. March* (Madison: University of Wisconsin Press, 1966), 49; Kerr, *American Railroad Politics*, 39-71.

merchant tonnage, inadequate shipping and storage facilities combined with the disjointed flinging of finished goods east led to stacked up shipments, backed up rail lines, and stranded rail cars. This resulted in a shortage of rolling stock, which prohibiting further transportation of goods and supplies. Coal could not be delivered to power the trains, ships, or factories critical to the process. The Quartermaster and the Railway Association could not alleviate the logjam. Despite "strenuous efforts" and a coordinated approach, the system faced a breakdown in the area concentrated east of Chicago and St. Louis and north of the Ohio and Potomac rivers. There would be nearly 145,000 cars sitting at sidings awaiting transport because of the congestion before the situation began to improve. Companies had ordered new locomotives, but had to await delivery because the priority for production went to the Allies. Charles Eisenman, vice president of the Committee on Supplies, saw the problems with distribution as a greater danger than any delay in production.[318]

The War Department's decision to continue to induct soldiers (even though the bureaus had projected an inability to properly equip them) contributed to the crisis. Sharpe had known about the shortage of tents and had warned the General Staff, but the soldiers had been called up anyway because they were needed as soon as possible in France. However necessary to meet the worsening manpower situation in Europe, it was a risk. There remained a belief among the general staff that training would take

[318] Williams, Memorandum to all depot, camp, and purchasing quartermasters, Dec. 10, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 8334; William Gibbs McAdoo, *Statement of Hon. W. G. McAdoo, Director General of Railroads, before the Interstate Commerce Committee of the United States Senate, January 3, 1919* (Washington, DC: United States Railroad Administration, 1919). In the fall of 1916, the transportation network had been almost paralyzed as the effect of Allied purchases began to make itself felt on the railroads. Senate, *Investigation of War Department*, 1108.

longer than equipping, although the French, in particular, were increasingly less concerned about the quality of American troops than they were about the quantity arriving. The Allies would happily assist with the equipping in the theater of operations as long as the bodies arrived. The War Department decided to withhold the details from the public in order to protect morale. The failure to increase available merchant tonnage in these first months only exacerbated the challenge to send troops and equipment overseas.

The worst winter in decades proved to be the catalyst to change. People were freezing to death across the country. Families were raiding coal yards and railroad depots to heat their homes. In the South, soldiers were unprepared for the coldest weather in ten years. Many became ill, in part because all the warm woolen uniforms were in Europe or with units farther north. Thanks to crowded conditions and the incomplete construction of some base hospitals, mumps, influenza, pneumonia, and meningitis stormed through the camps, sickening thousands and killing hundreds. There were reports of parents arriving at camps to visit their son only to find that the young man was dead. While on recess between sessions, congressmen inspecting facilities and camps were dismayed by the unsatisfactory conditions they found. The population learned about these problems through the letters of friends and family or from the press who presented scenes of confusion and ignorance. In addition to this negative publicity, there were accusations that troops in Europe received the lightest winter coats of any Allied army and that the Army had soldiers drilling with sticks because the War Department decided to use inferior European weapons. These reports reminded people of the disasters of the past: the graft of the Civil War and the fiasco of

the Cuban Expedition. It sounded like 1898 all over again. Demands for heads naturally followed and members of Congress had the support they needed to initiate an investigation.

Congress had been debating whether or not to take over management of the war effort since at least July. Many members feared that there was a general atmosphere of mismanagement and extravagance on the part of the administration. Conservatives were opposed to the idea of a planned economy and any socialist influences. As one historian wrote, "The executive agencies hastily improvised to handle the multifold problems presented by the war furnished handy targets for uninterrupted partisan sniping." The overall peaceful cooperation between the Quartermaster General's Office and the Committee on Supplies challenged the influence of Congress in military purchasing. The system had to almost break down before Congress acted because it had wanted no change in the status quo. The Wilson administration was not particularly popular among many legislators, and this crisis provided a perfect opportunity to demonstrate the failures of the government in prosecuting the war.[319]

Congress resumed work on Monday, December 3, 1917. The War Department had presented its estimates for fiscal year 1919 the same day. After President Wilson addressed the body on the 4th, a number of congressional committees made inquiries. However, Senator Chamberlain, the chair of the Military Affairs Committee, initiated the most far-reaching investigation on December 11, 1917. This examination of the mobilization effort revealed all the failings of a system designed with "provisions for

[319] Seward W. Livermore, *Politics is Adjourned: Woodrow Wilson and the War Congress, 1916-1918* (Middleton, CT: Wesleyan University Press, 1966), 39.

checks, cautions, delays, and disagreements but little or no provision for prompt decision and energetic action." Members of the committee interviewed businessmen, bureau chiefs, Army officers, and Baker. They were particularly interested in the testimony of Major Generals Crozier and Sharpe, the chiefs of the two largest purchasing bureaus.[320]

The official objectives for the investigation concerned fiscal matters. Although the complaints and concerns of soldiers' relatives certainly motivated the legislators, there was officially more concern about how the money was spent than whether or not the soldier was adequately equipped. The Committee would "investigate… with particular reference to the manner in which funds appropriated by Congress for ordnance and supplies have been expended." They wanted to know amount, kind, quality, cost, and disposition of equipment procured. Although, the official reason was fiscal, some Senators were concerned about the reports of machine gunners who had never seen a machine gun, riflemen drilling with broomsticks, and the lack of clothing and blankets that was believed to be responsible for the outbreak of pneumonia in the camps. Some suggest that the success that the cooperative committees had in cutting the tensions between business and the military contributed to the call for investigations. In any case, the Senators met on the December 16 and called Crozier first.[321]

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[320] Cuff, *The War Industries Board,* 87; Zimmerman, *Neck of the Bottle,* 77; Senate, *Investigation of War Department.* Although the bureaus had maintained a correspondence with the chairman and some members Senate Military Affairs committee, the Army had primarily been reporting to either the House Appropriations or Military Affairs committees. While there remains some issue as to whether the Senate committee was the best qualified to receive testimony, the attitudes revealed by its members represented the majority of both bodies.

[321] "Exhibit Y," December, 1917, Office of the Quartermaster General, RG 92, Entry 1888, Box 4; Cuff, *The War Industries Board*, 73.

The assembled members took Crozier to task. Although he had testified to Congress before the war on the need for huge quantities of artillery and the difficulty in transitioning to large-scale production, they wondered why he was not moving faster. They refused to accept his explanations. He had presented the bureau's plans for rifle production, the goal of first equipping soldiers headed to Europe, and the existing shortages, yet they were dismayed over reports of soldiers in America drilling with sticks. In this environment, the bureau's cautious study of machine guns came across as a conspiracy against American inventors such as Isaac Lewis, the creator of the most effective machine gun used on the Western Front. Crozier had identified shortages in other items and his intention of using existing Allied manufacturing capacity. He had kept very little from Congress, but from the committee's comments, he was the obstacle. When committee members asked him why he had not spent all the money appropriated, he tried to explain the problems he had programming the funds out over a number of years. His reply, "we were not used to (the amounts)" spoke to the challenge of managing requirements and procurement over the long term. He could not and should not have let contracts to expend the entire appropriation immediately, but almost inverse to his prewar practice of not spending any money on a request that congress failed to fund adequately, he held on to the funds in an attempt to spend responsibly. The veteran chief, with 16 years experience in his post and recently nominated by the president to another term, saw his efforts crumble around him.[322]

[322] "A Mirror to the Nation," *Army and Navy Journal*, December 22, 1917.

The nature of the questioning of Sharpe and its results are most revealing. Members of the Quartermaster Department, particularly Sharpe, had not endeared themselves to the members of Congress. The failure to get the funding requests forward in March had damaged the department's already tarnished reputation. Many remembered the perceived problems of the Spanish-American War. While Sharpe had honored legitimate requests or concerns of members of Congress, he rejected special favors for contractors, camp locations, and the opportunists who sought support for their schemes. At one point, Sharpe explained how he had sought to synchronize the inducting of troops with the accumulation of clothing in order to avoid shortages, but brushing away his explanations, the inquiring senator immediately changed the topic to the issue the quantity of wool in coats. The committee seemed very interested in such minutiae, particularly the composition of the Army's winter coats. Although the amount of wool in Army coats was greater than that in the average American civilian's, the French coat had 1% more. This was not pleasing to those assembled, for it gave the impression that the French were taking better care of their soldiers than Americans took of theirs. Sharpe tried to point out that the American style of coat held advantages but never seemed to convince the panel that the Quartermaster had done the job to the best of its ability. Successes such as the construction program, the supply of the camps, and the innovations in support of the forces overseas were not important. In his testimony, Sharpe never mentioned the prewar failure of Congress to permit appropriations for a stockpile of supplies and how it had contributed to the crisis. Forgotten was the fact that at the end of August, he had cautioned that "the great difficulty in the way of adequate supplies would be in the flannel shirting and winter underwear and that he

thought there would be a shortage of blankets, trousers, and coats." Under increasing pressure, Sharpe blamed General Bliss for interfering with bureau affairs (especially the transfer of the commissioned clerks) and the Supply Committee of the Council for National Defense whom he held responsible for the temporary clothing shortage in October. The stereotype of a bureau chief with friends in Congress is not apparent here; Sharpe received a grilling that ruined him professionally.[323]

What happened to the other bureaus? General Gorgas avoided recrimination by publicly reporting on the conditions of the camps and his recommendations to solve them. He blamed crowding and the failure to quarantine new arrivals until it could be determined that they would not infect the general population. There was some debate between his office and the Quartermaster's over the number of people per tent. The Quartermaster naturally recommended a higher ratio of men per tent to reduce the requirement and save resources; Gorgas demanded there be as few per tent as possible to reduce the spread of germs. The committee neither asked for his testimony nor sought his resignation. However, Gorgas' forthright disclosure was not the sole reason he escaped blame, since Sharpe and Crozier had been making public statements since late summer. But his disclosure was public and he could blame others for the problem. His favorable reputation and expertise in controlling disease saved him from further recrimination. Although Squire and the Signal Corps also survived the investigations of the winter, on May 20, 1918, the government separated air operations from the

[323] Senate, *Investigation of War Department*, 593; "Equipment for the Troops," *Army and Navy Journal*, September 22, 1917; Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917-1919* (Lincoln: University of Nebraska Press, 1966), 90.

Signal Corps and created a separate air service. This new organization retained all the functions of the old Aviation Section except for production which was run exclusively by civilians in the Bureau of Aircraft Production. The Signal Corps and the Aviation Section were given a pass in the winter investigations but thoroughly scrutinized after the war. The Engineer Department was not even considered in the Senate's inquiry.[324]

The Senate Committee was clearly uncomfortable with the new forms of purchase. Those interviewing were always looking for a conflict of interest between the civilians on the cooperative committees and business. They were suspicious of the distinction between recommending a purchase and the actual contract. They did not initially understand how the supply committee only advised on unfinished goods for the Quartermaster Department. Many clearly believed that Sharpe had given up his responsibility to the CND. Members of the committee wanted a clear chain of accountability; they were not pleased with the civilian committees because it was difficult for them to find the one person who had full responsibility for a contract. In the committee's mind, the departure from the stringent contract laws did not retain sufficient accountability. Some in Congress saw the CND as an extralegal body. When pressed, Sharpe spoke favorably of the English model service corps to do the buying. Sharpe understood that he needed to maintain public accountability and that the red tape was an offshoot of efforts to have centralized control with decentralized execution while maintaining public accountability. The method developed in the early months of the war may have been more flexible to meet conditions, but lacked sufficient controls.

[324] Senate, *Investigation of War Department*, 1043-1047.

The nation's elected representatives wanted adequate protection of government fiscal interests despite the crisis. They were seeking a measure of responsiveness and thoroughness at the same time, no matter the volume. Few of the bureaus had developed an administrative structure that could achieve both by the winter of 1917. All had been designed for thoroughness, but the responsiveness necessary to adjust to the increase in volume took time to implement.[325]

The Senators showed great interest in the corresponding roles of the CND and the bureaus in making purchases. As the senators interviewed businessmen, they revealed some of their opinions. Senators had received complaints from smaller business claiming to have been cut out of the process. While it does appear, either incidentally or intentionally, that the CND and bureaus had cut some companies out of the purchase equation, they also succeeded in ensuring quality from scoundrels who otherwise may have succeeded in perpetrating the fraud as had so often occurred in the past. One Senator accused Sharpe of allowing the CND to make contracts without any supervision whatsoever. Sharpe tried to explain himself, but the committee was not listening. He sought to show that the changes in purchasing that he and the committee on supplies had approved actually improved quality and reduced prices. The assembled congressmen seemed unduly fixated with the facts that made America look bad. They could alternate their opinion toward any topic, easily criticizing the inability of the War Department to quickly obtain coats and rifles one moment while just as quickly questioning the reasoning behind using European designs or production capabilities to

[325] Senate, *Investigation of War Department*, 633, 618, 919, 1255, and 615.

fill gaps in requirements. To the satisfaction of no one, the bureaus had tried to balance their responsibilities under the law with the practical, but often extralegal, solutions proposed by the CND. Ironically, the bureaus would have invited censure sooner if they had done everything the cooperative committees had told them to do.[326]

In 1917, Congress was trying to determine both the real costs and the actual use of the money they had appropriated. They were concerned about the obedience to laws, not military policy itself. They wanted to retain the control by those civilians and military to whom they had given the authority. As they had balked at the idea of a strong General Staff that could conceal expenditures underneath an additional layer of administration, they opposed losing their influence in government business to an additional layer of civilians appointed by the executive branch. They wanted a military program still subordinate to them that best provided for a continued separation of the purse from the sword.

Although the committee continued to meet into March 1918, it only took a few weeks after the beginning of the investigation for President Wilson and Secretary of War Baker to take the steps they had so long avoided. This time the solution required sweeping changes, some in opposition to their philosophies of government. They quickly initiated a series of moves which, although without any immediate effect, did establish important precedents for the conduct of war by the United States in the industrial age. Generals Crozier and Sharpe were kicked upstairs to the War Council. While Baker looked for replacements, the president sought ways to centralize the

[326] Senate, *Investigation of War Department*, 517; 593; 1150-1185.

industrial mobilization effort. He approved of a plan for the Federal government to take control of the railroads and began to explore ways to compromise with Congress on the best structure to manage military mobilization. The reorganization that arose centered on separating the functions of production from other logistical and administrative tasks such as personnel management. While the Winter Crisis did bring about some needed changes in attitude and organization, smooth sailing did not immediately follow. Baker spent much of his time the next few months defending the War Department before Congress. The passage of the Overman Act in May 1918 cemented the legitimacy of civilians getting involved in military procurement.[327]

As the American role in the war grew, the method of coordination that would best allow the War Department (now a major source of wealth distribution in the country) to apportion to those worthy had moved out of the control of Congress and into the hands of the businessmen on the committees. Before the war, members of Congress could write a letter of recommendation for a producer and receive a response signed by the chief of the bureau. They could read about the treatment of individual patients at military hospitals in the report from the Surgeon General. They could review each contract let by a particular arsenal. Basically, they had been able to influence not only the size of the purse but they also influenced who would forge the sword. The bidding system and the open reports to Congress had kept everything above board and democratic. Critics may have blamed the War Department for leaving purchase power in the hands of the bureau chiefs, but Congress had demonstrated

[327] Coffman, *War to End All Wars*, 160; Kerr, *American Railroad Politics*, 39-72.

resistance to most other viable alternatives. They had opposed a stronger general staff able to coordinate the entire military program and did not favor business leaders taking charge. Congress had wanted a system that it could supervise. When such organizations and procedures proved inappropriate for the scale of expansion, Congress turned the tables and held the system they had designed responsible for failure.[328]

CONCLUSION

The Ordnance, Quartermaster, and Signal found themselves in a difficult position. Congress was displeased with both the shortages and the measures taken to alleviate them. Somehow, these elected representatives could accuse the bureaus of sloth when uniformed officers adhered to existing regulations at the expense of swift purchase and later declare that an officer was overstepping their authority when they did not follow the letter of the law. The bureaus had been willing to modify their organization and procedures to meet the rising wave of requirements, but this counted for nothing; only the immediate results mattered. When former Secretary of War Lindley Garrison had predicted several months of complete economic disruption if the United States had to fight a war against a European power, few believed the country would fight such a war. When Crozier had illustrated the difficulties that would accompany the re-tooling of factories to war production, most doubted such a capacity would be necessary. When Sharpe had practically begged for the funds to equip a reserve of 500,000 men, no one wanted to spend the money. The collective civilian leadership had been unable to muster the support for preparations for war in time of

[328] Higgs, *Crisis and Leviathan*, 112.

peace. After the country had declared war, the increasing strategic need to get U.S. forces overseas as soon as possible created friction between the strategy and the structure of the military establishment. Although cooperation had continued and the bureaus were learning to coordinate, the effects of competition and volume built up like static electricity only to be discharged when Congress touched the situation. The tensions between the bureaus, Congress, and civilian agencies illustrate the growing pains of a managerial system responding to a drastic change in function.

In 1917, people endeavored to adapt the existing structures to the emerging strategic reality. Business struggled through different permutations of the cooperative committees until the War Industries Board finally rose to the top. The military toiled to manage an unprecedented volume of information, divided leadership, and changing requirements. Congress labored to fulfil its constitutional obligation to provide for the common defense by wisely funding programs and keeping the reins of the military firmly in civilian hands of their choosing. Individuals worked to coordinate their operations with others. Leaders of programs such as aviation grappled with ambitious goals and huge requirements to squeeze results from an industry with low potential capacity. George Marshall successfully managed his portion of the massive increases in the volume of requirements in 1917. His counterparts in Washington had sought to do the same, but failed to retain the confidence of those who held power.

CONCLUSION

FLOODED OR FALLEN?

On January 24, 1918, Senator Chamberlain spoke uninterrupted, except for applause, for over three hours. He had recommended legislation to establish a "War Cabinet" to take over the management of the military program. Finally, he concluded his remarks with a word of thanks to those assembled. A fellow Democrat and member of the Military Affairs Committee, Senator William F. Kirby of Arkansas, now rose to speak. He believed someone needed to respond to these allegations. After reviewing the Oregonian's remarks, he countered:

> (Senator Chamberlain) has challenged the military establishment of the United States, and charged that it has broken down, that it is inefficient, and that it can not cope with conditions. I challenge the statement of it all. The investigation ... does not warrant much of the stuff that has been said here today...

Senator Kirby attributed the problems to individual mistakes and not programs. He pointed out that the military establishment had called on expert advice and assistance, not because they were broken, but because they wanted to be as effective as they could. He reminded those present that this partnership of military and civilian specialists had increased the supply of manufactured products and clothed a great army in eight months. He questioned whether that truly revealed inefficiency. He commented on the unusual severity of the weather and how inappropriate it would have been to begin

preparations sooner: "no man would have expected it, no man would have justified it, and no man would have excused it (before the declaration of war) if money had been expended along that line." Kirby stated that efficiency had been demonstrated in the thirty fold increase in tent production, in the wisdom of purchasing already available weapons from other countries, and in the fact that no soldier in France wanted for food or clothing. He did not hesitate to point out some of the mistakes that members of the War Department had made, but minimized this and other accusations as aberrations not indicative of the general effectiveness of the program. He closed by emphasizing that the War Department, with the committees from the CND, had already fixed most of the problems that Chamberlain cited and said: "(t)hat is all that could (have been) done if you had the law that is proposed by the Senator from Oregon." After Kirby completed his remarks, the bill introduced by Chamberlain was referred to committee and formal debate in the chamber ceased. The congressional investigations, public speeches, shake up of the War Department, and proposal for legislation were by no means the close to the search for the best way to manage the war effort, nor was it the end of the flood.[329]

AFTER THE FALL

Following the debacle of December, the War Industries Board (WIB), originally a subcommittee of the Council for National Defense, rose to a position of prominence in the mobilization and procurement effort. Its main voice, Bernard Baruch, had been pushing for centralization of purchases and resources since his arrival in Washington.

[329] *Congressional Record*, 65th Cong., 1st sess., 1918, 56, pt. 12: 1209-1211.

The situation in the War Department bothered him and the other members of the board as much for its inefficiency as for the fact that they thought they could do it better. Baker's reform attempts demoralized the WIB because the board felt that the problems demanded more radical solutions and that they were best qualified to implement them. In any case, the WIB, under authority granted by the president through the Overman Act, became the central coordinating agency for resources, production, and delivery of military supplies. Its members had one thing all the other committees lacked until this time, authority. They worked directly for the President and could coerce the Navy Department, the War Department, and other government agencies to cooperate with them.[330]

Within the War Department, a significant step towards centralization came with the appointment of Major General George Goethals, the officer who had led the construction of the Panama Canal and recently resigned from the Emergency Fleet Corporation, to head a new agency charged with coordinating procurement and distribution of military supplies. As a precondition for accepting the position, Goethals demanded and received authority to manage the program that Sharpe and Crozier never had. He initiated a number of reorganizations to solve the supply dilemma, mainly separating procurement from distribution. Goethals sought to accumulate power through a system of centralized control and decentralized operations that allowed the bureaus to concern themselves more with the distribution of supplies and their special

[330] For the story of the WIB see Cuff, *War Industries Board.* The Overman Act increased the president's power as long as the "war emergency" continued. Through it he received the authority to reorganize, establish, or abolish government agencies as he saw fit without having to petition Congress for approval. Judge Advocate General Enoch Crowder drafted the measure and Senator Lee S. Overman of North Carolina sponsored it in Congress.

services at the operational level. He never became a bureau chief, but rather served as a key member of the General Staff under General Peyton C. March. In contentious coordination with the WIB, Goethal's Purchase, Storage, and Traffic Branch, subordinate to the Chief of Staff, conducted the centralized purchase of like commodities regardless of who used them.[331]

The final step favorable for the integration of the military into the war economy came when March became Chief of Staff at the end of February 1918. He was the fourth Chief of Staff in just 11 months, but the first one with the forceful personality needed to lead the troubled organization. Until March assumed his duties, Baker and Wilson had never really used the Chief of Staff to coordinate the War Department. They had seen Scott and Bliss more as advisors and emissaries, sending them on missions overseas while the staffs in Washington drifted. Biddle had been content to just "mind the shop." Under March's tenure, the General Staff expanded from less than 100 to over 1,000 officers to keep a hand on all the diverse operations. He was an energetic and effective administrator who was able to clear up the confusion among the members of the General Staff and the supply bureaus. If the administration was aware of the need for a strong Chief of Staff, they could not have picked a more appropriate officer.[332]

Despite President Wilson's support, the military was still suspicious of the WIB's motives and cooperated with reservations, concerned that these businessmen did not have the best interests of the services at heart. Baruch and his cohorts sought to

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[331] Goethal's service in 1918 is detailed in Zimmerman, *Neck of the Bottle.*
[332] See Coffman, *Hilt of the Sword.*

redefine the relationship between business and government in the emerging corporate system in order to obtain coordination and management of wartime economy without the coercion of the state. The President had to nationalize the railroads to untie the knots in the system, even though the railroad companies contained some of the most experienced administrators of the day. Secretary Baker survived the crisis, brilliantly defending the War Department against its accusers, and preserving the initiative for supply within the military establishment. March was forced to clean house in the General Staff and to defend his authority until the end of the war.

Goethals' reorganizations brought about much of the confusion and problems that Sharpe had feared. His efforts led to infighting and conflict as people with different visions of the proper structure clashed. The move toward an organizational system more in line with the largest corporations of the day did not prevent further shortages, emergencies, or dilemmas. There were very few new changes in procedures or regulations. In the summer of 1918 another supply crisis arose when Pershing asked for even more troops: goods remained stacked at ports and the clothing contained even less wool than in 1917. The arrival of the Armistice in November minimized the impact of these problems, but created a whole new set of challenges as the government haphazardly shut down its war program and initiated a "reconversion" of industry back to peacetime production.[333]

[333] Robert D. Cuff, "Business and the State in WWI: The American Experience," in *War and Society in North America,* eds. J.L. Granatstein and R.D. Cuff (Toronto: Thomas Nelson and Sons, 1971), 18-19; Zimmerman, *Neck of the Bottle,* 114-135; Paxton, *American Democracy at War*, 352.

The efforts of Goethals and March to create a War Department structure with a strong General Staff administering activities continued past the Armistice. With the victory in Europe, came investigations and reviews of the nation's policies during the war. In hearings throughout 1919 and into 1920, Congress sought to sort out what had happened, digest the lessons, and apply them to a statement of future military policy. They passed a new National Defense Act on June 4, 1920.

The focus of this act was on manpower mobilization and the relation of forces to the federal government. The need for reserve supplies was no longer an issue thanks to a healthy surplus of items. Most discussions of economic mobilization emphasized organization. Congress favored a structure that returned to peacetime forms with an acknowledgement of the need for industrial planning. They were, as in 1916, more concerned with economy than with solidifying the initiatives of March and Goethals. They heard the advice of all the parties and returned to an organization that looked much the way it had in early 1917. The significant difference was that the Assistant Secretary of War's office would supervise the procurement of all army supplies and ensure that wartime needs were synchronized with national production capacity. The General Staff was reduced to less than 100 officers and limited to planning. Congress had again prevented the executive branch and a military staff from gaining too much control of the "purse" of the army. They were no more willing than they had been in 1916 to expend large sums of money in peacetime to prepare for war.[334]

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[334] John Dickinson, *The Building of an Army* (New York: The Century Company, 1922), 310-322; Millett and Maslowski, *Common Defense,* 385-386; Frank A Scott, *Our Problem of Munitionment* (Washington, DC: Army Ordnance Association, 1928).

Even with the shakeup of leadership in 1917, the immense work of procurement continued to challenge the military. Newly created and empowered agencies battled for initiative around the bureaus, which tried to make sense of the massive economic machine and the frequent changes made to deal with it. Congress had recognized the deficiencies of the system and gave the executive branch the opportunity to fix it during the war. With the cessation of hostilities, Congress quickly re-established its dominance in military affairs and sought to return as much as possible to the status quo. As the dust settled, victors of the organizational battle touted their solutions as the best way for the future.[335]

FLOODED, NOT FALLEN

In the introduction to this dissertation, I asked a number of questions that sought to get at the real reason why the bureaus had not been able to integrate successfully with others in order to effectively combine manpower and industry to prosecute the American war against Germany. My answer still stands. The bureaus started the war with a managerial system designed for financially accountable and economical purchase in support of a small peacetime army when they actually needed a system similar to the bigger corporations of the time: the ability to conduct operationally efficient high volume procurement at an accelerated tempo for a large force over vast distances. More simply put, the existing bureau form was incompatible with its evolving wartime function. The Army was simply unprepared for the major change in

[335] See Bernard M. Baruch, *American Industry in the War; A Report of the War Industries Board* (New York: Prentice Hall, 1941), Grosvenor B. Clarkson, *Industrial America in the World War: The Strategy Behind the Lines, 1917-1918*, (Boston: Houghton Mifflin, 1923), and Benedict Crowell and Robert F. Wilson, *How America Went to War*. 6 vols. (New Haven, CT: Yale University Press, 1921).

American national security strategy that occurred in 1917. The move from a strategy of continental defense to the deployment of millions across the ocean to fight in France placed more pressure on the organizational structure of the military establishment than it could bear. As in 1898, there was too great a disparity between war aims and existing military capability. The unprecedented and unanticipated increase in both the scale and scope of requirements from France flooded the bureau system and threatened to overwhelm the war effort. The story of 1917 is one of an administrative system striving to adapt to rapid growth.

Before the war, the bureaus were viable institutions. They contained experts in their field dedicated to providing for the Army who had worked diligently to equip a rapidly expanding force in 1898. After the War with Spain, bureaus officers pursued reform as much as they could, as they were constrained by Congressional conservatism. Although their results were not ideal, the organization of the bureaus and the procedures they followed in the years before 1917 adequately fulfilled the functions assigned them by the political leadership of the United States. Congress, with War Department advice, had examined the ends, ways, and means available to determine that, even in the most dangerous case, the existing purchase system promised to supply the army adequately while maintaining economy and oversight. The system was suitable for a routine, low-volume, heavily scrutinized public purchase agency that supported the smallest army of any Great Power. The divided purchase agencies and red tape furnished means to guarantee accountability, civilian supervision, and thrift. The bureau system certainly did not utilize all the methods common to the high-volume, high-speed, expert-led production of the largest enterprises at the time, nor did

it need to. Those responsible for determining national security strategy and foreign policy objectives saw no need to fundamentally modify the system despite a war in Europe. The structure and processes of pre-war military purchase helped control expenditures, maintain economy and allow oversight while still providing for an adequate land defense of the United States.

In 1917, American plans changed from the mobile defense of U.S. coasts and territories to raising vast armies for a war of attrition. Within the span of eight months, the bureaus went from the equivalent of a small company to become the largest enterprise in the United States. To respond to the change, bureau leaders analyzed events in Europe and decided to utilize the existing forms and structures to manage new functions and strategies. Because it initially appeared that many of the pre-war assumptions about the operating tempo and size of the army would remain valid, it seemed this moderate approach would succeed. But as the realization of the depth and breadth of the commitment to the Allied coalition clarified, the stresses on the existing system increased. Bureau leaders had to apply their understanding of the need to coordinate activities, manage raw material, prioritize transport, and produce high-quality equipment to a new set of conditions. The Medical and Engineer Departments found they could quickly adjust. The Quartermaster, Ordnance and Signal were sprinting from the start just to regain lost ground. Accustomed to synchronizing actions informally, the bureaus had preferred cooperation, but as complexity increased, effective coordination required more centralized control. While the Ordnance and Medical bureaus achieved a greater degree of control internally, it was not enough to mitigate the natural competition occurring at the national level. In the absence of a

workable coordinating structure, the War Department, in particular the Quartermaster Bureau, struggled internally to prepare forces even as it met external challenges to its constitutionally mandated control of mobilization. There was competition, but it stemmed more from an increasingly inexperienced administrative force dealing with unparalleled challenges of volume than from deliberate acts of jealous generals. Despite more than a few failures, the bureaus made progress in many areas: they found sources of supply, brought in thousands of new personnel, and adjusted their internal systems. But it was not enough, especially for the Quartermaster and Ordnance Departments. The growth in the volume of requirements taxed the system to its limit. Overall bureau performance reveals the incompatibility of an existing system with a new mission rather than some conspiracy, general incompetence, or internal power struggle.

The evidence and analysis contribute to the historiography in several ways. This story adds an important facet to the discussion of American political economy. It cautions against seeing business progressivism as the sole solution but shows a valid link between business principles of form, function, strategy, and structure. Finally, it illuminates another chapter of the ongoing tension present in the history of American military policy.

From my reading, historians in general have done an outstanding job examining the political economy of America, but have missed the very real affect of Congressional policies, military strategy, and war. Many have underestimated the role of Congress. This diverse and complex body had great authority over the military and how it affected the economy. Scholars should devote more to understanding the complex influences of Congress on military policy. The Congressional investigation in December showed that

elected representatives of the country still wanted an active play in defense matters. When the government had changed its military strategy from defending the continental United States to sending troops overseas, the impact on the economy was immense, especially since prior to 1940 the small peacetime army had almost no economic impact. The increasing influence of the military on the country came from the decision for war by the president and his administration. Once that occurred, the government lost an element of control over the program, not so much from interest groups inside the country, but to enemy action and Allied requirements. The United States got more than it bargained for when it declared war on Germany in 1917: it faced an enemy that was far from beaten and faced it with allies who were close to defeat. The amorphous and unpredictable nature of war proved to be the greatest influence on American political economy, not only in 1917, but also for the entire period of the war.

Most business historians who have studied the procurement effort during the First World War have acknowledged how strategy changed the system, but suggest that the business progressives had the only right answer to the problem. They fail to recognize that the inappropriate application of business models on military affairs can cause more harm than good as President Eisenhower warned in his farewell address and Robert McNamara proved in his attempt to apply systems analysis to the Vietnam War. Businessmen, despite their apparent success, had taken a large measure of control in military affairs out of the hands of the constitutionally mandated authorities. Congress and duly appointed people operating under regulations were supposed to direct the public undertaking of national security, not semi-autonomous "dollar-a-year" men. It

would not be until after World War II that Congress found a way to at retain public control by expanding the civilian bureaucracy through the Department of Defense.[336]

Furthermore, those who wrote off the bureaus as antiquated and suggested that corporate methods would have been the best before, during, and after the war miss a key point. The analytical links that bind form and function with strategy and structure to understand managerial systems must be adapted carefully to a military context. War is different than market capitalism; the visible hand of managerial systems has a harder time succeeding in a dynamic that includes enemies actively seeking your destruction. The public sphere has limits that the private does not; accountability is paramount and economy is often more important than effectiveness. The managerial systems employed by large businesses like Sears or Armor would simply not have been appropriate for the Army nor accepted by public representatives before the war. Until the stresses of mobilization necessitated the change, the army was a small business and the supply bureaus suited the needs of those who controlled the business, namely the President and Congress. While the bureaus certainly tried to innovate in 1917, they had to do it in a public-government context; they were not as free to hire, fire, or reorganize as the manager of the department in a private company would have been. Trying to balance the legal with the practical, they pleased no one. The response Congress shows what could happen when the visible hand of managerial controls tried to replace a public system of checks and balances.

[336] See the introduction, page 11 this dissertation, for a discussion of the prevailing view of business historians concerning the mobilization effort of 1917.

While one can never forget the challenges unique to each sphere, managerial systems continue to offer much to military organizations and business. A principle common to the two rests on the need to balance capabilities with requirements. The sound appreciation of capabilities considers resource availability, production capacity (transportation, labor, plant), market forces, and existing organization in order to realistically assess the ability to meet requirements. These demands all stem from strategy, which analyzes objectives, the enemy, allies, distances, size and composition of force (equipment/ organization/ manpower). After balancing capabilities and requirements, one should strive for a system that finds a workable equilibrium between centralized control and decentralized execution. This will vary in relation to the function, strategy, scale and scope of an undertaking. Form and structure should follow from this desire for balance to allow for effective operations. Peacetime military planning can only count for so much in this equation, for not only must it anticipate the actions of myriad potential threats, but it must also pursue the analysis uncertain of the influence of domestic political forces. In the American experience, the changes necessary to attain a structure to match the most dangerous threat are often not worth the fiscal or political risk. Just as a company cannot be prepared for every economic contingency, neither could the War Department arrange itself to be successful in both peacetime and wartime operations. The nation had sought to match its system with its strategic needs in the passage of the National Defense Act of 1916, but fell short.

By orienting the causes of the crisis away from ignorance and toward the tension that has always existed in America over the resourcing and control of national defense, one can better understand the real challenges facing the army in 1917. The

efficiency of the American military establishment has ultimately been determined for it by civilian officials, a practice that has been undeniably beneficial to the country. Even when its economic influence had increased, the military rarely enjoyed the degree of autonomy many attribute to it. Given this truth, those who determine the organization and processes followed by military administration must consider the intended functions and desired strategic goal. The ideal should be a system that is a small and inexpensive in peacetime, but able to expand rapidly to meet the rigors of war. The bureaus' form did match its function before the war started in 1917, but the administrative structure became increasingly less compatible as the strategic commitment increased. In many ways the procurement program proved to be quite adaptable as it managed to work through the often hectic rate of changes sought by the AEF, yet it did not perform well enough to retain public confidence. The real challenge was maintaining the balance between strategic and domestic needs. Congress and the military thought they had it right, but in this case, the enemy and allies almost derailed the process. Unfortunately, in 1917, no one had yet discovered a way to harmonize peacetime goals for maximum economy with the level of efficiency necessary for rapid mobilization. The fact that the system ultimately needed only minor adjustment as it expanded speaks well of the flexibility and strength of an American military system that has over time, managed to respond to threats.

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