

THE EFFECTIVENESS OF THE ARMY AND NAVY
MUNITIONS BOARD DURING THE
INTERWAR PERIOD

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ABSTRACT

THE EFFECTIVENESS OF THE ARMY AND NAVY MUNITIONS BOARD IN THE INTERWAR PERIOD, by MAJ John W. Maenhardt, 135 pages.

In spite of a late entry into World War I, the United States found itself unprepared to adequately equip its expeditionary forces for combat operations in Europe. After the War, Congress passed the National Defense Act of 1920, which tasked the Assistant Secretary of War with establishing a unified procurement program for the services and preparing the country for industrial mobilization in the event of another national conflict. Two years later the Army and Navy Munitions Board (ANMB) was established with the task of providing a unified procurement program for both services. Throughout the interwar period the ANMB focused on preparing the nation for industrial mobilization, which was seen as one of the keys to success on the modern battlefield. The ANMB was instrumental to the development of the industrial mobilization plan, which outlined the total mobilization of the country towards wartime production. The ANMB created these plans with little support from the services or political administrations and in a climate when public sentiment was against U.S. involvement in another European war. When the U.S. did commit itself to the Allied cause in World War II, the industrial mobilization plan was not implemented and the ANMB was marginalized as an organization. However, this is not to say that the ANMB failed in its task. Though the industrial mobilization plan was not implemented, many aspects of the plan were put into operation throughout the war. The planning process served to address many aspects of industrial mobilization that were never even considered before, such as military control of the economy and distribution of resources. Throughout the war the ANMB established itself as a liaison between the services and private industry. The ANMB worked with several other mobilization organizations, including the War Production Board on the allocation of resources and factory development. Though the ANMB did not achieve the mission for which it was created, it did serve to prepare the U.S. for entry into World War II.

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ACRONYMS

AEF	American Expeditionary Force
ANMB	Army and Navy Munitions Board
CMP	Controlled Materials Plan
FDR	President Franklin D. Roosevelt
NDAC	National Defense Advisory Committee
OWM	Office of War Mobilization
U.K.	United Kingdom
U.S.	United States
WPB	War Production Board

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CHAPTER 1

THE ARMY AND NAVY MUNITIONS BOARD

Introduction

Her brilliant, if pitiless, war industry had entered the service of patriotism and had not failed it. Under the compulsion of military necessity a ruthless autocracy was at work and rightly, even in this land at the portals of which the Status of Liberty flashes its blinding light across the seas. *They understood war.*¹

Throughout the interwar period, the United States (U.S) possessed one of the most powerful industrial bases in the world. The ability to mobilize that industrial base for the production of war materials was an essential factor in securing victory in both the First and Second World Wars, not only for the U.S., but also for the Allied cause. Despite its massive industrial base, the U.S. found itself unprepared to properly equip its own military in World War I and had to purchase weapons and ammunition for its Expeditionary Force from the United Kingdom (U.K.) and France.² The expected response to this situation is that the U.S. government and military would take steps to ensure that such a shortfall would not occur in the future. However, U.S. mobilization for World War II was delayed by some of the same factors that hampered national mobilization in World War I.

The various authors that have studied this subject present a range of assessments regarding the industrial preparedness and mobilization of the U.S. in response to World War II. In his book, *Mobilizing U.S. Industry in World War II: Myth and Reality* (1996), Alan Gropman asserts “the mobilization could have been more efficient and America could have produced more munitions more quickly and perhaps have ended the war sooner.”³ V. R. Cardozier presents a more optimistic view in his book, *The Mobilization*

of the United States in World War II: How the Government, Military and Industry Prepared for War (1995) when he states “although the United States was definitely underprepared for war in December 1941, it was not altogether unprepared.”⁴ Thomas Hone also views the industrial mobilization of the U.S. more positively in his paper, “Fighting on Our Own Ground: The War of Production, 1920-1942,” when he states “the source of American economic victory in World War II can be traced back to 1920, and to the efforts of the Army and Navy after 1920 to prepare for the next industrial war.”⁵ The Army Navy Munitions Board (ANMB) was one of the organizations established after World War I to prepare the nation for involvement in a future war. Unfortunately, the ANMB would be dogged by friction between the various administrations, the services, and a lack of authority and support. These issues would seriously degrade its effectiveness, resulting in a recurrence of the mobilizations issues from World War I.

The U.S. did take very specific steps after World War I to ensure that industrial mobilization in support of the armed forces would proceed as a seamless transition. At the start of the war, the U.S. was unable to properly prepare the American Expeditionary Force (AEF) for combat operations in Europe due to a lack of equipment and ammunition.⁶ Though the U.S. initially failed to equip the AEF, the government went through a rapid period of trial and error regarding industrial mobilization, creating a number of munitions and production boards to provide immediate solutions.⁷ At the close of World War I, the U.S. Congress instituted a review of the issues surrounding national industrial mobilization. Congress quickly determined that the National Defense Act of 1916 was inadequate to support the mobilization of the military and needed to be revised.⁸ Congress found that upon its entry into World War I, the American war reserves

of equipment were almost non-existent and the entire procurement process lacked structure and oversight. Ralph Smith points out in his book, *The War Department: The Army and Economic Mobilization* (1959), that “standardization of equipment and detailed specifications were so badly lacking so that prospective manufacturers could not be informed precisely what it was the Army wished to buy.”⁹ After making a series of amendments to the National Defense Act of 1916,¹⁰ Congress instituted an entirely new act to answer the challenges of industrial mobilization planning and procurement. The National Defense Act of 1920 sought to streamline the mobilization of industry and procurement of war materials, ensuring that the problems of World War I would not reoccur in a future conflict.¹¹

The National Defense Act of 1920 tasked the Assistant Secretary of War with “supervision of the procurement of all military supplies and other business of the War Department pertaining thereto and the assurance of adequate provision for mobilization of material and industrial organizations essential to wartime needs.”¹² The Act further stipulated that “Chiefs of branches of the Army charged with the procurement of supplies for the Army shall report directly to the Assistant Secretary of War regarding all matters of procurement.”¹³ The National Defense Act of 1920 also established a unified procurement apparatus for military equipment that would work in conjunction with industrial production.¹⁴ The National Defense Act of 1920 further directed the Assistant Secretary of War to create a plan that would prepare the country for industrial mobilization. The failure of the country to have a comprehensive industrial mobilization plan was viewed by Congress as both a significant and preventable failure in World War I.¹⁵

In October 1921, the Assistant Secretary of War established the Procurement Branch that was tasked with “the procurement of all military supplies and other business of the War Department.”¹⁶ The Procurement Branch was then sub-divided into a Planning Branch and a Current Supply Branch. The Planning Branch was further divided into ten subordinate sections that addressed Industrial Policy, Purchasing, Production Allocation, Labor, Finance, Foreign Relations, Transportation, and Storage.¹⁷ On June 27, 1922 in Joint Board Letter 346, the Joint Board (known as the Joint Army and Navy Board) recommended the creation of the ANMB.¹⁸ The mission of the ANMB was to “coordinate the planning for acquiring munitions and supplies required for the Army and Navy Departments for war purposes and to meet the needs of any joint plans.”¹⁹ The Board was also tasked with developing “a suitable legislation program” for industrial mobilization to be put into effect during an appropriate time period that would enable a national procurement program to be established.²⁰

The ANMB “was not subordinate to the Joint Board, but worked as a parallel organization, reporting directly to the Secretary of War.”²¹ The Joint Board and the ANMB were the source of joint mobilization plans throughout most of the interwar period. However, the issue of industrial mobilization planning was tasked to the ANMB.²² In contrast, a number of senior military leaders believed that the armed forces should retain their individual procurement departments, or work directly with the Joint Board keeping the requests through service and military channels. In some cases, the resistance to the concept of joint procurement and planning became overtly hostile. This point was best illustrated when General Charles P. Summerall, Army Chief of Staff from 1926 to 1930 forbade his subordinates to cooperate with the Office of the Assistant

Secretary of War and recommended the abolishment of the office.²³ General Summerall is said to have called Brigadier General George Van Horn Mosely, the Assistant Secretary's Executive Officer and a logistician, both a "traitor" and "a scoundrel."²⁴

In spite of the obvious challenges from working with both the Army and Navy, the Planning Branch was able to develop the first war mobilization plan in 1922, which was entitled the "Industrial Mobilization Basic Plan." Unfortunately, the plan was just an outline that lacked any significant detail.²⁵ This was followed by a second, refined plan in 1924 that was referred to as the "1924 plan."²⁶ The 1924 plan went into greater depth addressing the process of industrial mobilization, providing a clarified concept, timelines, and recommendations, though it was far from a completed product.²⁷ Though the plan was the first attempt to formalize industrial mobilization, it contained several critical errors that would carry over into the later versions of the plan.²⁸ A third Industrial Mobilization Plan was produced in the 1930s, followed by a fourth plan that was created in 1933 by the ANMB.²⁹ The 1933 plan had the advantage of being created by a joint organization and then approved by both the Secretary of War and Secretary of the Navy. The 1933 Industrial Mobilization Plan was revised two more times by the ANMB (in 1936 and 1939) before the outbreak of World War II.³⁰

The effectiveness of the industrial mobilization plan is a subject of debate among authors who have studied the subject. The industrial mobilization plan was not enacted in 1939, largely due to its composition as total mobilization plan and several major flaws. The plan was based upon the concept of the entire nation going to war on a specific day (M-Day), not accounting for mobilization in phases or increments.³¹ The industrial mobilization plan possessed several intrinsic flaws, including inaccurate supply estimates

and invalidated assumptions, which were mostly the result of inter-service rivalry and a lack of cooperation between departments.³² One of the most significant issues against the use of the plan was its anticipated effect on the national economy. The plan called for the military to assume control of the national economy during a period of war, a situation that was unacceptable to both the government and private industry. As a result of these issues, the industrial mobilization plan remained on the shelf and was not used as an entire mobilization system.³³

Several authors, such as Hone and Gropman, argue that while the industrial mobilization plan was not used as a single entity, elements of the plan and the process itself served to prepare the U.S. for industrial mobilization in World War II.³⁴ Hone points out that:

Though prewar Army and Navy plans were largely useless by 1941, both services had developed means to communicate their needs to industry, and both had cultivated sets of manufacturers who expected to increase production in the event of mobilization. The development of regular ties to industry was the third factor [the first two being the allocation of controlled materials and the advances in logistics throughout civilian industry], which allowed the United States to overcome the obstacles to effective war production.³⁵

One of the most significant products of the ANMB were the Joint Priorities Ratings. The concept of directing industrial production to meet military requirements was implemented to a limited degree in World War I with material control devices, such as preference rating certificates, preference orders, and conservation regulations.³⁶ The industrial mobilization plans outlined the use of a “priority classification rating” to ensure that industrial resources and limited materials were allocated to those military projects that were in the greatest demand. Although the industrial mobilization plans attempted to address a priority rating system, the plans never included a complete product.³⁷ In

response to the disparity between the limited resources and demands from the military, the Secretaries of War and the Navy Departments attempted to create a priority classifications rating through the ANMB.³⁸ The directive from the Secretaries of War and the Navy facilitated the creation of the ANMB Priorities Committee on June 17, 1940, with a mission to “organize a simple and effective system by which the committee may establish priorities on production orders placed with industry by the two services, including priorities on materials, machine tools, etc., needed for this production, and adjust those priorities when necessary to meet changed conditions.”³⁹ The Priorities Board was composed of seven members: three members from both the Army and Navy (usually in the rank of Army Colonel or Navy Captain) and the Executive Secretary of the ANMB acting as a coordinator.⁴⁰ The Priorities Board submitted their plan for material controls as the Priority Ratings proposal on July 17, 1940 to the Joint Board, which established a level of ten different ratings on equipment and materials.⁴¹ Though the Priority Ratings would undergo several revisions throughout the course of the war,⁴² it was the first step towards industrial prioritization and material control in World War II. The concept of the priority ratings would be expanded and eventually result in the other priority classifications such as the Controlled Materials Plan (CMP).⁴³

Throughout World War II, the ANMB would continue to make contributions towards industrial mobilization, resource priorities, and coordinating the war effort, though its role and effectiveness would vary depending upon changes in the administration and mobilization structure. The members of the ANMB would continue to influence issues of national defense and coordination between the military and industry even after the termination of the Board at the close of World War II.⁴⁴ Some of the

members of the ANMB would go onto further influence national defense planning and industrial relations as the nation entered the Cold War. One of the most significant examples is Ferdinand Eberstadt, who after serving as Chairman of the ANMB established the national defense policy of the U.S. with the National Defense Act of 1947.⁴⁵

Purpose

The purpose of this thesis is to provide an answer to the following thesis question: Was the ANMB effective in preparing the U.S. for entry into World War II during the interwar period? The ANMB was in essence a recreation of the Munitions Board from World War I, with similar tasks and mission. However, the ANMB was created far in advance of hostilities unlike the Munitions Board, which was created as an immediate response to the failures of mobilization during World War I. Despite the clear lessons from recent history (roughly twenty years between the two world wars), the ANMB encountered some of the exact same challenges that confronted the Munitions Board.

Many of the authors that studied this situation point out that there were several serious challenges to the ANMB. The individual services were not willing to surrender their individual ability to procure equipment,⁴⁶ nor were they fully supportive of the joint structure that was established by the National Defense Act of 1920.⁴⁷ The ANMB had to contend with interservice rivalry political infighting and a national public sentiment that blamed the munitions industry for entry into World War I.⁴⁸

Evaluation Criteria

The determination of the success or failure of the ANMB relies upon primary source assessments, comparative data, and the analysis of researchers and experts. The comparative analysis will serve as the primary method of evaluation, though assessments from the experts will also weigh heavily. In several cases military and civilian leaders made their opinions of the ANMB clear in the form of personal statements, letters, and memorandums. The resources of the Combined Arms Research Library and other national archives provide copies of these documents, which will be included in the course of the evaluation. A second source of information is from the National Defense University and National Industrial College of the Armed Forces, as both of these institutions have conducted reviews of industrial mobilization in the interwar period and specific projects on the effectiveness of the ANMB.

A second method of evaluation is a comparison with the industrial mobilization of Nazi Germany and the U.K. throughout the pre-war period and World War II. Specifically, the comparison will look at the procurement organizations and process within these two countries, the effectiveness in mobilizing their industrial base and speed in which war materials were produced. The results of this comparison must be presented in a manner that takes into account the different situational factors affecting each country. Germany possessed a strong industrial base, but faced significant challenges in leadership and a poorly managed industrial plan. The industrial base of the U.K. provides a more effective model, although the colonial situation of a global industrial base presents a unique challenge. The industrial bases of both the U.K. and Germany were subject to enemy attacks at different stages during the war. The U.K. was also heavily dependent on

its sea-lanes of communication for materials and resources, whereas the U.S. and Germany had a geographic advantage. The comparison of industrial mobilization between the different countries in World War II is provided through several sources. Alan Gropman provides a comparison of industrial capability between the major belligerents in World War II and raw data regarding production capabilities. Clarke provides an overview of the industrial mobilization of the U.K. from the perspective of the early years of World War II. In his thesis, William Fanning provides information on the industrial mobilization of Nazi Germany in World War II, including armament production, industrial capabilities, the usage of raw materials, and labor resources. The works of these authors, combined with information from the authors that have studied the ANMB will offer a basis for comparison between the three countries.

Literature Review

There is a significant amount of information and assessment on the ANMB through primary and secondary sources. The microfilm records of memorandums, letters and lectures serve as the primary sources for this dissertation. There are a few books, such as Bernard Baruch's work *American Industry in the War* (1941) and Nelson's *Arsenal of Democracy: The Story of American War Production* (1973) that serve as primary sources, being written by people involved with the industrial mobilization process and provide first-person perspectives. Most published books on the subject of industrial mobilization and planning are written after World War II, often serving as studies of the process. These books will serve as secondary sources to the thesis.

The most important primary sources are the memoranda and letters from the ANMB, the Joint Board, and the services themselves throughout the interwar period into

World War II. The Combined Arms Research Library possesses many of these documents in microfilm media in addition to corresponding documents from the Joint Board. These memoranda provide insights into the composition of the Board, planning process behind the industrial mobilization plans, communication with the Joint Board, and the integration of resources between the Army and the Navy. One of the most important series of memoranda was the establishment of the priority ratings, which directed the allocation of limited materials towards the requirements of the Army and Navy. There are also several magazine and newspaper articles from the time period, which illustrate not only the information that was disseminated at that time, but the attitude of the media towards the government, administration, and the ANMB.

Alan Gropman's book, *Mobilizing Industry in World War II: Myth and Reality* (1996), is a benchmark work when looking at the establishment and development of the ANMB and industrial mobilization. Gropman illustrates the conditions that called for the development of the ANMB and provides a full overview of the national industrial mobilization process through a focus on the various organizational structures. *Mobilizing Industry in World War II: Myth and Reality* provides a significant amount of raw and comparative data between the industrial capabilities of the belligerents, illustrating their production, workforce, and industrial allocations. Gropman manages to explain the confusing process of industrial mobilization in the U.S. in clear and understandable terms without losing the important details of the system. In addition to being an excellent reference, Gropman provides an excellent introduction into the industrial mobilization process.

V.R. Cardozier's book, *The Mobilization of the United States in World War II: How the Government, Military and Industry Prepared for War* (1995), is another landmark work which provides a detailed review and assessment into the industrial mobilization of the U.S. Cardozier focuses on the overall mobilization of the U.S. including the political climate, expansion of the armed forces, and the capabilities of the labor force. Cardozier also provides information on the political climate during the interwar period and public sentiment regarding isolationism before the attack on Pearl Harbor. Although the book only has limited references to the ANMB, those chapters that address industrial mobilization provide invaluable detail into the government's organizational structure in controlling the economy and the relationship with private industry.

Jeffrey Dorwart highlights the human aspects of industrial mobilization in his book, *Eberstadt and Forrestal: A National Security Partnership, 1909-1949* (1991). Dorwart focuses on the relationship between Ferdinand Eberstadt and James Forrestal, starting with their meeting at Princeton University and covering their lives through the interwar period and culminating with the introduction of the National Security Act of 1947. Dorwart provides insights into the personal relationships behind the organizations, such as the administration, services, and various mobilization committees. Dorwart effectively illustrates the effects, both positive and negative, that individual men had upon the process of industrial mobilization. This is an invaluable book when looking at the ANMB, as both Forrestal and Eberstadt were instrumental in the development and implementation of the Board and the CMP throughout World War II. The book also highlights the tenacious relationship between Eberstadt and Nelson, which is necessary to

understand the politics behind the policies. These men were integral to the industrial mobilization of the country and establishing defense policies that would reach into the present day.

John Ohly's book, *Industrialists in Olive Drab: The Emergency Operation of Private Industries During World War II* (1999), provides one of the most detailed works on the plant seizures that took place in World War I and II. Ohly's book does not address the ANMB, though it does provide a highly detailed history on the dozens of plant seizures during World War II. Following a review of Ohly's book, the position of private industry becomes more understandable. In World War II, it was completely permissible for the government to forcibly take control of industrial plants (specifically those working in the munitions field) leaving owners and management with almost no recourse. The value in Ohly's work in regards to this thesis is its ability to provide background into the workings of the National Defense Acts of 1916 and 1920, the response of the Office of War Production and the overall environment in which national industrial mobilization occurred.

Dr. Thomas Hone's paper, "Fighting on Our Own Ground: The War of Production, 1920-1942," provides an invaluable assessment on the functioning of the ANMB and the development of the industrial mobilization plans. Hone specifically addresses the issues behind the successes and failures of the ANMB in a clear and concise presentation. Hone points out that the ANMB faced challenges from the interservice rivalry between the Army and the Navy, the problems with planning for industrial mobilization and the political dimension, which includes Congress and the

President. At the same time, Hone illustrates the success of pre-war planning and industrial mobilization, specifically in the U.S. Navy and their shipbuilding programs.

In order to conduct the comparison between the industrial mobilization of the U.S., Nazi Germany, and the U.K., several primary and secondary sources are used. The primary sources include the thesis work by William Fanning in his study of the German war economy and R. B. W. Clarke in his study of the industrial conversion of the U.K. towards a wartime economy. Secondary sources include data from publications by Gropman and Cardozier and related information from online resources.

William Fanning provides a comprehensive study of Nazi Germany's industrial mobilization in his thesis, "The German War Economy in 1941: A Study of Germany's Material and Manpower Problems in Relation to the Overall Military Effort," (1983). Fanning points out that like the U.S., Germany was slow in the process of industrial mobilization, but for different reasons. Where the U.S. was constantly divided over the control of the economy, Nazi Germany was not subject to those issues. The U.S. and Germany both suffered from problems in their industrial mobilization process due to infighting between the political and military leadership, specifically the relationships between various personalities (Hitler, Speer, Goring). However, once committed to an armed conflict, the U.S. dedicated its industry fully to munitions production where Germany would delay significant industrial mobilization until later in the war.

R. W. B. Clarke provides an overview of the challenges in building the U.K.'s war industry in his book, *The Economic Effort of War*. One of the more unique aspects of Clarke's assessment is the fact that his work was published in 1940 as the U.K. was in the early years of World War II. While Clarke provides a general overview on the total

mobilization of the U.K., within the chapter on building the war sector he addresses the challenges in transitioning to a war economy. Clarke specifically addresses the issues of industrial mobilization, production allocations, and the prioritization of war materials. The issues that faced the U.S. and the U.K. regarding their industrial mobilization are almost the same; both countries encountered problems with industrial mobilization in World War I and both countries experienced some of the same problems during World War II. The U.K. and the U.S. had developed similar industrial mobilization plans during the interwar period, though these plans were not considered useful for the actual mobilization. The number of similarities between the two countries provides a condition that will be used to compare and contrast the differences between their processes of industrial mobilization.

Composition

The thesis is conducted in five chapters, which are divided into chronological periods and specific events. Chapter 1 serves as the introduction to the thesis and includes the historical background, definition of the problem, literature review, methods of evaluation and composition of the chapters. Chapter 2 covers the period from 1916 to 1922, including World War I, the problems identified with supply procurement, the creation of the National Defense Act of 1920 and the subsequent creation of the ANMB. Chapter 3 covers the interwar period from 1922 to 1939, including the creation of the Army Industrial College, the four interwar industrial mobilization plans and the priorities board. Chapter 4 covers the period from 1940 to the post war period, including the industrial mobilization of the U.S., reorganization of the armed forces and the industrial allocations and controlled material plans. The chapter also includes the establishment of

the War Productions Board, the expansion of the ANMB, the National Defense Act of 1947, and the dissolution of the ANMB. Chapter 5 is the evaluation and conclusion, in which the industrial mobilization of the U.S. and the effectiveness of the ANMB are compared with the industrial mobilizations of the U.K. and Nazi Germany. The chapter also includes the final evaluation as to the overall effectiveness of the ANMB in preparing the U.S. for entry into World War II.

¹Ralph Elberton Smith, *The War Department: The Army and Economic Mobilization* (Washington, DC: Government Printing Office, 1959), 38.

²Alan L. Gropman, *Mobilizing U.S. Industry in World War II: Myth and Reality*. (Washington, DC: Government Printing Office, 1996), 9.

³*Ibid.* 3.

⁴V. R. Cardozier, *The Mobilization of the United States in World War II: How the Government, Military and Industry Prepared for War* (North Carolina: McFarland and Company, 1995), 72.

⁵Thomas C. Hone, "Fighting on Our Own Ground: The War of Production, 1920-1942," Naval Historical Center, Colloquium on Contemporary History, <http://www.history.navy.mil/colloquia/cch5b.html> (accessed October 2, 2007).

⁶Smith, 35-40.

⁷*Ibid.*, 36-37.

⁸Gropman, 9; and Smith, 39-40.

⁹Smith, 35.

¹⁰*Ibid.*, 39.

¹¹Gropman, 9-10.

¹²*Ibid.*, 9.

¹³*Ibid.*

¹⁴*Ibid.*, 10.

¹⁵Ibid., 9-10, 19.

¹⁶Ibid., 10.

¹⁷Ibid.

¹⁸The Joint Board. FTP 155, *Joint Action of the Army and the Navy* (Washington, DC: Government Printing Office, 1936), 132. <http://ibiblio.org/hyperwar/USN/ref/Joint/index.html> (accessed September 20, 2007).

¹⁹Gropman, 11.

²⁰Ibid.

²¹Ibid., 12.

²²Hone.

²³Gropman, 10-11.

²⁴Ibid.

²⁵Ibid., 19.

²⁶Ibid., 19-20.

²⁷Ibid.

²⁸Ibid., 20-22

²⁹Ibid., 21-22, 25

³⁰Ibid.

³¹Ibid., 22-23

³²Hone; and Gropman, 19-26.

³³While the industrial mobilization plan was not used as a single system, several aspects of the plan were put into effect. These aspects will be discussed in the later chapters of this thesis.

³⁴Hone.

³⁵Ibid.

³⁶Smith, 508.

³⁷Army and Navy Munitions Board, Memorandum, SUBJECT: Establishment of Priorities Committee, Army and Navy Munitions Board, June 17, 1940 (Fort Leavenworth, KS Combined Arms Center Library, Microfilm).

³⁸Smith, 508-509.

³⁹The Army and Navy Munitions Board to The Joint Board, Memorandum, SUBJECT: Priorities in Material Procurement as Established by the Priorities Committee, Army and Navy Munitions Board, July 23, 1940 (Fort Leavenworth, KS Combined Arms Center Library, Microfilm).

⁴⁰Ibid.

⁴¹Army and Navy Munitions Board to the Joint Army and Navy Board, Memorandum, SUBJECT: Priority Ratings, July 17, 1940 (Fort Leavenworth, KS Combined Arms Center Library, Microfilm).

⁴²The Army and Navy Munitions Board to The Joint Board, July 23, 1940.

⁴³Smith, 570-571.

⁴⁴Jeffery Dorwart, *Eberstadt and Forrestal: A National Security Partnership, 1909-1949* (College Station, TX: Texas A&M University Press, 1998), 6, 97-98, 161-164.

⁴⁵Ibid., 170-180.

⁴⁶Cardozier, 109.

⁴⁷Gropman, 10-11.

⁴⁸Cardozier, 5, 11, 40, 105-106, 110; and Dorwart, 40; and Hone.

CHAPTER 2

1916-1922: WORLD WAR I AND THE NATIONAL DEFENSE ACTS

At the end of World War I, the Army and Navy decided that the confusion and corruption of arms production and supply which they had endured (and helped create) in 1917 and 1918 was an experience they did not wish to repeat. The National Defense Act of 1920 was an effort to create a system of war mobilization planning that would make sure the procurement problems of World War I did not recur.¹

Industrial Mobilization in World War I

The U.S. was unprepared to deploy an expeditionary force in World War I due to a total lack of mobilization planning.² Ralph Smith accurately points out that the “economic mobilization for that war [World War I] was largely a story of hasty improvisation to meet unforeseen crisis and fill the void left by inadequate planning and preparation.”³ The U.S. Army of 1916 did not possess the required equipment to support an expeditionary force, nor did it possess a standardized procurement program to correct this deficiency. The U.S. had no plans available to address the equipment needs of an expanded military or the ability to marshal the industrial support required by a national war effort.

At the entry of the U.S. into World War I, the AEF lacked the equipment and munitions necessary for conducting combat operations in the European theater.⁴ Smith points out that “reserve supplies in most categories of military equipment were practically non-existent and the Army had no clear knowledge of the character and magnitude of its wartime needs.”⁵ In spite of the fact that the U.S. private industry had been filling weapons and munitions purchase orders to the European Allies in the first three years of the war, there was no forethought given to the challenges of equipping an expanded U.S.

military force.⁶ Ironically, the AEF had to purchase munitions for their air and ground forces from U.K. and France as well as other foreign munitions producers.⁷

This issue was further complicated by the lack of standardized equipment and a procurement process throughout the Army. The AEF was not a standard organization, composed of different task organized units specifically for combat operations in Europe. As a result, the military planners that organized the AEF could not provide an accurate estimate of supply requirements.⁸ Further compounding this problem, military units often varied in allocation of weapons, vehicles, and other supply items; therefore, many planners relied upon internal unit estimates to forecast their logistical requirements. Smith illustrates this point when he states, “standardization of equipment and detailed specifications were badly lacking so that prospective manufacturers could not be informed precisely what it was that the Army wished to buy.”⁹

Even if the Army did possess the necessary data as to what they needed, the military forces lacked a unified procurement system to provide the necessary war material. In 1916, there were several different departments responsible for the procurement of supplies for the Army, each with separate statutory powers and areas of responsibility that often overlapped.¹⁰ This situation was further complicated by the supply agencies of the U.S. Navy, which conducted a separate procurement effort, often using the same manufacturers that were contracted by the Army.¹¹ The Army and Navy both failed to coordinate with each other regarding the manufacturing contracts they secured in the event of war, nor did either service maintain a centralized source of information on the national civilian industrial base.¹² The fractured procurement program of the Army, coupled with competition from the Navy, created “a cross-fire of conflicting

demands” that quickly overloaded the limited number of manufacturers that were supporting the war effort.¹³ In peacetime, munitions producers sought to secure as many contracts as possible, often booking with procurement agencies from both the Army and the Navy. As the demands for military equipment were focused on these few select manufacturers instead of being spread across the national industrial base, these plants soon became overloaded and were unable to meet the demands of the military.¹⁴ A second problem that resulted from the limited number of manufacturers was the transport of war materials. The manufacturing plants, working to full production were soon overwhelmed by the transportation demands of getting their product to the customer. Smith points out that, “freight piled up at ocean terminals until freight trains had to be unloaded in the fields ten to thirty miles inland.”¹⁵ The situation became so dire that on January 1, 1918, the government took over the operation of railroads, which would be followed on August 1 by the takeover of telegraph, telephone, and cable facilities.¹⁶

The U.S. entered into World War I with no definite plan for the necessary expansion of its military forces, or how these forces would be supported.¹⁷ Unlike modern force planning where units are assigned based upon the mission requirements, the AEF in World War I was an “ad hoc” organization that did not realistically address the capabilities of the Army in 1916.¹⁸ Lacking a definite structure, logistics requirements and a procurement plan, the initial efforts at industrial mobilization in support of the AEF failed. The U.K.’s wartime premier, David Lloyd George expresses his impression of the logistics support to the AEF:

It is one of the inexplicable paradoxes of history that the greatest machine-producing nation of earth failed to turn out the mechanism of war after 18 months of sweating and toiling and hustling. . . . There were no braver or more fearless

men in any Army, but the organization at home and behind the lines was not worthy of the reputation which American business men have deservedly won for smartness, promptitude and efficiency.¹⁹

There specific reasons for the lack of mobilization planning have not been defined. Smith points out that the “lack of preparation could be traced directly to niggardly appropriations over the years and ill-conceived legislation which prevented effective planning and coordination of Army activities.”²⁰ Smith’s assessment has obvious merit, though it seems incredible that after even the most cursory experience with smaller expeditions (such as the use of expeditionary forces into Mexico and the Philippines) the U.S. Army would enter a campaign with such an obvious lack of logistics planning. Cardozier presents another aspect to the problem when he states “America entered World War I thinking it would be over quickly and without much bloodshed.”²¹ This seems the more logical assessment; military planners may have thought the conflict would not last long enough to require industrial mobilization and continued logistics support. Nevertheless, the AEF was not even prepared for initial operations in Europe, let alone the support for long-term operations. It should be noted that the area of industrial mobilization and procurement were not the only ones lacking an effective plan; the entire nation was unprepared for a national war.²² It is apparent that the U.S. government, military, and citizenry did not focus the necessary attention on mobilization planning before entry into the War as popular opinion did not see it as an extended conflict that would significantly drain national resources.

Though the U.S. lacked effective plans, the country maintained its adaptability in the face of adversity. The National Defense Act of 1916 was passed by Congress “on the eve of war” with the purpose of “facilitating military preparedness” through the

expansion of the military and streamlining equipment procurement for the armed forces.²³ In August of 1916, the Council of National Defense was established to carry out the intentions of the National Defense Act of 1916. The Council created the General Munitions Board, which would “co-ordinate procurement, establish priorities, and facilitate the supply of materials and manufacturing facilities.”²⁴ Although the concept of having a centralized agency for the procurement and supply of national military forces should have solved many of the problems plaguing the AEF, in reality the Board “possessed only vague powers and operated chiefly through a proliferation of new committees, many which duplicated the established committees of the Advisory Commission.”²⁵ On July 8, 1917, the Council of National Defense voted to replace the General Munitions Board with the War Industries Board.

The War Industries Board, under the leadership of Bernard M. Baruch, became one of the most effective instruments in military procurement and mobilization.²⁶ The War Industries Board was given the authority to act in all matters relating to procurement and industrial mobilization with the exception of price control.²⁷ The Board was able to coordinate the different aspects of civilian industry and military requirements to bring the full force of national mobilization to bear; though this would be too late to affect the disposition of tactical units, it would have a strategic effect on the European Theater.²⁸

As Baruch would relate:

When fighting ceased, war production in the United States was reaching its peak. Every unit in the vast machinery was keyed up to high speed. There is no doubt but that knowledge of this fact contributed materially to Germany’s sudden realization of the hopelessness of her position.²⁹

Though the U.S. lacked any significant plan or organization for the process of industrial mobilization, it quickly adapted and focused the resources of national industry.

Ironically, some of these same organizations, either in purpose or in name, would reappear during the industrial mobilization of World War II. The First World War served as a period in which the country came to understand the importance of industrial mobilization, military expansion and procurement procedures. The General Munitions Board in World War I served as the predecessor for the ANMB of World War II; unfortunately the ANMB would encounter some of the same issues and challenges that plagued the General Industries Board and War Industries Board.

The National Defense Act of 1916

The National Defense Act of 1920, which allowed for the creation of the ANMB and addressed the need for joint mobilization planning, was not the first attempt by the U.S. to prepare the nation for industrial mobilization into a world war. The U.S. Congress passed the National Defense Act of 1916 on June 3, 1916 to address the expansion of the military and to streamline the procurement of military equipment. The National Defense Act of 1916 “authorized the president to place compulsory orders for military supplies during wartime, or when war was imminent, with any firm capable of producing them. The president was further authorized [under Section 120 of the Act] to take possession of any company that *did not give the government preference or that failed, or refused government orders* [italics added for emphasis].”³⁰ This was the first time in the history of the U.S. where the government was given the ability to conduct the takeover of a private company. The only historical precedent was during the Civil War where the federal government had conducted military takeovers of railroad and telegraph lines, acting under a special legislative authority.³¹

The National Defense Act of 1916 also contained several internal restrictions that would limit its effectiveness. The U.S. Congress sought to curb the independence and unchecked authority of the General Staff through the National Defense Act of 1916. As an example, the National Defense Act severely limited the size and powers of the Army General Staff. Fearing that senior officers would spend too much time in Washington D.C. socializing, the Act forbade more than one half of the officers of the General Staff from being located in Washington at one time.³² These issues should not have been addressed in the National Defense Act; if they were serious enough to merit action by Congress, then another method should have been selected. The restrictions within the National Defense Act limited the effectiveness of the General Staff, which was the only organization that possessed the authority and ability to conduct a coordinated program of military procurement.³³

The National Defense Act of 1920

One of the most important lessons learned at the close of World War I was that industrial mobilization was necessary for the conduct of modern warfare.³⁴ Though the U.S. was ultimately successful in World War I, both the military and political leadership recognized that industrial mobilization was dangerously slow and inefficient.³⁵ The U.S. Congress began a review of the National Defense Act of 1916 and passed a series of amendments to correct the most obvious deficiencies, but soon realized the need for entirely new legislation.³⁶ On June 4, 1920, the U.S. Congress enacted the National Defense Act of 1920 under Statute 764, to ensure that the country could conduct industrial mobilization and unified military procurement in the event of a future war.³⁷

The National Defense Act of 1920 placed the responsibility for mobilization planning and joint procurement under the office of the Assistant Secretary of War.³⁸ The Act specifically outlines the responsibilities of the Assistant Secretary of War in the following passage:

The Assistant Secretary of War, under the supervision of the Secretary of War, shall be charged with the supervision of the procurement of all military supplies and other business of the War Department pertaining thereto and the assurance of adequate provision for mobilization of material and industrial organizations essential to wartime needs. . . . There shall be detailed to the office of the Assistant Secretary of War from the branches engaged in procurement such numbers of officers and civilian employees as may be authorized by regulations approved by the Secretary of War. . . . Chiefs of branches of the Army charged with the procurement of supplies for the Army shall report direct to the Assistant Secretary of War regarding all matters of procurement.³⁹

The National Defense Act of 1920 approached industrial mobilization and military procurement from a new and different perspective. While industrial mobilization and planning for World War I was non-existent, the National Defense Act of 1920 assumed that mobilization planning could be done successfully by a small staffs of military officers under the control of a designated civilian authority.⁴⁰ The Assistant Secretary of War was designated as that civilian authority, and in the fall of 1921 the office was reorganized under a new administration.⁴¹ The first action the Assistant Secretary of War took in establishing the organization authorized by the National Defense Act of 1920 was the creation of the Procurement Division.⁴² Created in October 1921, the mission of the Procurement Division was to “supervise the procurement of all military supplies and other business of the War Department . . . and the assurance of adequate provision for the mobilization of material and industrial organizations essential to war needs.”⁴³

The Procurement Division was further divided into a Planning Branch and Current Supply Branch.⁴⁴ The Current Supply Branch was headed by an Army Colonel and charged with supervising the peacetime procurement of equipment by the War Department's several supply and service organizations.⁴⁵ The Planning Branch was also headed by an Army Colonel and charged with planning for wartime procurement and industrial mobilization. The Planning Branch was further sub-divided into ten separate sections that addressed Storage, Transportation, Foreign Policy, Finance, Labor, Production Allocation, Purchasing, Industrial Policy, Statistics, and Requirements (figure 1).⁴⁶ The Planning Branch also coordinated with the Navy and other government departments "on all matters pertaining to the allotment of industrial facilities and materials required for war."⁴⁷

The Procurement Division and its subordinate branches allowed the U.S. to conduct a level of mobilization planning that had never been attempted in this country. It should further be noted that these organizations were established during a period of military demobilization, when many in the country believed that World War I was "the war to end all wars." The National Defense Act of 1920 illustrates the level of importance that industrial support had taken in modern warfare, which remained unrecognized since the close of the Civil War. While the government recognized that they could maintain a permanent industrial base with a military orientation, the Act did allow the service secretaries to place "educational orders."⁴⁸ Educational orders were specifically established to allow the service secretaries to place purchase orders with commercial producers for military equipment in order to maintain a level of production throughout the peacetime industrial base that could expand during a national emergency.⁴⁹

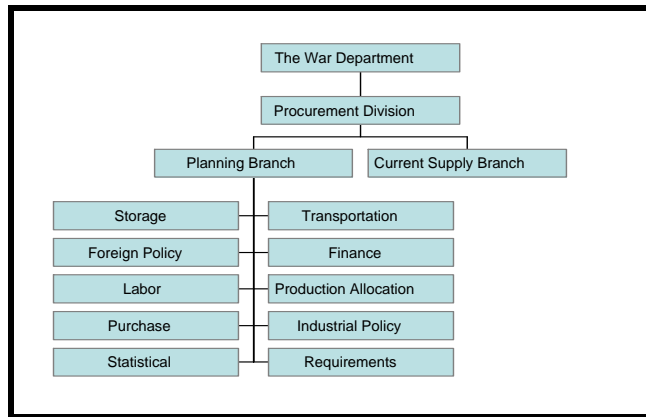


Figure 1. Procurement Division Organization Chart

Source: Alan Gropman, *Mobilizing U.S. Industry in World War II: Myth and Reality* (Washington, DC: National Defense University Press, 1996), 11.

The General Staff did not support the concept of having industrial planning and procurement fall under civilian control or to an organization that was not under their direct control.⁵⁰ A number of senior leaders believed that the services should retain their individual procurement departments, or work directly with the Joint Board. This point was best illustrated when General Charles P. Summerall, Army Chief of Staff from 1926 to 1930 forbade his subordinates to cooperate with the Office of the Assistant Secretary of War and recommended the abolishment of the office.⁵¹ The hostile relationship between the departments would continue throughout the interwar years, much to the detriment of the industrial mobilization planning process.

The National Defense Act of 1920 tasked the Assistant Secretary of War with providing a national industrial mobilization and procurement program.⁵² It soon became apparent that in order to conduct effective wartime planning, the Navy would need to be included into the process.⁵³ The lessons from World War I regarding munitions procurement were still clear during the early 1920s but the rivalry between the Army and

Navy in competing for resources was a major challenge.⁵⁴ The Assistant Secretary of War and the Procurement Division recognized the need for an interservice agency that could address the procurement of common items, storage facilities and material allocation for both the Army and Navy.⁵⁵ Most importantly, an agency was required to allocate the division of national industrial resources and ensure that industry was prepared to support an expanded military.

The Army and Navy Munitions Board

The Assistant Secretary of War established the ANMB in October 1922 to address the issues of joint procurement and industrial mobilization planning.⁵⁶ The ANMB lacked a legislative sanction and appropriation, but the mission was vital enough that the Assistant Secretaries of the Army and Navy were willing to support the Board from their own resources.⁵⁷ It was originally envisioned that the ANMB would serve as a coordinating agency with temporary responsibilities to ease the transition from peace to war until a civilian agency could fill the role;⁵⁸ however, it should be noted that the various mobilization plans that would follow would envision control being transferred not to a civilian agency, but to a military authority.

Even though ANMB was charged with coordinating between the services and private industry, the Board lacked the direct authority to accomplish this mission. Instead, the ANMB was more of a coordinating agency between the military services that was outside of the nominal command structures (the ANMB would coordinate directly with the Assistant Secretaries of the Army and Navy). The Board was composed primarily of military personnel, but was headed by government officials. The Board often coordinated with the Joint Board and answered to the presidential administration through the service

assistant secretaries. The Board would remain in this status until July 1, 1939 when President Franklin D. Roosevelt (FDR) directed it to come under his direct supervision.⁵⁹

The Board was tasked with “the planning for acquiring munitions and supplies required for the Army and Navy Departments for war purposes and to meet the needs of any joint plans.”⁶⁰ The Board was also tasked in the area of industrial mobilization with developing “a suitable legislative program” to be put into effect at the appropriate time to “enable the procurement programs” to be established.⁶¹ The Board consisted of the Assistant Secretaries of both the War and Navy Departments and a joint committee composed of three officers (usually in the rank of USA Colonel or USN Captain) from each service.⁶²

The lack of a legislative sanction would be both beneficial and detrimental to the ANMB. An advantage was that the Board was able to function as an independent organization outside of the rivalry between Congress and the General Staff. As the Board was an organization established by the Assistant Secretaries of War and the Navy, they had a direct reporting channel that placed them outside of the control of the Joint Board and General Staff. The Board was able to work as an operational planning organization working in conjunction with the Army and Navy Joint Board instead of serving as a subordinate organization.⁶³ The major disadvantages were the Board’s lack of an authority base outside of the military. The Board also did not have a coordinating military higher headquarters, which was a significant problem when it came to enforcing cooperation between the services.

The ANMB would serve throughout the interwar period in an underappreciated yet essential role. One of the most significant contributions that the ANMB would make

during the interwar period was the industrial mobilization plan, which would serve as the framework for converting the national economy from peacetime to wartime footing. The projected demands for military officers with experience in the conduct of industrial operations would facilitate the establishment of the Army Industrial College. The ANMB was able to accomplish these tasks in an environment of constant competition between the military, government, and private industry. The ANMB also had to contend with a lack of support from the public and resistance from competing mobilization boards and committees that were enacted as the U.S. moved closer to war. The ANMB also suffered from a lack of support from its own services, which would limit its overall effectiveness.

¹Hone.

²Gropman, 9; and Smith, 35-36.

³Smith, 35.

⁴Ibid.

⁵Ibid.

⁶Gropman, 9.

⁷Ibid.

⁸Smith, 35.

⁹Ibid.

¹⁰Ibid.

¹¹Ibid.

¹²Ibid., 37.

¹³Ibid., 35-36.

¹⁴Ibid., 35.

¹⁵Ibid., 36.

¹⁶James H. Bogman, *Economic Planning and National Defense* (Washington, DC: Government Printing Office, 1933). 8.

¹⁷Smith, 35.

¹⁸Ibid.

¹⁹Ibid., 37-38.

²⁰Ibid., 36.

²¹Cardozier, 233.

²²Smith, 36.

²³Ibid.

²⁴Ibid.

²⁵Ibid., 36-37.

²⁶Ibid., 37.

²⁷Ibid.

²⁸It should be noted that the Armistice of 1918 came as a surprise to the Allied military planners; the United States, producing an enormous amount of war material, was central to planned offenses in 1919 and 1920, which never came to fruition.

²⁹Bernard M. Baruch, *American Industry in the War* (New York: Prentice-Hall Inc., 1941), 6-7.

³⁰John Ohly. *Industrialist in Olive Drab: The Emergency Operation of Private Industries During World War II* (Washington, DC: Government Printing Office, 1999), 10.

³¹Ibid.

³²Smith, 36.

³³Ibid.

³⁴Gropman, 9.

³⁵Smith, 37-38.

³⁶Ibid., 39.

³⁷Gropman, 9.

³⁸Hone.

³⁹Gropman, 9.

⁴⁰Hone.

⁴¹Smith, 39-40.

⁴²Gropman, 10.

⁴³Ibid.

⁴⁴Ibid.

⁴⁵Smith, 40.

⁴⁶Gropman, 10-11.

⁴⁷Ibid., 10.

⁴⁸Hone.

⁴⁹Ibid.

⁵⁰Gropman, 10-11.

⁵¹Ibid.

⁵²Smith, 39-40.

⁵³Ibid., 41.

⁵⁴Ibid., 40-41.

⁵⁵Ibid., 41.

⁵⁶Ibid., 40-41; and Gropman, 11; and Smith, 40-41. NOTE: It should be noted that the term “Joint” has often been applied in front of the title “Army and Navy Munitions Board.” Several authors refer to the “Joint Army and Navy Munitions Board.” However,

the original establishment for the ANMB does not include the term “Joint” in the title. Additionally, memorandums from the ANMB do not include the word “Joint” in the title.

⁵⁷Smith, 11.

⁵⁸Dorwart, 40.

⁵⁹Gropman, 11.

⁶⁰Ibid.

⁶¹Ibid.

⁶²Smith, 41.

⁶³Gropman, 12.

CHAPTER 3

1922-1939: THE INTERWAR YEARS

Planning in the Interwar Period

The ANMB exhibited little life and almost no authority during the interwar period due to a lack of communication between the services, distrust between the civilian and military leadership, and a general lack of organization.¹ The ANMB worked in a national environment that was opposed to the concept of a strong military and supported an isolationist policy.² In order to complete its mission, the ANMB had to function within the parameters of the National Defense Act of 1920 and established policies and procedures that outlined a program of cooperation and joint planning between the Army and Navy.³ However, throughout the interwar period both services provided the ANMB with only limited degrees of support. In spite of these challenges, the ANMB created a series of national industrial mobilization plans that would serve as a framework when the U.S. entered into World War II.

The lack of communication and cooperation between the two services was a significant challenge to the effectiveness of the ANMB. The Army and the Navy had different objectives when viewing wartime mobilization. The Army tended to measure readiness by the number of Soldiers on active duty, while the Navy focused on the number and type of ships in its fleet and their level of modernization.⁴ The two services maintained their own mobilization plans, often creating these plans without consulting the other service.⁵ The lack of communication between the services also extended into industrial mobilization, where the Planning Branch created its plans for industrial mobilization oblivious to the Navy's potential needs.⁶ In turn, the U.S. Navy showed

little interest in the joint efforts of the ANMB, which was considered largely an Army activity. As a result during the interwar period, the Navy tended to rely upon its own procurement sources rather than use the ANMB.⁷ As an example, in the 1930s the U.S. Navy managed to maintain an industrial base for submarine development through shipyards in Groton and Portsmouth. The shipyards were maintained by contracts through the Bureau of Ships and the Bureau of Construction and Repair and Engineering, effectively bypassing the ANMB.⁸ In later years, Navy participation on the ANMB would increase, but the concept of joint procurement would never achieve significant status within the institution. Ferdinand Eberstadt would comment as late as 1941 that when he queried the Chief of Naval Operations about the ANMB “his information on it [the ANMB] seemed a little bit less than his interest in it.”⁹ A possible explanation for the Navy’s lack of interest in the ANMB is due to the massive demobilization that took place during the interwar years. In accordance with the naval arms reduction treaties of the 1920s, the Navy decommissioned hundreds of thousands of tons of serviceable vessels.¹⁰ This situation would allow the Navy minimal participation in the ANMB, as they would be focused on demobilization rather than the procurement of new systems. Unfortunately, this degree of autonomy left the Navy out of the early planning process for the industrial mobilization plans that would be created by the ANMB. An unforeseen result of the ANMB was that while it established an institutional mechanism for joint planning and procurement, it also heightened the existing rivalry between the two services.¹¹

Further complicating matters, the three major players in industrial mobilization (the military, private industry, and government) all possessed an inherent distrust of each

other. Partially, this could be attributed to the failures of private industry to provide the needed war materials at the beginning of World War I,¹² an event which senior military leaders in the interwar period still remembered. Throughout the early part of the interwar period, presidential administrations were focused on cutting the military budgets as much as possible by relying upon a combination of diplomacy and isolationist policies to address their foreign policy issues.¹³ One senior officer commented that President Herbert Hoover “neither knows nor cares anything about the Army . . . for him it is just a nuisance.”¹⁴ As a result, senior military leaders isolated their organizations from interference from political entities and regarded politicians as “amateurs and empty-headed demagogues brought after each recurring election-day to our city halls and state capitals.”¹⁵ The government can also be credited with their share of hostility and distrust towards the military. This point was illustrated earlier in chapter 2 when Congress, fearful of having too many general officers in Washington, actually placed limitations on how many generals could be in the District of Columbia at the same time.¹⁶

The national climate during the interwar years was not favorable toward the concepts of military expansion or industrial mobilization. In the years following World War I, the population of the U.S. was either indifferent or openly hostile to the prospect of entering another war. As one observer points out, “on one hand it was difficult to arouse any considerable public interest for a hypothetical future war . . . On the other hand-it was virtually impossible to conduct any public discussion of even minimum plans for military preparedness without generating accusations of ‘militarism’ ‘war mongering,’ and the like.”¹⁷ The munitions manufacturers also had to deal with a negative public image as popular opinion and the press blamed them for getting the U.S.

involved in World War I. Many Congressional leaders, responding to public opinion and the chance to cut military budgets, declared that a large standing military was a provocative measure and would involve the U.S. in a future conflict.¹⁸ In 1934, in response to public demand, the Senate appointed a special committee to investigate the munitions industry, headed by isolationist Senator Gerald P. Nye of North Dakota.¹⁹ The committee specifically addressed accusations that munitions industrialists had used their influence upon governmental and diplomatic activities, in essence causing the Great War for purposes of profit.²⁰ The results of the Nye Commission had no direct effect on the military, though the Commission did serve to illustrate the attitude of many Americans at the time.

Throughout the interwar period, popular opinion in the U.S. did not see the defense of the Nation reliant upon a modernized or large military force; many people supported the concept that disarmament as the only effective means of achieving a lasting international peace.²¹ On April 6, 1939, a poll asked if the U.S. should go to war if France and England went to war with Germany; 95 percent of the respondents still said “no.”²² Even as late as 1940, in spite of the fact that the conflict had spread throughout Europe, opinion polls indicated that the majority of people in the U.S. were opposed to entering the war.²³

The slow pace at which the U.S. Army and Navy were modernizing their forces in the interwar period would also prove a challenge to industrial mobilization. In the early years of the interwar period, less than 1 percent of national industry was actually dedicated to the production of military equipment. In response to public opinion and administrative policy, military budgets were kept exceptionally low. In the years 1922 to

1940, the U.S. spent less than \$6.5 billion on War Department activities (as a matter of comparison, the U.S. would spend over \$6 billion in 1940 alone).²⁴ The lack of funding would have a negative effect on both the readiness of the military forces and their level of modernization. The inability of the services to recognize their own requirements for modernization further hampered this process. The Army placed a greater degree of importance on the issue of manpower than on equipment therefore less attention was given to identifying equipment needs.²⁵ This point is illustrated by the Army's transition from horse cavalry to armored forces where only 35 tanks were procured between the period of 1918 to 1933 and none of these fell under a universal design, with no two being of the same type.²⁶ The lack of accurate equipment estimates and manufacturing information would prove problematic when looking at the challenges of mass production and seriously hamper the planning for industrial mobilization.

It was in this environment that the U.S. government, military leadership, and the ANMB conducted mobilization planning. The government and military recognized the need to be prepared for the next major conflict to avoid the same factors that stymied the expeditionary forces in World War I. The creation of the ANMB illustrates a legislative response to this situation. The U.S. population was not supportive of wartime planning, as they were disillusioned with the loss of life and materials in World War I and would not even entertain the prospect of entering into another conflict. Combined with the distrust of a Congress that did not want to hand too much power over to the military, it is not hard to understand why the ANMB took so long to organize and exercise its authority. In spite of all these challenges, the ANMB was able to create a series of

national industrial mobilization plans and the military was able to establish an industrial training program in the form of the Army Industrial College.

The Industrial Mobilization Plans of the Interwar Period

Unlike their European counterparts, the U.S. government did not sponsor a portion of its industry for the production of military munitions. The major European powers such as France, the U.K., and Germany instituted programs that enabled them to secure the majority of their munitions through national companies such as Vickers-Armstrong, Schneider-Cruesot, and Krupp. In contrast, the U.S. had a very limited ability to produce its own munitions and was forced to depend on procurement from private industry or foreign sales. The concept that the U.S. military procurement branches worked under was that during a time of war, private industry would covert to the production of munitions.²⁷

The National Defense Act of 1920 directed the Assistant Secretary of War to establish a plan for the industrial mobilization of the nation in the event of a war or national emergency.²⁸ The objective of the national industrial mobilization plan was to optimize the country's industry towards the production of war materials while maintaining a level of production that met civilian essential needs.²⁹ The industrial mobilization plan would also need to establish the legislative and organizational structures to focus the coordination between the military, government, and private industrial institutions. Bernard Baruch, who chaired the War Industries Board during World War I, would continuously argue throughout the interwar period for proper organizational planning that would marshal the national industrial resources in a time of war, preventing the debacles in equipment support that occurred during World War I.³⁰

Though the ANMB would produce several plans, none of them would meet the level of detail that Baruch envisioned. However, the plans would provide a basic framework that would guide the massive mobilization efforts that would follow.

In the interwar period, the planning branch and the ANMB created four plans for the industrial mobilization of the U.S.. The plans were established with input from subject matter experts such as Bernard Baruch, Hugh Johnson, and other War Industry Board veterans, civilian business, and industry leaders, and students from the Harvard Business School.³¹ A number of military officers contributed to the industrial mobilization plans, one of the more famous being Dwight D. Eisenhower who contributed to the 1933 plan.³² The first plan was essentially an outline, which was sequentially expanded upon in later editions.³³ The plans essentially built on each other, becoming more refined and detailed as the process continued. One significant problem was that as the plans were revised and expanded, the errors from the previous plans were often not corrected, but carried forward in the later editions.

The process of industrial mobilization planning in the U.S. expanded rapidly over the interwar period of less than twenty years. In this abbreviated time period, the U.S. went from the development of a cursory outline to a full plan that included legislative recommendations, resource prioritization, facility allocations and a proposed administrative structure. As the nation moved closer to a war in Europe, the plan was continually refined and updated. The national industrial mobilization plan went through four major revisions, the last three taking place from 1930 to 1939.

The first attempt at creating an industrial mobilization plan was started in 1922 under the direction of the Assistant Secretary of War and was tasked to the Planning

Branch. In 1924 the Planning Branch presented their product, which was referred to as the “1924 plan.”³⁴ The 1924 plan was considered more of a procurement listing that attempted to identify the overall material needs of the services in a time of war rather than an executable plan. The plan recognized the need for an overarching agency “to be established by act of Congress or by the President, under congressional authority for the purpose of coordinating, adjusting and conserving the various agencies for resources so as to promptly and adequately meet the maximum requirements of the military forces and the essential needs of the civilian population.”³⁵ Although not directly named, many of these responsibilities would fall to the ANMB, which in this time period was still establishing its subordinate committees and clarifying its responsibilities.

The 1924 plan was seriously lacking in essential elements, such as estimates from the services, a compilation of national industrial resources, and an anticipated timeline. Several authors who have studied industrial planning in the interwar period do not even recognize the 1924 plan, considering it no more than an outline for the later plans.³⁶ In spite of its serious flaws, the 1924 plan was the U.S. military’s and government’s attempt to address industrial mobilization in a concentrated fashion. The plan itself may have been inadequate for the task, but it represented an acknowledgement by the U.S. government and military regarding the importance of private industry to the conduct of modern warfare. The organization of the ANMB, coupled with the industrial mobilization plans, marked the advancement of the U.S. into the initial structures of the civil-military industrial complex.

Following the publication of the 1924 plan, the Joint Board directed the ANMB to focus the industrial mobilization plans on the wartime contingencies that were code

named ORANGE (war with Japan) and RED-ORANGE (simultaneous war with Great Britain and Japan).³⁷ The ANMB took the outline from the 1924 plan and expanded many of the areas, putting “flesh to the bone” and creating a workable industrial mobilization plan. In a period of six years, the ANMB produced a revised industrial mobilization plan in 1930. The 1930 plan expanded upon the 1924 plan and provided guidance on procurement planning, control measures for economic resources and the mobilization of private industry. The 1930 plan proposed the creation of a War Cabinet in the event of war, which would unify the military and civilian leaders of both the Army and Navy (specifically the Assistant Secretary of War and the Assistant Secretary of the Navy), as well as the heads of the four “super-agencies:” the Director of War Industries, Director of the Selective Service, Director of Public Relations, and the Administrator of Labor.³⁸

The War Policies Commission³⁹ and both the Secretary of War and the Secretary of the Navy reviewed and approved the 1930 plan. While it was more comprehensive than the 1924 plan, the 1930 plan still had several intrinsic faults such as the reliance on “M-Day” planning (“M-Day” refers to “Mobilization Day,” the first day of hostilities with a foreign power) and incorrect planning data from the services. These errors were not corrected in the 1930 plan and carried into future mobilization plans.⁴⁰

The 1930 plan was developed under the concept that a future war would be declared on a specific day, which would start the process of industrial planning. The chance of the nation assuming a war footing before a declared war was not addressed in the plan as many military officers found such a situation inconceivable.⁴¹ This concept illustrates the mindset of military leaders during the interwar period and their belief that a

modern war would follow a sequential timeline as opposed to a series of events with gradual increases in mobilization activities. While there are cases in which the U.S. entered into a conflict following a sequential time line, there are many more cases against timeline planning. The inability of private industry to meet the equipment needs of the expeditionary force during World War I should have been a clear indicator that industry would need to be mobilized ahead of military forces to provide the needed war materials.

Throughout the interwar period, the U.S. Army was authorized a strength of 280,000 Soldiers; however, throughout this period the actual strength of the Army was only 50 to 75 percent of this figure.⁴² The Army was built upon the concept of expanding itself to meet a future threat, and therefore would require a vast amount of war material not only for the Soldiers in the current ranks, but for the hundreds of thousands of recruits as the military force grew in size. Ideally, the equipment would be prepared in advance of the manpower, but this was never addressed in the industrial mobilization plans. In spite of all these experiences, the 1930 plan (and by extension subsequent plans) assumed that the progression of a conflict would follow a standard, linear timeline with the mobilization of the Army and Navy and conversion of the civilian industry all happening at the same time. In reality, this never happened. Nelson points out at the start of the Second World War, “it [the industrial mobilization plan] made famous the designation ‘M-Day,’ which never arrived or whose arrival was never detected.”⁴³

The 1930 plan also lacked many significant details, most notably estimated equipment requirements from each of the services. In spite of repeated requests from the ANMB for more details from the services to establish a joint procurement plan, these figures were provided on a limited basis.⁴⁴ The ANMB and, by extension, the Joint

Board failed to establish a lasting solution to overcome these issues between the services. The industrial mobilization plans would have to rely upon both inaccurate and incomplete data from the services for their plans. The lack of information would prove to be a serious impediment to every following version of the industrial mobilization plan.

In spite of its faults, the 1930 plan was another step towards refining the synchronization between the military and private industry. The 1930 plan was also the first attempt to outline a separate administrative structure that would prove necessary for industrial mobilization, address the needs for price control and establish guidelines for foreign munitions trade.⁴⁵ The 1930 plan recognized the importance of civilian industry to military operations, stating “The success of a modern fighting force is directly and immediately dependent on the ability of the nation’s resources to satisfy promptly its requirement in munitions.”⁴⁶

Following its approval, the 1930 plan went through an immediate revision, resulting in the 1933 plan. This was the first comprehensive industrial plan that was written by a joint organization and approved by both services of the military (the Army and Navy made individual attempts to develop mobilization procurement plans. The 1930 plan was the first national plan that was approved by the military and civilian political leadership).⁴⁷ A major addition in the 1933 plan called for the President to establish a central authority responsible for the industrial mobilization of the country after the declaration of war; this is the same concept that was enacted through the creation of the War Production Board (WPB) in World War I.⁴⁸ The central authority for national industrial mobilization outlined in the 1930 plan was the War Industries Administration, which would be headed by an “administrator of war industries” appointed by the

president.⁴⁹ The plan called for the activation of the War Industries Administration by the president at the opening of hostilities with a foreign power (ideally this would be a period just before a declaration of war). The War Industries Administration would act as the central authority for the individual boards and committees that existed during peacetime, coordinating and unifying their efforts until control could be transferred to a permanent designated authority.⁵⁰ The 1933 plan correctly envisioned that the success of national industrial mobilization would depend upon a centralized coordinating authority that answered directly to the President. The members of the ANMB envisioned themselves seamlessly melded into the War Industries Administration, where their training and experiences could guide the mobilization process and ease the process from peacetime to wartime production. Staff officers wrote in a memorandum on July 19, 1934 that “in order to make the War Industries Administration responsive to the needs of the Army and Navy, it is proposed to form the Army and Navy Munitions Board . . . provide a limited number of seasoned officer personnel . . . to assist the Administrator of the War Industries Administration and act as advisors to him.”⁵¹ The 1933 plan left no doubt that industrial mobilization and the wartime economy would be placed in the hands of military officers.⁵²

On March 16, 1935, Hitler announced that Germany would rearm and reinstate conscription, breaking the limits set by the Versailles Treaty.⁵³ As conflict in Europe seemed likely for a second time in the century, the ANMB produced an update to the 1933 plan. The 1936 plan updated many of the estimated requirements from the Army and the Navy (though it was far from a complete product) and expanded on the “mobilization super-agency” concept. The proposed authority and responsibility of the

War Industries Administration was expanded by the ANMB and renamed the War Resources Administration. The ANMB presented the 1936 plan to Bernard Baruch who was still considered the subject matter expert in national mobilization. Baruch was highly critical of the 1936 plan, finding that it did not adequately address the challenges of wartime mobilization. Baruch pointed out that the latest version of the industrial mobilization plan was based upon incomplete assessments from the services, which was most likely correct considering the level of resistance the Board faced from the services regarding centralized procurement and planning.⁵⁴ According to Baruch, the 1936 plan did not allocate enough resources towards supporting civilian production. The plan assumed that almost all of the nation's industrial resources would be dedicated towards military production. Baruch also found the concept of having the military in control of the nation's economy "intolerable."⁵⁵ Baruch recommended to the ANMB that the organizations responsible for industrial mobilization of the nation must be composed of military officers and private industrial leaders working in conjunction towards the wartime production goals.⁵⁶ Throughout the interwar period, and at the start of World War II, Baruch would continue to advocate the incorporation of civilian experts not only in industrial mobilization planning, but also throughout the entire mobilization process.⁵⁷

The 1936 plan was further revised and presented in 1939, during a period when a war in Europe now seemed inevitable after the German invasion of Poland. The 1939 plan, like the three before it, still called for the creation of a mobilization "super-agency," under the title of War Resources Administration. The 1939 Plan clearly placed all other mobilization agencies subordinate to the War Resources Administration, which was composed primarily of military officers. The 1939 plan was circulated to a selected group

of military officers and private industry leaders for review and further recommendations. One of the major criticisms was the lack of civilian involvement in the development of the plan and the details for the establishment of the War Resources Administration.⁵⁸ Unfortunately, corrections to the plan could not be completed, as the 1939 plan was the last industrial mobilization plan before the start of World War II.

Evaluation of the Industrial Mobilization Plan

The final version of the industrial mobilization plan was not used as the U.S. prepared for World War II. In spite of National Defense Act of 1920 and a Congressional mandate to ensure that the failings of World War I would not be repeated, the industrial mobilization plans remained on the shelf. As Nelson points out, “there had been plans and plans, but somehow events did not fall into the neat, operational patterns that had been arranged by the planners.”⁵⁹ The National Defense Advisory Committee (NDAC) did not use the plans as they “thought that contemporary problems were so much more intricate that new and fancier remedies would have to be sought.”⁶⁰ The immediate weaknesses with the 1939 industrial mobilization plan were in the accuracy of the information, the concept of military control over the industrial base and the support for the plan from the military and government.

Nelson was probably correct in his assessment that a newer solution had to be found. The issue of who would control the mobilization process was a constant source of friction between industrial, government, and military leaders that was not resolved during the interwar period. The plans always suffered from a lack of reliable data from the services, indicating that the figures regarding consumption rates, required resources, and industrial allocations were incorrect. As early as 1931 in annual reports to the Executive

Board, the ANMB pointed out to the Joint Board that the establishment of a joint procurement program was hampered by a lack of data from the services regarding material requirements and the identification of critical items.⁶¹ The problem was further compounded with the publication of the 1933 plan, which still failed to include reliable procurement data for the services. The ANMB again pointed out in a report to the Joint Board that the national war plans (specifically plan ORANGE) lacked the detail necessary for joint procurement and realistic procurement objectives.⁶² Though there were several follow-on actions that were documented, it does not seem that accurate data was provided; this inability may have been deliberate or (more likely) the services did not actually know the true figures themselves. The industrial mobilization plans were also significantly lacking in detail to the point of being considered by many parties as “superficial”.⁶³ The 1939 plan was less than 200 pages long, which illustrates the broad strokes the planners used and supported the views of the critics.⁶⁴ Gropman points out that at the start of the war both industrial and military leaders would recognize the need for aircraft and tanks, but the industrial plans did not address what types of planes and tanks to build.⁶⁵ Again, considering the limited guidance and input that the ANMB had from the war plans,⁶⁶ the industrial mobilization plans would lack significant detail. The argument could be made that the industrial mobilization plans were based on the best information that ANMB had been provided, resulting in a sub-standard product.

Thomas Hone argues that another major fault in the industrial mobilization plan was in the focus of the services. Hone points out that the Army, focused on manpower, directed the majority of its interwar planning towards personnel rather than equipment.⁶⁷ The Navy was obviously more focused on equipment procurement and planning and

often resorted to using their own system of contracts for procurement. The figures for the Navy's projected requirements were not provided to the board until the early 1930s and even then the Navy still maintained their own procurement process.⁶⁸

The industrial mobilization plans were created under some highly flawed assumptions. The most significant of these was the concept that the military would assume control of national industrial mobilization and, by extension, the national economy.⁶⁹ This assumption illustrates the information vacuum in which the plans were created and the perceptions of the senior military officers of that time period. The industrial mobilization planners seemed oblivious to some basic realities, such as the fact that Congress would never allow the military such a high degree of power over the national economy without civilian control.⁷⁰ It should be remembered that throughout the interwar period the relationship between the government and the military was never on the best footing and organizational rivalry was common. Additionally, the military was not in a position to take control of the national economy or effectively conduct national industrial mobilization as the lead agency. It would be hard to believe that they did not realize this fact themselves, basing these decisions in the industrial mobilization plans on the limited successes in World War I. While the military could take over operations of selected factories and transportation centers, mobilizing an industrial base that was as large, diverse and independent as the one in the U.S. without the support of the existing industrial leadership was foolhardy at best.

The industrial mobilization plans were further hampered by a lack of support within the military institutions themselves. Even though the industrial mobilization plans were approved by both the Army and the Navy, they were never fully supported by either

service. It has been illustrated in previous chapters that the ANMB was not viewed as an accepted part of either military service, often running into resistance when it came to establishing joint procurement policies and plans. Information sharing and compliance within the structure of the ANMB by the services was conducted in an almost grudging fashion. Dorwart illustrates this when he points out that the Navy Bureau of Supplies and Accounts refused to even participate in the review and revision of the industrial mobilization plans.⁷¹ When considering the challenges that the ANMB faced when preparing the mobilization plans, the resistance from the services throughout the interwar years was a significant factor that affected the quality of the products.

The various presidential administrations also failed to support the industrial mobilization plans. The government viewed the industrial mobilization plans as being inaccurate and superficial and was vehemently opposed to placing the military in charge of either the economy or civilian industry.⁷² Gropman points out “in the period from 1939 to 1941 he [FDR] saw himself bound to his political base” and had to avoid confrontations with industry and political leaders from within his own party.⁷³ Lacking political support from the President and his administration, the industrial mobilization plan would not receive support from any other governmental agencies.

Finally, the effect of the Lend-Lease program must also be considered when evaluating the effectiveness of the industrial mobilization plans. Initiated in 1939 as House Resolution 1776,⁷⁴ the Lend-Lease program was the actual “starting gun” for industrial mobilization. The Lend-Lease program could not be applied to the “M-Day” concept as it did not signal the start of a national mobilization, only an increase in the production of selected munitions manufacturers. As pointed out earlier, even during this

period the majority of Americans did not see the U.S. becoming involved in the European war. Lend-Lease now provided an arms market which industry throughout the U.S. would move to fill. Though military budgets were rapidly increasing, the introduction of foreign customers to the arms market allowed the expanding U.S. munitions industry to immediately clear their inventory and begin production of modern products. Arms and munitions sales in the years preceding the entry of the U.S. into the war helped the U.S. build an expandable industrial base and advance their level of technology in the field of military aviation.⁷⁵ However, this also presented an unforeseen level of confusion to the industrial mobilization plans, which were based upon the “M-Day” concept. Additionally, the amount of war material provided to the Allied countries under the Lend-Lease program would make the expansion of the U.S. military forces more difficult when America entered the war. The massive amount of equipment provided to the Allied countries was enough to equip over 100 U.S. divisions.⁷⁶ In spite of the fact that the same situation occurred during the First World War, the mobilization plans did not address the effect of foreign sales upon the munitions industry and how this would affect the ability of the nation to provide for its own forces.

In spite of all its shortcomings, the industrial mobilization plans should not be considered a waste of time or effort; in fact, the opposite is true. The industrial mobilization plans placed the nation in a higher level of preparedness, whereas there were no plans of the same scope prior to the start of World War I. Throughout the process of developing the industrial mobilization plans, the ANMB established a framework in the industrial mobilization plans that would later be developed into the controlled materials plan and the allocation system. The industrial mobilization plans would also establish the

necessary administrative structures that would be required to conduct a national industrial mobilization. As early as 1930, the industrial mobilization plans envisioned the creation of the WPB. These items illustrated the value of the industrial mobilization plans, even if they were not utilized in their entirety at the outbreak of World War II.

Though the 1939 plan was not used, the process behind its creation placed the nation in a better position than in World War I, where there was no apparent forethought to the conduct of industrial mobilization. Ralph Smith effectively argues that the exercise of creating the four mobilization plans⁷⁷ combined with the years of study and training allowed the U.S. to mobilize its industrial base without “the degree of floundering, delay, and confusion apparent at the beginning of World War I.”⁷⁸ Nelson writes that the industrial mobilization plan “which is in its own way a little masterpiece, should convince the American people that the government from the early 1920s onward was not oblivious of the possibility of another war.”⁷⁹ Hone is more emphatic in his support for the efforts behind mobilization planning when he states:

The energy and dedication aroused by Japan’s surprise attack are, in this mythology, credited with the feats of wartime production. Historians should know better . . . The source of American economic victory can be traced back to 1920, and to the efforts by the Army and Navy after 1920 to prepare for the next industrial war.⁸⁰

One of the significant products the ANMB provided was the framework for the control of limited materials, which would serve as the basis for the prioritization and allocation system. Throughout the interwar period, and specifically in the three years prior to World War II, the ANMB began to address the materials that would be required to support the national mobilization effort that were in short supply. The listings were divided into two broad groups of strategic items and essential materials. The strategic

items covered twenty-six resources that included a combination of metals, chemicals, and other supplies such as nickel, rubber, tungsten, and wool. The strategic listing also came to include selected chemicals and medical supplies. The second listing of essential materials consisted of foodstuffs, building materials, glass, iron, and steel.⁸¹

The industrial mobilization plans also laid the framework for the allocation plan, which sought to eliminate the duplication of effort between the services and correctly assign the right amount of resources to the correct service project.⁸² A significant annex to the industrial mobilization plans was a directory of industrial facilities throughout the country that could be utilized in the production of war materials. The directory would later serve as the basis for the facility allocation plan that would be utilized with the preparation and entry of the U.S. into World War II. The Army Industrial College in 1945 conducted a sample study that showed, with the exception of the Army Quartermaster Corps and Medical Department, in four major industrial cities 95 percent by value and 63 percent by number of war contracts from 1939 to 1943 were awarded to pre-selected facilities identified in the allocation plan.⁸³ Brigadier General Donald Armstrong would later relate:

The 1917 spectacle of the Army and Navy crowding each other in the placing of orders . . . getting into one another's way in the same plants has not been repeated. Months of valuable time have been saved. When the order came in September 1940, I went to work with those plants that I knew, that were allocated to the Ordnance Department. So allocation does work.⁸⁴

The use of the allocation plan illustrates that even though the industrial mobilization plan was never put into effect, it was still effective towards supporting the mobilization process.⁸⁵

The industrial mobilization plans also effectively developed the administrative structure that was essential to the country in the early months preceding World War II. Instead of allowing years to pass before establishing a centralized mobilization authority as the nation had done in World War I, the industrial mobilization plans had forecasted this need as early as 1930.⁸⁶ The administration that developed through World War II directly mirrored the proposed structure in the industrial mobilization plans. The Office of Emergency Management and later the WPB was the “mobilization super-agency” that was envisioned in the last three mobilization plans. Donald Nelson, whose role as the head of the WPB would be viewed as “the mobilization czar” fulfilled the requirement for a “mobilization authority appointed by the president” as outlined in the industrial mobilization plans.⁸⁷

While the industrial mobilization plans were never executed as a complete plan, they were successful in establishing the framework for many of the plans utilized in actual process. In preparing for World War II, these component plans placed the U.S. in a better state of readiness than at the beginning of World War I. Aspects of the industrial mobilization plan would form the basis of the prioritization and allocation systems that were instrumental to the success of the country in World War II. The industrial mobilization plan would also provide a vision for the management of essential raw materials, which would later be realized in the CMP.

Education for Industrial Mobilization

The industrial mobilization plans that the planning branch and the ANMB created assumed that military officers would direct the industrial mobilization of the nation.⁸⁸

There was also the belief that military officers would be required to assume direct control

of industrial plants that failed to meet production standards and the distribution of national resources during wartime. This assumption was founded upon the experiences from World War I when the military was forced to takeover several civilian companies and transportation services to meet the needs of the expeditionary force after the failure of civilian industry.⁸⁹ The military officers viewed the production of war material as a military responsibility and, tempered by their experiences in World War I, did not trust private industry to meet the increased demands.⁹⁰

Unfortunately for the military, they quickly discovered that their officer corps lacked both the experience and education to effectively manage civilian industry. Military educational institutions seemed to ignore the process of industrial mobilization. The Army War College, which is the premier educational institution for senior Army officers, offered only a single course that addressed industrial mobilization, and that was not geared towards a practical application. In October of 1931, the Joint Board proposed establishing a College of National Defense; the projected curriculum included courses in economics, foreign trade, and strategic materials.⁹¹ However, these courses were woefully inadequate to prepare officers for the task of managing civilian industry and a national economy.

In response to this situation the War Department issued a general order with the intention of creating an institution that would prepare officers for industrial mobilization. The Army Industrial College was established with the mission of “training Army officers in the useful knowledge pertaining to the supervision of all military supplies in time of war and to the assurance of adequate provisions for the mobilization of material and industrial organizations essential to war time needs.”⁹² The Army Industrial College

provided continuous training on the process of industrial mobilization, steadily accumulating an institutional knowledge base that was continually augmented throughout the interwar years with papers and lectures from Army and Navy technicians as well as leaders in civilian industry.⁹³ Harry K. Rutherford, who served as Dean of the College, strived to establish a curriculum that would provide the students with an understanding of the civilian economy and the workings of industrial organizations.⁹⁴ As with many of the interwar institutions, the Army Industrial College achieved mixed results. General Hugh Johnson assessed the idea of teaching military officers for positions of industrial leadership:

The Army Industrial College is a get-rich-quick course in which professional Army officers are taught, in a few months, all about running the industries of this country by military instructors, most of whom never even ran a peanut stand . . . No cramming course in “industry” and nothing he can read out of any books can make the average officer fit for business administration--much less to “direct the mobilization of industry.” The War Department itself has no business whatever “directing” industry in war . . . it would be just as absurd and disastrous to use them on this job as it would be to elbow all the generals aside and put industrial leaders in command of armies.⁹⁵

Though the Army Industrial College may not have been as effective for the mission originally envisioned, it did succeed in creating a cadre of officers that would later be instrumental in melding the efforts of the military and civilian industry. At the start of World War II, approximately 850 Army officers and 150 Navy and Marine officers graduated from the College, many who would find themselves serving in some capacity on the ANMB or one of the many production boards that would spring up through the war years.⁹⁶ Unlike the situation in World War I in which officers were thrown into private industrial leadership positions without any training as selected factories underwent military takeovers,⁹⁷ the Army Industrial College provided a training

curriculum in industrial and economic management that was missing from other military institutions. While this training may not have been the ideal, it did prepare the officer corps for the challenges of working in partnership with industrial leaders.

The attitudes of the military officers and private industrial leaders during this period reflect a disturbing state of affairs. The number of officers that shared General Johnson's opinions seemed to be few and far-between and often not in the positions of military leadership. As discussed earlier in this chapter, the prevailing opinion among military officers, many who were shaped by their negative experiences during the First World War, was that private industry would be unable to meet the demands of military materials during wartime. The stereotype that many military officers shared was that the civilian industrialists were more concerned with profits than meeting their military contracts.⁹⁸ The concept of military takeovers in civilian industry was established under the National Defense Acts of 1916, specifically to ensure that the flow of military equipment was not interrupted in a time of war.⁹⁹ The same stipulation was included as a part of the National Defense Act of 1920 for the same reasons. The civilian industrial leaders were equally distrustful of the military, as they undoubtedly knew of the possibility for military takeovers of civilian industry as established in the First World War. The result was a mutual distrust between the two parties that were essential to the success of industrial mobilization. While these problems would never be fully resolved, they would become more manageable with the advent of the WPB under the leadership of Nelson after the start of World War II.

Preparing for War

The military forces and the need for war materials would rapidly expand at the end of the interwar period before the actual declaration of hostilities. The National Defense Act of 1920 authorized an army of 280,000, but due to lack funding, the army never approached that number. Throughout most of the interwar years the strength of the army was less than 140,000 officers and enlisted soldiers.¹⁰⁰ In spite of the fact that public opinion was against expanding the military and entry into another world war, Congress and the U.S. government would begin to prepare the nation for war as hostilities in Europe increased. In 1937, while the U.S. still officially claimed neutrality, Congress funded the expansion of the Army to 158,000. In July 1939 it had grown to 188,565 and a further increase to 210,000 was authorized.¹⁰¹ As a result of these expansions, by May 1940 the U.S. had the 19th largest army in the world.¹⁰² The military expansion before entry into World War II also included increasing America's air power and force projection capabilities. In January 1939 FDR sought \$300 million to increase the Air Corps to 6,000 planes, with funding to build and upgrade airfields in Hawaii, Puerto Rico, Alaska, and Panama.¹⁰³

As the prospect of war became more of a reality, the U.S. began to slowly move towards national mobilization. Following the invasion of Poland on September 1, 1939, and the declarations of war by Germany, France, and Great Britain, the administration took a series of steps to start industrial mobilization. On September 8, FDR declared a limited national emergency, which, combined with the War Power Acts, allowed him to "control all production of materials related to the war effort from the mining of metals to the delivery of finished products and supplies."¹⁰⁴ The administration intended to allocate

the majority of these powers to the committees and boards that were established under civilian control. However, the ANMB managed to maintain a level of autonomy in regards to contracting with civilian industry and the allocation of raw materials, which were key to the industrial mobilization. The ANMB managed to secure these responsibilities and were successful in preventing their transfer to another organization.¹⁰⁵ This was achieved with no small amount of animosity between the military and the administration.¹⁰⁶

It was throughout the interwar period that the ANMB went from an organization that was ignored by government and military leaders to one of the key organizations responsible for the preparation of the nation's military forces. The industrial mobilization plans would define the efforts of the ANMB during this period and though they may not have been successful, they were crucial to preparing the U.S. for the Second World War. The ANMB's role in military procurement and coordinating the industrial effort of the country would continue to grow as the country moved towards war in Europe.

¹Smith, 41.

²Cardozier, 11-12.

³The Joint Board, FTP 155.

⁴Cardozier, 84.

⁵Gropman, 12.

⁶Ibid.

⁷Cardozier, 110.

⁸David F. Winkler, "WWII Submarines and the Naval Industrial Complex," *Sea Power* (April 2000), http://findarticles.com/p/articles/mi_qa3738/is_200004/ai_n8888192 (accessed 21 March 2008).

⁹Dorwart, 46.

¹⁰Cardozier, 84-85.

¹¹Smith, 40-41.

¹²Ibid., 34-35.

¹³Brian McAllister, Heritage Lecture #981, "The United States: Anticipating and Conducting War, 1939-1942," December 8, 2006, <http://www.heritage.org/research/NationalSecurity/hl981.cfm> (accessed March 10, 2008).

¹⁴Ibid.

¹⁵Ibid.

¹⁶Gropman, 22.

¹⁷Smith, 74.

¹⁸Cardozier, 5.

¹⁹Ibid., 11.

²⁰Smith, 75.

²¹Ibid., 73-75.

²²Cardozier, 11.

²³Ibid.

²⁴Smith, 132.

²⁵Naval Historical Center, "Colloquium on Contemporary History Project." Fifth Seminar, September 22, 2003, <http://www.history.navy.mil/colloquia/cch5e.htm> (accessed December 29, 2007).

²⁶Gropman, 93.

²⁷W. Michael Hix, Ellen M. Pint, John R. Bondanella, Bruce Held, Michael V. Hynes, David Johnson, Art Pregler, Mike Stollenwerk, and Jerry Sollinger, *Rethinking Governance of the Army's Arsenal and Ammunition Plants* (Santa Monica, CA: Rand Corporation, 2003), 23-24

²⁸Gropman, 9-11.

²⁹Smith, 73.

³⁰Ibid., 37, 74.

³¹Dorwart, 40.

³²Ibid.

³³Gropman, 25.

³⁴Ibid., 19.

³⁵Ibid.

³⁶Donald M. Nelson, *Arsenal of Democracy: The Story of American War Production* (New York, NY: DaCapo Press, 1973), 91; and Gropman, 19.

³⁷The Joint Board, Memorandum, Joint Board Number 325, June 7, 1924 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

³⁸Gropman, 21-22, 25.

³⁹Nelson, 91.

⁴⁰Ibid.

⁴¹Ibid., 19.

⁴²Cardozier, 73-74.

⁴³Nelson, 91.

⁴⁴The War Department, Office of the Chief of Ordnance, Report of Meeting of the Ordnance Committee and of the Power Plant, Machinery and Machine Tool Committee Army and Navy Munitions Board, April 2, 1926 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm); and The Joint Board, Memorandum, SUBJECT: Report of Munitions Board - Material Requirements, September 14, 1933 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

⁴⁵Gropman, 20-21, 25.

⁴⁶Ibid., 20.

⁴⁷Gropman, 20; and Executive Committee, Army and Navy Munitions Board, Memorandum, SUBJECT: Annual Report of the Executive Committee of the Army and Navy Munitions Board, May 1, 1933 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

⁴⁸Nelson, 1-2.

⁴⁹Gropman, 20-21.

⁵⁰Ibid.

⁵¹Ibid., 21.

⁵²Cardozier, 105-106, 109.

⁵³Ibid., 5-6.

⁵⁴The Joint Board, Joint Board Number 325.

⁵⁵Gropman, 21.

⁵⁶Ibid.

⁵⁷Dorwart, 33.

⁵⁸United States Civilian Production Administration, *Industrial Mobilization for War: History of the War Production Board and Predecessor Agencies 1940-1945*, Vol I (Washington, DC: Government Printing Office, 1947), 7.

⁵⁹Nelson, 3.

⁶⁰Ibid., 92.

⁶¹The Joint Board, Memorandum, SUBJECT: Annual Report of Executive Committee, Army and Navy Munitions Board. August 25, 1933 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm); and Memorandum, The War Department, Office of the Assistant Secretary of War, June 14, 1941 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

⁶²The Joint Board, Memorandum, SUBJECT: Annual Report of the Executive Committee, Army and Navy Munitions Board, August 25, 1933 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

⁶³Gropman, 22.

⁶⁴Ibid. NOTE: It should be noted that while Gropman states that the 1939 Plan was less than 100 pages long, Nelson refers to a 1940 Plan, which was approximately 200 pages long; and Nelson, 91.

⁶⁵Gropman, 35; and Nelson, 99, 105.

⁶⁶The Joint Board, Memorandum, Annual Report of Executive Committee; and Memorandum, Report of Munitions Board, September 14, 1933 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

⁶⁷Naval Historical Center.

⁶⁸Smith, 73; NOTE: The lack of planning figures from the Navy is inexplicable considering that the Assistant Secretary of the Navy was co-chair on the Army and Navy Munitions Board. My assumption is that the Navy was reticent to lose its procurement ability and subordinate itself to the Board.

⁶⁹Cardozier, 109.

⁷⁰McAllister.

⁷¹Dorwart, 41.

⁷²Gropman, 22-23.

⁷³Ibid.

⁷⁴Cardozier, 82.

⁷⁵Gropman, 34.

⁷⁶Ibid., 42.

⁷⁷Smith is one of the authors that does not recognize the 1924 Plan as an actual plan.

⁷⁸Smith, 705.

⁷⁹Nelson, 91.

⁸⁰Hone.

⁸¹Smith, 86-88.

⁸²Ibid., 257-258.

⁸³Ibid.

⁸⁴Statement of BG Donald Armstrong, Commandant, Army Industrial College, January 29, 1946, ICAF lecture (L46-16), 9.

⁸⁵Smith, 257-260.

⁸⁶Gropman, 20-21, 25.

⁸⁷Ibid., 20-21; and Dorwart, 38-39.

⁸⁸Gropman, 16, 21.

⁸⁹Smith, 36.

⁹⁰Gropman, 16.

⁹¹The Joint Board, Memorandum, SUBJECT: Proposed College of National Defense, October 28, 1931 (Fort Leavenworth, KS: Combined Arms Center Library, Microfilm).

⁹²Gropman, 15.

⁹³Nelson, 91.

⁹⁴Dorwart, 44.

⁹⁵Gropman, 17.

⁹⁶Ibid., 17-18.

⁹⁷Ohly, 11-12.

⁹⁸Gropman, 17.

⁹⁹Ohly, 11-13.

¹⁰⁰Cardozier, 73.

¹⁰¹Ibid.

¹⁰²Ibid.

¹⁰³Cardozier, 81.

¹⁰⁴Ibid., 104-105.

¹⁰⁵Ibid., 109.

¹⁰⁶Ibid.

CHAPTER 4

1939-1941: INDUSTRIAL MOBILIZATION OF THE NATION

1939: The Nation Prepares for War

As outlined in chapter 3, the U.S. found itself involved as an active participant in World War II, not through a single event that would equate to an “M-Day” start as outlined in the industrial mobilization plans, but through a slow process of gradual involvement. In anticipation of entering the war in Europe, Congress began a series of military budget increases. The passage of the Lend-Lease Act in 1940 was one of the defining events heralding America’s entry into World War II, though the mobilization process was still confused and disjointed. The ANMB began to play an active role in the mobilization process, though the lack of a centralized mobilization authority and popular support would hamper the process.

Though the military budget increases in 1937 and 1939 showed that the U.S. was preparing for war, House Resolution 1776 (the Lend-Lease Act) started the unofficial industrial mobilization process. The U.S. would gradually increase its military readiness as hostilities in Europe increased, but Lend-Lease started national munitions production. U.S. industry now had customers for their military goods and, acting in response to the new demands, began to modernize and retool their factories for the war effort. The initial mobilization of the industrial base, though in a somewhat disjointed fashion, did not occur as anticipated in the mobilization plans. As result of this “early start,” industrial mobilization was at a higher level of preparedness when the actual war began. A significant amount of the war materials that were used in the opening stages of World

War II were produced in the manufacturing plants constructed as a result of the budget appropriations from two years earlier.¹

The War Resources Board

Throughout this initial mobilization period, the ANMB coordinated the mobilization process. This process was made more difficult by the fact that though war had not been declared, the U.S. began a disjointed industrial mobilization. The situation was further confused by President Franklin Delano Roosevelt's (FDR) inability to establish a centralized mobilization authority. The ANMB, which was essentially ignored by current and past administrations until this period, was placed under FDR's presidential authority in July of 1939.² In response to the growing number of mobilization issues and the expanding role of the ANMB, the Departments of War and the Navy formed the War Resources Board on August 9, 1939.³ The Board consisted of private industry leaders selected by the Secretary of War (Louis Arthur Johnson) and Secretary of the Navy (Charles Edison) who were tasked with providing guidance to the ANMB on industrial mobilization. The first task placed before the War Resources Board was to review the current industrial mobilization plan (1939 plan) and make recommendations to the President regarding its applicability and areas for improvement.⁴ The administration also envisioned the War Resources Board as the basis for an organization that would serve as the mobilization "superagency" similar to the War Industries Board enacted in World War I.⁵ The Board was selected on August 14, 1939 and consisted of: Edward R. Stettinius Jr., Chairman of U.S. Steel; Walter S. Gifford, President of American Telephone and Telegraph; Brigadier General Robert E. Wood, former Quartermaster General (served as acting Quartermaster General in 1918) and in the employ of Sears

Roebuck; John Lee Pratt, retired vice-president of General Motors, Karl T. Compton, Massachusetts Institute of Technology physicist; and Harold G. Moulton, economist from the Brookings Institute. All of the selected members attended the Board with the exception of Bernard Baruch, former head of the War Industries Board, who requested that his name be removed from the selection list.⁶

The establishment of the Board was met with hostility from both the public and the media. Public sentiment at this time was almost unanimously against U.S. involvement in the European war.⁷ The media quickly drew attention to the creation of the War Resources Board as the U.S. preparing to enter into another world war. The language from the news articles announcing the formation of the Board seemed to support this assertion. The *Time* magazine article “Short of War” pointed out “*when the U.S. goes to war*, three master agencies will rise overnight in Washington . . . the War Resources Administration, to *draft and rule industry for the duration* [italics added for emphasis].” The article further points out “it [the board] would strictly control the production, financing, prices, labor of *all* U.S. Industry . . . plans for allocating U.S. production could be almost as useful to warring friends of the U.S. as to [a] warring U.S. Army and Navy.”⁸ The article from *Time* was reflective of popular opinion regarding the establishment of the War Resources Board. The decision to form the Board would meet with stiff resistance from isolationists, members of the anti-war movement, liberals in Congress and labor interests. Critics portrayed the Board as an attempt by the military and FDR to gain control over private industry, another example of the distrust between the government and private industry. In the face of growing criticism from Congress and the public, FDR allowed the Board to expire on November 24, 1939.⁹

The Start of Industrial Mobilization

In the period from October 1939 to May 1940 the U.S. was involved in a “phony war” where the country was providing logistics support to the Allies, though not directly involved in the conflict against the Axis forces.¹⁰ According to all accounts, the relationship within the ANMB between the military and civilian representatives was productive. However, the ANMB did experience conflicts with some of the boards and committees that shared various responsibilities for mobilization. Hone points out that the ANMB was often unwilling to work or share information with other mobilization boards or committees.¹¹ In this period, the ANMB was focused on settling disputes between the services in the allocation of resources and serving as the centralized point for linking private industry with the military.¹² Dorwart points out that many of the problems within the Board were not due to service rivalry or internal friction, but from a lack of clear policies and guidance from the services and the administration.¹³ The administration seemed reticent to give any of the mobilization organizations, including the ANMB, any direct authority for conducting mobilization process.¹⁴

The services themselves often worked through the ANMB grudgingly and provided only limited support to the Board. More often than not, the ANMB was seen by the services as more of an obstacle than an asset. This attitude could be attributed to the struggle within the services to maintain their own sense of independence. Institutions that attempted to establish a “joint” relationship were often relegated to a secondary status within their parent services and by the government. Organizations such as the Army and Navy Board were often neglected and ignored by presidential administrations.¹⁵ In the instances where the administration had to choose between the Army and the Navy, FDR

often supported the Navy. Though FDR's favoritism could be attributed to his earlier service with the Department of the Navy, FDR also considered the Navy as the nation's first line of defense.¹⁶ The joint nature of the ANMB often served to increase the rivalry between the services rather than reduce the tensions. The entry of the U.S. into World War II also served to increase the rivalry between the services as they began to compete for limited resources and material.

At the start of the "unofficial" industrial mobilization of the U.S. in 1939, FDR placed the ANMB under his authority but refused to make it the central coordinating authority.¹⁷ Instead, he continued to rely on a series of "ad hoc" boards and committees to coordinate the mobilization process. These Boards would cover almost every aspect of mobilization; the range of these organizations included the National Labor Relations Board, Office of Civilian Defense, Office of Defense Transportation, War Food Administration, and War Manpower Commission.¹⁸ Unfortunately, many of these committees and boards had conflicting priorities and overlapping responsibilities, which reduced their effectiveness and often caused organizational conflict. One historian points out "there were too many agencies with a say in too many parts of the economy for efficiency."¹⁹ The guidance from the administration was often vague and confusing which further compounded the problems within the mobilization structure. An illustration of this point occurred in 1940 when FDR called upon industry to be prepared to provide 50,000 airplanes a year. Even though the U.S. would almost double this production goal towards the end of the war, in 1940 it seemed out of reach. Unfortunately, the President never informed the industrial leaders what types of planes he was expecting them to produce.²⁰ In this period of confusion between the military, administration and industry,

the ANMB was often used to fill in for different areas of responsibility while these various boards and committees were formed and brought up to speed. The ANMB also served to mitigate the conflicts between domestic military production and munitions for foreign sales. As Nelson points out, the ANMB was “the only referee of the claims made by our own Armed Services and those of the Allies.”²¹

On May 25, 1940, President Roosevelt issued an executive order creating the Office of Emergency Management in an attempt to coordinate the vast amount of data from these different organizations.²² The Office of Emergency Management was established to serve as an “umbrella organization” that would coordinate the efforts of national mobilization while maintaining a direct line to the President. Unfortunately the Office of Emergency Management also proved unable to coordinate the different boards and committees involved in national mobilization. The Office was soon disbanded in favor of a more efficient organization. As the U.S. began to ramp up for a still undeclared war, a more efficient organization would not be established until the creation of the WPB. Until that time the administration would go through a series of advisory boards and commissions that would not have any real authority and therefore provide only limited support to the mobilization process.²³

As the war in Europe progressed, the U.S. began a program of expansion for the military forces. On May 16, 1940, FDR requested more than \$1 billion to begin to build defense installations, purchase military equipment, and increase the Army by 28,000 Soldiers, 13,000 of which were for the Air Corps. Congress denied the initial request, but as Axis aggression increased in Europe the request was later approved.²⁴ During fiscal

year 1940-1941 the Army constructed forty-five military camps across the country, half of which were entirely new sites, including twenty-one replacement-training centers.²⁵

The Priorities Committee and the Critical Lists

This period of expansion quickly required additional measures to allocate the limited resources to the nation's production capabilities. In early 1940, FDR gave some authority to the ANMB to set priorities for the distribution of scarce resources and finished products.²⁶ The industrial mobilization plan addressed the need to prioritize national resources and requirements using a rating system, but the system was never completed as a working document.²⁷ The priorities system focused on the programs of the Army and Navy; therefore it was important to have a degree of coordination between the two services. The ANMB was the obvious choice to establish and run the priorities system and had been charged with this responsibility under the Industrial Mobilization Plan.²⁸ In June 1940, the ANMB established the Priorities Committee, which would rank the production orders from the services before they went out to private industry.²⁹ As the ANMB was establishing the Priorities Committee, Congress ensured that private industry would be held to the priority ratings through the National Defense Expediting Act. The Act ensured that orders from the military would take priority over those from the private sector.³⁰

The priorities system did not apply to all industrial materials; only those that were deemed as critical or in short supply across the country. The priorities also applied only to specific military items, not every piece of military equipment. The "critical list" consisted of non-commercial items, specifically military products and their sub-components.³¹ The first draft of the critical list was not published until July 10, 1940, due

to a slow response from the services.³² At the same time the ANMB also published a draft plan for the assignment of priorities, which it circulated to the services and NDAC.³³

The critical list covered not only the item itself, but all of the components associated with the item. This was referred to as an “extension” from the critical list. The memorandum establishing the priorities system stated, “this priority rating, if necessary, may be automatically extended to materials, services, machine tools, related production machinery, equipment and supplies essential to production and the scheduled completion of these contracts.”³⁴ In effect, a single military end product could have hundreds of sub-components, all of which would have a priority rating throughout the production process. This would also affect every factory that was producing these sub-components, as these would now become the focus of that factory’s efforts. While this system addressed the inherent problems of having a priority on an item without prioritizing the sub-components (for example, it would not make sense to have a priority for a rifle but not for the sights, trigger, or bolt), it also defeated the purpose of having a priorities system and ran the danger of throwing other items into a shortage status.

The initial reaction from the services and NDAC to the critical list and priorities plan was initially positive; the deputy commissioner for the NDAC stated, “the plan, as outlined, seems to be simple and complete and we have no suggestions or criticisms to offer with regard to it.”³⁵ However, when the draft plan reached Donald Nelson in his role as Coordinator of National Defense Purchases, he advised that the plan be held as there were “several things about this system which will cause a great deal of difficulty.”³⁶ Nelson did not directly explain the issues that he saw causing such a great degree of

difficulty. The assumption by Smith is that Nelson was fearful that the recent upswing in the national economy would be curtailed by the limits of the priorities system.³⁷ A resolution was reached, with the priorities system being still administered by the ANMB in a limited scope and only for essential military products.

The United States Enters into World War II

On May 27, 1941 as aggression in Europe by Axis forces increased, FDR declared an unlimited national emergency.³⁸ That act should have triggered the start of a merger between the ANMB and the appointed mobilization authority. The ANMB would serve, in accordance with the industrial mobilization plans as the transitional authority to a centralized coordinating mobilization agency. However, this action never happened, as there was no designated mobilization authority and the ANMB was reticent to fall under the scope of one of the many mobilization boards. As a result, the ANMB worked in conjunction with the different mobilization agencies and still retained a level of autonomy.³⁹

The tensions that had always existed between the Army and Navy would again bubble to the surface as both services began competing for limited resources such as scarce materials, research facilities, money, and labor.⁴⁰ The General Board, which was established in 1900 as an advisory body of senior naval officers, informed Secretary of the Navy Frank Knox that the “traditional” process of procurement through joint boards (such as the ANMB) was ineffective during a wartime mobilization. The General Board explained, “this form of effecting liaison-cooperation is reasonably adequate in peacetime, but is wholly inadequate in [a] national emergency.”⁴¹

When war did arrive in the form of the attack on Pearl Harbor on December 7, 1941, the U.S. was already in the very early stages of industrial mobilization. As Cardozier points out, although the U.S. was definitely under-prepared for war in December 1941, it was not altogether unprepared.⁴² The nation now moved towards total industrial mobilization and would dedicate the majority of its industrial resources towards the production of war materials. Prior to its entry into World War II, the military relied upon six arsenals for the production of war materials; within a year thousands of factories across the country were engaged in the production of war materials.⁴³ The U.S. also made impressive gains in aircraft manufacturing. In 1939, there were only seventeen plants in the country; by 1941 that number had more than doubled (thirty-eight plants). At the end of 1943 that number had almost doubled (sixty-seven plants).⁴⁴ However, even with the efforts of the ANMB and other mobilization committees, the lag between the expansion of the military and provision of equipment was still evident. The early draftees were forced to train with broomsticks instead of rifles, wooden mock-ups instead of artillery, and trucks used to simulate tanks.⁴⁵

Eberstadt Assumes Leadership of the Army and Navy Munitions Board

Throughout the initial stages of industrial mobilization, the resources of the ANMB were sorely underutilized.⁴⁶ In August 1941, Secretary of the Navy James Forrestal and Undersecretary of War Robert Patterson begin to employ the ANMB as the central agency for interservice coordination. Their vision was that the ANMB would become the link between the military, industrial, business, and financial sectors.⁴⁷ Realizing that the Board would need to undergo a degree of restructuring, Forrestal asked

his longtime friend and fellow “Good Man”⁴⁸ Ferdinand Eberstadt to conduct a study of the ANMB and make recommendations to increase its effectiveness.⁴⁹ Eberstadt quickly became aware of problems in resources and economy for the war effort. Eberstadt started his study by conducting a series of interviews with current and former members of the ANMB, War Industries Board, economist, lawyers, and government administrators. In a meeting with economist Stacy May, Eberstadt learned that material and resource allocation would be the first significant challenge for the Board. May informed Eberstadt that the requirements from the Army alone exceeded available supplies by one hundred percent and that this “clearly indicated a definite and violent collision of the various contenders for the limited amount [of supplies] that would be available.”⁵⁰

In the course of his research, Eberstadt would come across the works of former ANMB Secretary Harry K. Rutherford (Harry Rutherford also served as the Dean of the Army Industrial College), which would profoundly affect the way that Eberstadt viewed mobilization planning. Rutherford had studied the issue of industrial mobilization, specifically focusing on the lessons learned from World War I and subject matter experts as Bernard Baruch. Rutherford presented Eberstadt with the book *Industrial America in the World War*, written by Grosvenor B. Clarkson.⁵¹

While the initial course of Eberstadt’s research was to assess and improve the performance of the ANMB, he now began to significantly expand the scope of his research. Throughout the course of his meetings with Stuart Scott (member of the ANMB and a lawyer in his civilian profession), Arthur Carter (War Department), Harry Rutherford (former member of the ANMB), and Stacey May (statistician and economist), Eberstadt began to share in their vision for a centralized mobilization organization in the

form of the War Industries Board from World War I. This led to a meeting with Bernard Baruch himself, which further reinforced Eberstadt's views regarding the need for a central mobilization authority.⁵²

Like Forestal, Eberstadt envisioned the ANMB as the central coordination point between the needs of the Army and the Navy, then translating those needs to civilian industry for production. The ANMB would be able to efficiently allocate the limited industrial resources between the services and limit the duplication of effort (and procurement actions) among the many committees that were being established to manage industrial mobilization. Eberstadt's report to Assistant Secretaries (sometime referred to as Under Secretaries) Forrester and Patterson recommended the closest coordination between the ANMB, other mobilization organizations (specifically the Office of Production Management) and private industry. Eberstadt envisioned the ANMB as a transitional authority that would eventually pass its responsibilities to a central mobilization authority (such as the modern equivalent of the War Industries Board). Eberstadt also insisted that the Board would be placed under civilian control. Eberstadt recommended a civilian chairman with a four-man executive committee composed of the Assistant Secretaries of the Army and Navy, and a supply or procurement officer from both the Army and Navy.⁵³

While the Assistant Secretaries welcomed Eberstadt's report, there were also critics of his recommendations throughout the administration. A significant amount of resistance came from the chairmen of the mobilization committees appointed by FDR, which viewed a reorganized ANMB as a threat, either limiting their own authority or duplicating the efforts of their organizations. A significant concern was that the ANMB

would exert military control over private industry, which was a point of bitter disagreement between the civilian and military leadership since the inception of the industrial mobilization plans. While Secretary of War Stimson and Secretary of the Navy Knox recommended Eberstadt's recommendations to the President, Directors of the Office of Personnel Management, Office of Price Administration, and Supply Priorities Allocation Board advised the President against them. It should be noted that when Eberstadt first approached Donald Nelson, Director of the Supply Priorities Allocation Board regarding his recommendations, Nelson agreed with his vision and supported the recommendations. When the recommendations were presented to the President, Dorwart claims that Nelson "moderated" his enthusiasm and accused that the recommendations would place the military in control over the civilian organizations.⁵⁴

The question of who would control the mobilization process was still the largest issue of contention between the parties. While the industrial mobilization plans created by the ANMB were based upon the concept of a military organization being in control of the process, it was obvious that neither the government nor the industrial leaders would allow this to happen. Donald Nelson, who held a considerable amount of influence within the Roosevelt administration, insisted that civilians would control the mobilization process.⁵⁵ President Roosevelt's response was characteristic of his administration, serving as a compromise between the different interests of the conflicting parties. FDR accepted Eberstadt's report and authorized the reorganization of the ANMB, and appointed Eberstadt as the first civilian director of the Board. In January 1942, FDR created the WPB that was the first real attempt by the administration to establish a central mobilization office with the authority to achieve the goals of the office. This would be the

centralized authority that was envisioned in industrial mobilization plans and recommended by Baruch and Eberstadt. The WPB would have authority over civilian industrial production, providing a layer of institutional insulation between the ANMB and private industry. FDR then appointed Donald Nelson as the head of the WPB, making him the “mobilization czar” and fulfilling the need for a “presidential appointment for mobilization coordinator” as outlined in the industrial mobilization plans.⁵⁶

Under Eberstadt’s leadership the ANMB found new life and a role in the mobilization process. Eberstadt was driven in the task of mobilizing national industry. In a speech to automobile executives Eberstadt pointed out that “We are all in the same boat, management and labor, Democrats and Republicans, easterners and westerners, rich and poor, black and white . . . what we are talking about is life and death itself, life or death of individuals, life or death for our institutions, for our country.”⁵⁷ The ANMB was so driven toward total mobilization that presidential assistant Eugene B. Casey called Eberstadt and the ANMB executive committee a cabal that sought “a fascist military dictatorship for the U.S.”⁵⁸ This is an interesting observation, since Eberstadt went through great pains to ensure that the ANMB’s military influence was checked by civilian control. In reality, the ANMB quickly served the purpose that Eberstadt, Patterson, and Forrestal envisioned: it moderated the procurement and production requests from the military services, balancing the needs of the Army and Navy with the overall war and mobilization efforts. It limited attempts by the services to centralize more authority with the service commanders and prevented abuses of the system. As Dorwart points out, the ANMB “prevented the Army from running amok.”⁵⁹

The Army and Navy Munitions Board and Plant Construction

One of the identified needs as the U.S. entered World War II was for more munitions plants. In the interwar years, plant management was managed by a series of different boards and committees, as well as the services themselves. The NDAC worked with the War Department and private industry on the creation of munitions plants. However, the NDAC did not have full authority regarding plant construction; in some cases plans that the NDAC had approved would later be turned down by one of the many other civil-military committees.⁶⁰ The responsibility for facility construction was transferred from the NDAC to the Office of Production Management. In turn, the Office of Production Management created several sub-committees that were tasked with managing facility location and construction. However, the responsibilities for facility construction was soon tasked to the services with the service chiefs responsible for projects less than one million dollars and the Under Secretaries responsible for any projects over that amount. Following the creation of the WPB in January 1942,⁶¹ responsibilities for plant construction fell to WPB sub-committees.⁶²

The number of new plants that were proposed for construction was staggering. At one of the last Office of Production Management meetings conducted on January 7, 1942, William Knudsen announced that fifty-five new plants were proposed for construction.⁶³ A result of the massive expansion, coupled with poor management and oversight, resulted in an over-extension of production capabilities. The Army was specifically criticized for creating new plants and expanding the existing munitions facilities while many small businesses were forced to close.⁶⁴ In March 1942, Colonel Philips and Commander Sickel, the Army and Navy Chairmen of the ANMB Priorities Division brought this issue

to the attention of the ANMB Executive Committee. They reported in a memorandum dated March 13, 1942 that:

If we continue as at the present, we shall have plants standing useless for lack of equipment or raw materials . . . other plants will be turning scarce materials into items which cannot be used to oppose the enemy because of the lack of other things which should have been made instead. We shall have guns without gun sights, tanks without guns, planes without bomb sights . . . planes which we cannot get to the field of battle because of the lack of merchant bottoms.⁶⁵

The WPB's Planning Committee was also quick to recognize the problems with the massive expansion of new construction projects. Following a study of the war munitions program, the WPB Planning Committee recommended a reduction of new construction projects by nearly half.⁶⁶

Concerned with correcting the imbalance between the new facilities and production capability, the ANMB and WPB formed the Committee on Industrial Facilities and Construction. The Committee was an interdepartmental organization; it was headed by Robert Nathan, Chairman of the WPB Planning Committee and included Colonel Philips and Commander Sickel as service representatives.⁶⁷ The Committee's first act was to conduct a study on industrial structure of the U.S. and the need for additional munitions producers. The findings of the report showed that the U.S. already possessed an underutilized industrial capability and the scarcity of raw industrial materials would limit national production. The report pointed out that many of the factories throughout the country were idle and could easily be converted to higher production levels. The Committee recommended to the ANMB and WPB that new construction project could be substantially reduced. The Committee also recommended the establishment of a facility review board with the authority to review new plant construction projects and limit facility programs that were not beneficial to the war effort.

The Board would work in conjunction with the ANMB to ensure that planned industrial capability met the future needs of the services. The proposed Board would replace the WPB's Plant Site Board, which had the responsibility for this task, but lacked the appropriate authority and influence.⁶⁸

Not all parties welcomed the findings of the committee. The War Department approved of the new facilities construction projects and was unwilling to surrender its control or influence over the program. In spite of the fact that he was a member of the WPB Planning Committee, Colonel Philips was ordered to file a dissenting report against the Committee's recommendations. The dissenting report pointed out that limiting new facility construction would delay the war effort and that the War Department did not need oversight in these matters.⁶⁹

The situation was resolved through a tentative agreement between the War Department, Navy Department, Maritime Commission, and the WPB on September 21, 1942. The WPB would create a new committee called the Facility Clearance Board. The Board was composed of two members from the War Department, two from the Navy Department, two from the WPB, and one from the Maritime Commission. The new board replaced the War Department's Committee on Facilities, the ANMB Facilities Clearance Committee, and the WPB Plant Site Board. The Facility Clearance Board was tasked with reviewing and approving industrial expansion and construction projects throughout the country. The authorization of projects was linked with the allotment of raw materials under the CMP.⁷⁰

The establishment of the WPB finally placed civilian administrators in a clear position of leadership for the mobilization process. However, the military leadership was

unwilling to release their control over the mobilization process to Nelson and the WPB. The military, which often suffered a lack of recognition by presidential administrations and the public during the interwar period, enjoyed a resurgence in power and influence with the entry of the U.S. into World War II.⁷¹ The military viewed itself as an equal to Nelson and the WPB and would continue to involve itself in every aspect of mobilization. Conflicts between the two parties were quick to surface. Nelson often displayed a concern for the amount of production capability that was allocated towards providing for the civilian population. This was interpreted by the military as “pampering” civilians instead of allocating the total production capability towards war effort munitions.⁷² This situation set a climate of competition and friction between the military and the WPB that would continue throughout the war.

The Controlled Materials Program

The CMP was one of the most important programs exercised by the U.S. throughout the industrial mobilization process. The plan was first developed when ANMB Chairman Ferdinand Eberstadt began to notice that industrial production was often delayed not because of a lack of manpower or production capability, but due to a lack of essential production materials such as steel, copper, rubber and aluminum.⁷³ In his study of the industrial mobilization plans and meetings with mobilization planners from World War I, Eberstadt envisioned a more effective method for the management of limited materials. The industrial mobilization plan and ANMB had made efforts to address the issue of limited materials during the interwar years, but these were mostly ignored by the different administrations and never organized into comprehensive plan.⁷⁴ Eberstadt was not able to implement his plan in his role as Chairman of the ANMB as the

management of materials was outside the responsibility and authority of his office. In March 1942, Eberstadt contacted William Batt (WPB vice-chairman) and James Knowlson (Chairman of the Division Industry Operations) of the WPB regarding his plan for the management of limited materials. The plan eventually made its way to Nelson, who accepted the plan and offered Eberstadt a position as Knowlson's assistant. Eberstadt turned down the position, as his current position as Chairman of the ANMB held more authority and influence.⁷⁵ As the WPB continued to lose influence and support, Nelson was advised by several of his supporters to bring Eberstadt onto the WPB. Nelson offered Eberstadt the position of WPB Vice-Chairman with direct responsibility for implementing the CMP.⁷⁶ Eberstadt accepted the position and began to structure the plan for nationwide implementation.

Eberstadt used models from German trade association documents and structures found in the Dawes and Young reparations commission. Eberstadt also used General Motors as a model for the CMP, specifically their management systems to coordinate available materials directly to production forecasts throughout their entire manufacturing process. He was so impressed with General Motors' management style that he would call them "the best organized company in the United States."⁷⁷ Eberstadt would fall back on members of the "Good Man List" in the development of the CMP. He also used the resources of the ANMB to draft an initial plan developed by CDR John Small and MAJ James Boyd.⁷⁸

Once the CMP was completed, Eberstadt had to sell it to the administration, most with ties to the "New Deal" program that were already suspicious of any plan that would curb the industrial growth of the nation.⁷⁹ The objective of the CMP was to make

industrial production more efficient, though at the same time it would also limit the number of contracts issued by the government. The CMP would require an allocation of resources before the issuance of the contract, which would change the current aspect of industrial production for the war.

Nelson was one of the first to raise issue with the CMP. He pointed out that the CMP would make it more difficult for smaller businesses to secure procurement contracts, as they would have to rely upon larger industries for the sub-components and resources.⁸⁰ However, Eberstadt was able to successfully address the concerns of Nelson and other national manufacturers by presenting the CMP as a “patriotic blueprint to win the war.”⁸¹ Eberstadt portrayed the CMP as a way for smaller and larger industry to work together rather than in competition. Nelson eventually endorsed the CMP, but with an interesting redistribution of authority and responsibility. Nelson recruited General Electric executive Charles E. Wilson as WPB Vice-Chairman in charge of production. This appointment limited Eberstadt’s authority to the areas of programs and planning and severely curtailed his ability to implement the CMP.⁸² The result was a constant state of conflict between Eberstadt and Wilson,⁸³ both men possessing strong personalities and a belief that their actions were in the best interest of the nation.⁸⁴ Unfortunately, the conflict between the strong personalities at the WPB (Eberstadt, Nelson, and Wilson) would later result in the dismissal of Eberstadt from the WPB and the stage of national wartime industrial production.⁸⁵ However, one Eberstadt’s final actions supported the implementation of the CMP nationally.⁸⁶

Following the loss of Eberstadt as chairman, the ANMB continued to function as the liaison between the military and private industry. In order to stimulate efficiency and

higher production rates through national industry, the ANMB established an awards program in 1942. The ANMB created the “Star Award” as an incentive to recognize factories and plants that had met or exceeded production allocations. The award started as an expansion of the U.S. Navy “E” awards, which stood for “excellence” and were presented to gunnery and ship crews for superior performance. Initiated in 1906 by President Theodore Roosevelt, the “E” awards were painted on the side of the awarded ship, and the crews were entitled to wear the insignia on their uniforms. In 1941, the Navy expanded the use of these awards to the Maritime Commission Award of Merit, which was presented to shipbuilding companies that had performed above expectations. The Army, attempting to follow suit, began to establish the “A” award in 1942, but this was shelved for the use of a joint award. In June 1942, the ANMB established the criteria for the “Star Award” which would be a unified award to encourage civilian production.⁸⁷

In early 1943, it had become obvious to government and military leaders that the lack of centralized procurement and mobilization authority could no longer be ignored. The constant infighting between the military and civilian administrators seriously hampered the effective mobilization of the nation.⁸⁸ A committee headed by Senator Harry Truman began to investigate the lack of unity behind the national mobilization efforts. Truman and other members of the Senate and Congress demanded the creation of a single agency that would be able to coordinate mobilization and the procurement needs of the Army, Navy, Maritime Commission, and foreign sales. Dismayed by the constant friction between the military and civilian administrators, Truman made it clear that this coordinating authority would be placed under civilian authority.⁸⁹

As the Senate and Congress began to review the process of mobilization and procurement from the past two years, they began to identify significant weaknesses in the WPB. Nelson did not appear to utilize the full authority of his office and was often in conflict with other mobilization structures.⁹⁰ In turn, many civilian administrators and military officers on the ANMB viewed Nelson as both “weak and incompetent.”⁹¹ The press had also been relentless in pointing out the weaknesses in the mobilization process and problems in the WPB specifically.⁹² Truman viewed the necessity of a centralized authority as so important that he threatened to establish it himself through legislation if FDR did not.⁹³

On May 23, 1943, FDR established the Office of War Mobilization (OWM) giving it authority over all war-related activities except military strategy. FDR established the OWM under an executive order rather than going through a legislative process as this gave him more control over the organization.⁹⁴ The OWM was tasked to “unify the activities of the Federal agencies and departments engaged in, or concerned with production, procurement, distribution or transportation of military or civilian supplies, material and products and to resolve and determine controversies between such agencies or departments.”⁹⁵ The OWM was also tasked to “develop unified programs and to establish policies for the maximum use of the nation’s natural and industrial resources for military and civilian needs, for the effective use of national manpower not in the armed forces, for the maintenance and stabilization of the civilian economy, and for the adjustment of such economy to war needs and conditions.”⁹⁶

James F. Byrnes was selected as Chairman of the OWM. Byrnes was a former congressman and senator from South Carolina who was appointed to the Supreme Court.

FDR convinced Byrnes to resign from the Supreme Court and serve as the Director of the Office of Economic Stabilization. Byrnes had a good relationship with the President and had gained the confidence of Congress and the press. Byrnes proved to be an ideal selection as head of the OWM by virtue of his ability to diffuse conflicts between different agencies to the satisfaction of both parties.⁹⁷

The OWM proved to be one of the more successful organizations to come out of the war. The OWM served as the central coordination authority that had been advocated in the industrial mobilization plans but never successfully implemented by the different committees and boards established as the U.S. began mobilization. The OWM was able to synchronize the efforts of the different committees responsible for mobilization and resolve the inter-service conflicts that arose between them.⁹⁸

In reviewing the process of industrial mobilization and wartime production during World War II, the number of problems and issues seems insurmountable. However, the production of munitions throughout the U.S. was massive. In 1943 alone, the U.S. produced 29,500 tanks, which was more than Germany was able to produce in the entire war. Throughout the entire war, the U.S. produced 88,430 tanks in comparison to the 24,050 produced by Germany and the 24,800 produced by Great Britain. In 1939 the U.S. produced 5,865 airplanes valued at \$280 million; in 1944 the U.S. produced 96,379 airplanes valued at \$17 billion. The U.S. was not only producing a greater quantity of equipment but also vastly increasing the lethality of its weapon systems.⁹⁹

Reconversion and the Post War Period

In 1944 the U.S. had reached a position of balance between the demands of the military and the production capability of the industrial sector.¹⁰⁰ Nelson, looking at the

progress of the war and the task of converting industry back to civilian production, would argue to the administration that the production of war material could be slowed. In opposition, the military would argue that a stance of total industrial mobilization would need to be maintained until the end of the war.¹⁰¹ This situation would continue to be an issue of contention between the military and the WPB. The issue was not resolved until the President appointed Nelson as a special emissary to China, replacing him on the WPB with Julius Krug.¹⁰²

In 1947 there were several different supply systems within the Army alone; the other services, including the Navy and newly founded Air Force also maintained their own procurement systems, often with overlapping and competing priorities.¹⁰³ The ANMB was now one of several procurement organizations that had been created to handle the massive tasks of industrial mobilization and procurement during World War II. The very reason behind the creation of the ANMB (the establishment of a unified procurement division for all services) was now invalidated by numerous other independent procurement structures. The revised National Defense Act of 1947 was created with the purpose of eliminating these duplicate structures and again bringing procurement under a centralized structure. In 1949 President Truman called for the creation of the Commission on the Organization of the Executive Branch of the Government, with the task of streamlining government bureaucracy and eliminating the duplication of effort by various departments. Former-President Herbert Hoover was selected to lead this commission and provide a series of recommendations in a report to the President.¹⁰⁴ The Commission recommended that the National Defense Act of 1947

be further amended to strengthen the authority of the Secretary of Defense, allowing him to reorganize the procurement processes within the services.¹⁰⁵

The U.S. Congress was now faced with the same problem that was presented in 1920; the establishment of unified organization for procurement across the services. Congress had become disenchanted with the ANMB, and in the Defense Cataloging and Standardization Act of 1952, transferred the functions of the Board to the Defense Supply Management Agency.¹⁰⁶ Eisenhower's Reorganization Plan Number Six, established in 1953, eliminated both the ANMB and Defense Supply Management Agency and integrated supply management for the services under a Joint Service Support Center.¹⁰⁷ That support center would undergo numerous changes, but the ANMB, which had served the nation for over thirty years, would be disbanded.

¹Cardozier, 82.

²Dorwart, 41

³Cardozier, 105.

⁴Ibid., 105-106

⁵Gropman, 25-26.

⁶Time.com, "Short of War," *Time*, August 21, 1939, <http://www.time.com/time/magazine/article/0,9171,762352,00.html> (accessed December 14, 2007).

⁷Cardozier, 11; and Gropman, 93.

⁸Time.com, "Short of War."

⁹Cardozier, 105-106.

¹⁰Gropman, 31.

¹¹Hone.

¹²Gropman, 31; and Nelson, 87-88.

- ¹³Dorwart, 46.
- ¹⁴Gropman, 34-37.
- ¹⁵Dorwart, 71-72.
- ¹⁶Ibid.
- ¹⁷Ibid., 41.
- ¹⁸Cardozier, 106.
- ¹⁹Gropman, 83.
- ²⁰Ibid., 35.
- ²¹Nelson, 88.
- ²²Gropman, 31.
- ²³Ibid., 34-37.
- ²⁴Cardozier, 73.
- ²⁵Ibid., 74.
- ²⁶Dorwart, 33.
- ²⁷Smith, 508.
- ²⁸Ibid.
- ²⁹Nelson, 89; and Smith, 509.
- ³⁰Smith, 509.
- ³¹Ibid., 510.
- ³²Ibid., 510, 528.
- ³³Ibid., 530.
- ³⁴Ibid., 528-529.
- ³⁵Ibid., 530.
- ³⁶Ibid.

³⁷Ibid., 531.

³⁸Gropman, 37.

³⁹Ibid.

⁴⁰Dorwart, 34.

⁴¹Ibid.

⁴²Cardozier, 72.

⁴³Ibid., 131.

⁴⁴Ibid., 141.

⁴⁵Ibid., 196.

⁴⁶Dorwart, 41.

⁴⁷Ibid.

⁴⁸The reference “Good Man” refers to a list that Forrestal and Eberstadt created as classmates at Princeton University. The two gentlemen created a networking list of friends that started out as “The Good Man Fishing List” and later was shortened to the “Good Man List.” In cases where there was a need for a reliable individual to fill a civilian or government post, Forrestal and Eberstadt would refer to “The Good Man List.” A listing of selected individuals from “The Good Man List” included as an appendix in Dorwart’s book, *Eberstadt and Forrestal: A National Security Partnership, 1909-1949* includes oil executives, investment bankers, lawyers, industry executives, government advisors and members of the Office of Strategic Services (OSS). Some names on “The Good Man List” include Bernard Baruch, Thomas Armstrong, William Donovan, Allen Dulles and Herbert Hoover.

⁴⁹Dorwart, 41-42.

⁵⁰Ibid., 43.

⁵¹Ibid., 44.

⁵²Ibid., 45-46.

⁵³Ibid., 47.

⁵⁴Ibid., 46-47.

⁵⁵Gropman, 73.

- ⁵⁶Dorwart, 47-48.
- ⁵⁷Ibid., 49.
- ⁵⁸Ibid., 50.
- ⁵⁹Ibid.
- ⁶⁰Smith, 450.
- ⁶¹Gropman, 56.
- ⁶²Smith, 450-452.
- ⁶³Ibid., 452.
- ⁶⁴Ibid., 420.
- ⁶⁵Ibid., 453.
- ⁶⁶Ibid.
- ⁶⁷Ibid.
- ⁶⁸Ibid., 453-454.
- ⁶⁹Ibid., 454.
- ⁷⁰Ibid., 454-455.
- ⁷¹Gropman, 73.
- ⁷²Ibid.
- ⁷³Dorwart, 51.
- ⁷⁴Smith, 88-93.
- ⁷⁵Dorwart, 51.
- ⁷⁶Ibid., 51-52.
- ⁷⁷Ibid., 51.
- ⁷⁸Ibid., 53-54.
- ⁷⁹Ibid., 54.

⁸⁰Ibid., 54-55.

⁸¹Ibid., 55.

⁸²Ibid.

⁸³Eberstadt would later claim that there was no conflict between himself and Wilson. Eberstadt would also later claim that he should have gone to his political allies to resolve these personality issues, but he chose not to become involved in a “political maneuvering”; and Dorwart, 55-56.

⁸⁴Dorwart, 55-56.

⁸⁵Ibid., 57-59.

⁸⁶Ibid.

⁸⁷Edward D. Sims, Production Awards of World War II, <http://web.jps.net/~e.sims.frame2.html> (accessed December 13, 2007).

⁸⁸Cardozier, 119.

⁸⁹Gropman, 83.

⁹⁰Ibid.

⁹¹Dorwart, 50.

⁹²Gropman, 83; and Cardozier, 120.

⁹³Gropman, 83.

⁹⁴Cardozier, 120.

⁹⁵Gropman, 83-84

⁹⁶Ibid.

⁹⁷Cardozier, 119.

⁹⁸Gropman, 85-86.

⁹⁹Ibid., 93.

¹⁰⁰Cardozier, 113.

¹⁰¹Ibid., 113-114.

¹⁰²Ibid., 114.

¹⁰³Defense Logistics Agency, “History of the Defense Logistics Agency,” <http://www.dla.mil/history/history/html> (accessed December 14, 2007).

¹⁰⁴Ibid.

¹⁰⁵Ibid.

¹⁰⁶Ibid.

¹⁰⁷Ibid.

CHAPTER 5

COMPARISON OF ECONOMIC STRUCTURES AND CONCLUSION

Industry and Modern Warfare

The industrial strength of a nation has always contributed to its success on the battlefield, but in World War II the link between industrial production and victory had become a critical factor. Clarke pointed out in 1940 that modern warfare had evolved into economic warfare. The First World War was not won by tactical engagements between national armies, but rather the amount of war materials that each country could project onto the battlefield.¹ The concept of economic war carried into World War II where, as Stalin pointed out, it became a war of production between the Allied and Axis nations.² In comparison with the other belligerents in World War II, the U.S. was the unquestioned industrial power (see figure 2). The U.S. was able to produce a higher quantity of almost every munitions resource, which decisively shifted the Second World War in the favor of the Allies.³

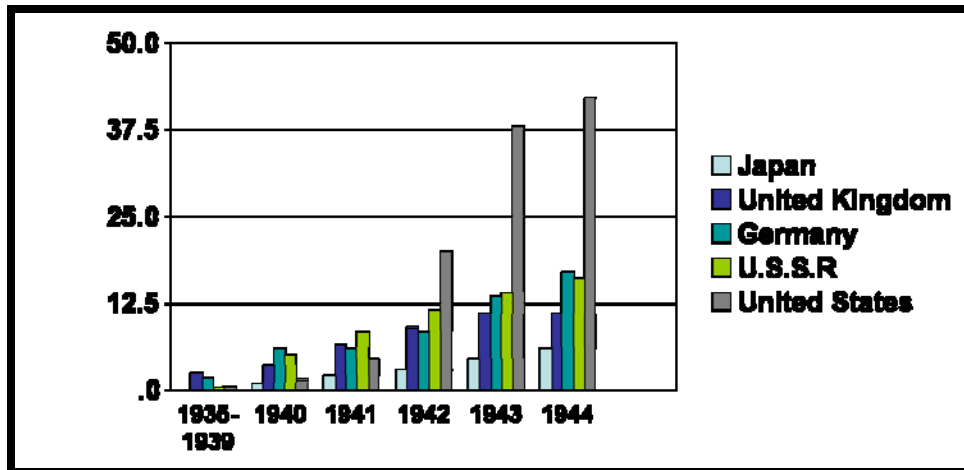


Figure 2. Volume of Combat Munitions Production of the Major Belligerents, 1935-1944
(Annual Expenditure in \$ Billion, U.S. 1944 Munitons Prices)

Source: Figure created by author with information from Alan Gropman, *Mobilizing U.S. Industry in World War II: Myth and Reality* (Washington, DC: National Defense University Press, 1996), 130.

NOTE: Figures for 1935-1939 are given as a cumulative expenditure in the source, annual average expenditure in this table.

The U.S. was successful in mobilizing its industrial strength in support of the Allied effort throughout World War II. This dissertation addressed the role of the ANMB in preparing the nation for a major war, but also some of the larger issues regarding the effectiveness of U.S. industrial mobilization. Gropman points out that “mobilization could have been more efficient and American could have produced more munitions more quickly and perhaps ended the war sooner.”⁴ Throughout this thesis, the industrial power of the U.S. has been amply illustrated and there can be no question as to the significance of the U.S. munitions industry in the successful conduct of the War. In order to evaluate the effectiveness of the U.S.’ industrial mobilization, the process will be compared in this chapter the U.K. and Nazi Germany.

Comparison between the United States and the United Kingdom

The comparison between the U.S. and the U.K. is more apt when compared to other belligerents in the Second World War due to the similarity in the governments and industrial organization. The population of the U.K. and the U.S. both operated on a free market economy. The populations of both countries were intrinsically opposed to government control over private industry. The U.S. and U.K. also shared a unique relationship even before the entry of the U.S. into the war. While the majority of the American people were opposed to entering into another European war, a majority of roughly 60 percent favored assisting the U.K. against Axis aggression.⁵ The Lend-Lease program, “Bundles for Britain” (a program established to provide small arms, medical supplies, and other essentials to the U.K.) and the establishment of the British War Relief Society (an organization based in the U.S. that provided money and support to the U.K. prior to U.S. entry into the War) illustrated the strength of this relationship.⁶

There were many similarities between the industrial mobilization of the U.K. when compared with the process utilized by the U.S.. The U.S. and the U.K. began the process of planning for the next major conflict roughly during the same time period, incorporating the lessons from World War I into their planning process. While both countries were successful in the process of industrial mobilization, the U.K.’s process did a greater degree of damage to the structure of small businesses, which the U.S. managed to avoid.

The U.K. started planning for industrial mobilization in the event of another major conflict in 1923, roughly the same time that the U.S. implemented the National Defense Act of 1920 and the creation of the ANMB. The British industrial mobilization plans

were more successful in allocated existing economic and industrial structures to the services (Army, Navy, and Air Force) well in advance of World War II.⁷ While the planning concepts used by the U.K. were more efficient than those in the U.S., the U.K. was severely limited by the size of her industrial base and the limitations on facility expansion.

The U.K. made several significant improvements in national mobilization based from lessons learned in World War I. One of the most important lessons involved the systematic allocation of manpower between the military and industrial requirements. At the onset of World War I, there were mass enlistments throughout the U.K. from all sectors of the population. Clarke points out that many of these enlistees were also skilled workers in the munitions industry, resulting in a shortage of industrial manpower. Essential wartime industries were forced to hire and train a new workforce while simultaneously expanding to meet wartime demands. In World War II, the British government placed greater efforts in matching the manpower demands with the anticipated expansion of a wartime industrial base.⁸ Though the U.S. attempted to control the application of its manpower through the use of the Selective Service, the U.S. also faced challenges in the munitions industry workforce, but more likely for a different set of reasons.⁹

However, even with a significant amount of advanced planning, the U.K., like the U.S., was seriously unprepared for war in 1939.¹⁰ In the years prior to 1939, the U.K. counted upon negotiation rather than military force to counter German aggression in Europe.¹¹ As late as 1938, U.K. defense spending was only 7 percent of the national income.¹² Surprised by the rapid series of victories by Axis forces, the U.K.'s economy

was unable to match the immediate needs of an expanding industrial base. As early as November 1940, Ambassador Lord Lothian informed the U.S. president that the U.K. would require not only munitions, but also financial support.¹³

In some areas of industrial mobilization, the U.S. was more effective than their British counterparts. While many smaller U.S. businesses suffered from the switch from a peacetime to war economy, this was not significant when compared to the effect in the U.K.. As early as December 1940, losses to British shipping had reached 450,000 tons a month.¹⁴ Under the vast demands for replacement ships during the “submarine crisis,” the British merchant shipbuilding industry nearly collapsed.¹⁵ Smaller businesses in the U.K. also suffered during industrial mobilization. Unable to obtain government contracts or lacking an adequate wartime product application, almost 20,000 small businesses manufacturing plants in the U.K. were forced to close.¹⁶

The U.K. did face several unique challenges from which the U.S. was exempt. Clarke accurately points out that the industrial base of the U.K. was subject to constant air attacks at the beginning of the war, resulting in a loss of production and the further allocation of limited resources to repair the damages.¹⁷ The U.K. was also more dependent upon the sea-lines of communication than many of the other belligerents in World War II.¹⁸ While the U.S. suffered through the loss of merchant shipping during the early stages of the war, the U.K. was faced with the loss of both the ships and the critical supplies they carried. It should also be noted that while the Allies lost merchant shipping, the U.S. was able to replace the losses until the Battle of the Atlantic turned in favor of the Allies. The U.K. was not able to replace their losses at the same rate, especially in the

category of merchant shipping, though the numbers provided by U.S. production covered these losses.¹⁹

In comparison, the U.S. was able to achieve greater production rates from their munitions factories than the U.K.. Smith points out that while British factories provided compensation to munitions factories on an annual basis, the U.S. government provided compensation on a per-unit basis. As a result, U.S. factory production rates were substantially higher than their British counterparts even though they were using the same design plans and level of technology.²⁰

The U.S. and the U.K. both instituted a plan for the allocation of limited raw materials. In the U.K., the Ministry of Supply exercised control over the shipment and allocation of raw materials; the Ministry often worked in conjunction with the Board of Trade when making these decisions.²¹ The system practiced by the U.K. was very similar to the CMP, which was established by Ferdinand Eberstadt and implemented throughout the U.S. (discussed in chapter 4, subsection 9).²²

There are not any major differences in the mobilization experience between the U.S. and the U.K. that could have been addressed during the interwar period. The industrial mobilization systems used by the U.S. and U.K. were very similar. The two countries began industrial mobilization planning for the next conflict almost at the same time (early 1920s) whereas the U.S. created a new administrative structure the U.K. used existing government ministries. It is evident that both countries were not as prepared for industrial mobilization at the outbreak of hostilities as they could have been, though for different reasons. Organizational issues, such as the lack of a centralized mobilization authority hampered the mobilization of both the U.S. and U.K. Harrison points out “as far

as the U.K. economy was concerned, the rule was to fight the war by committee.”²³ The U.K. also had its champions for industrial production, such as Lord Beaverbrook (Sir William Maxwell Aitken before becoming a noble) who served as Minister of Aircraft Production (1940 to 1941), Minister of Supply (1941 to 1942) and Minister of War Production (1942).²⁴ Akin to Ferdinand Eberstadt, Lord Beaverbrook recognized the need for critical materials and a streamlining of munitions production in the U.K.²⁵ Lord Beaverbrook was famous for his watchwords “committees take the punch out of war” and “organization is the enemy of improvisation.”²⁶

However, the U.S. enjoyed several advantages, especially that of entering into the war almost two years after the U.K., gaining valuable time to prepare for national wartime mobilization. The U.S. was not subject to any major attacks upon its industrial base and remained essentially unopposed in its control over North America.²⁷ The U.S. was not as dependent upon the sea-lines as a source of supply when compared with the U.K., though the U.S. was faced with the challenge of transporting their goods to the wartime theaters.

Comparison between the United States and Nazi Germany

There are several distinct differences between the wartime economies of the U.S. and Nazi Germany, which make a comparison more difficult. Unlike the U.S., Germany was subject to constraints under the Treaty of Versailles, which limited the size of German military forces and munitions production capabilities throughout the interwar period (until these constraints were broken by the Hitler and the Nazi Party). The most striking contrast is the issue regarding military or government control of the national

economy. As we have seen throughout this dissertation, control of the national economy was a constant source of friction between the U.S. government, military and private industry. In Germany this conflict did not exist as there was no question that the Nazi Party (and by the extension the military) was in control of the national economy; private business was severely regulated and almost completely under government control. The German war economy was linked with the strategic concepts of “blitzkrieg”; as a result, Nazi Germany was not prepared to support a “long war.” In contrast, the U.S. conducted an industrial mobilization that was almost total in scope right from the outset of declared hostilities. There were differences in munitions industry development between the two countries. The German munitions factories were more productive than the U.S. munitions factories, though the U.S. was able to build a greater number of munitions plants, producing a significantly greater number of munitions (see figure 2).

The industrial mobilization of Germany was unhampered by questions regarding which party (government, military, or private industry) would be in control of the national economy. In contrast to the U.S., the German economy was controlled by the Nazi Party, which exercised a degree of substantial control over private industry. While internal conflicts did exist between different offices and personalities, the supremacy of the party was unquestioned. The Reich Defense Law of 1935 provided the War Minister with the authority to issue emergency orders in the event of a “state of defense” declared by the Fuhrer. The War Minister was eventually replaced with the Supreme Command of the Armed Forces (Oberkommando der Wehrmacht), displaying the totality of military control over the economy.²⁸ Ironically, in a series of U.S. Senate hearings in 1942, Germany was held as the example for industrial mobilization when it was pointed out that

“there is not an idle plant in the whole country.”²⁹ The efficiency of the German industrial mobilization, which the Senate complimented, was the result of a highly regulated system of control over the economy and the munitions industry. Achieving this same level of control and coordination was a constant challenge to the U.S. mobilization process.

The Nazi leadership linked the national economy to the strategic concept of “blitzkrieg.” The military concept of blitzkrieg emphasized mobility, speed and a concentration of forces that would enable Germany to achieve victory over an adversary in a limited period of time.³⁰ The Nazi Party, and specifically Adolf Hitler, believed the German people would not tolerate a shortage in civilian goods similar to those that were experienced in the First World War.³¹ German munitions planning focused on the opening campaigns of the war rather than planning for a protracted conflict. Where the U.S. kept on-hand stockage levels low and surged at the outbreak of the war, the Germans practiced the opposite concept; immediate stocks and munitions were maintained at a high level throughout the country, but production capability for future munitions was limited.³² The German economy was not mobilized for a period of extended war until 1943, at a point too late to significantly impact the course of the war.³³ In contrast, the U.S. went into the Second World War under the concept of total mobilization, which it achieved to a significant degree.

As discussed earlier, following the outbreak of World War II the U.S. underwent a period of significant industrial construction and development.³⁴ Unlike Germany, the U.S. augmented its munitions industry through the investment of funds and then allocating the resources to build the new factories.³⁵ The danger in using this method is

that the U.S. could build more factories than it could support with strategic materials. This issue was quickly recognized by the ANMB and other government organizations and prevented through the newly instituted Facility Clearance Board and the constraints established within the CMP.³⁶ In contrast the Germans pushed off more arms and munitions out of the existing factories by allocating and sequencing the materials, though new construction was limited in comparison with the Allied countries (specifically the U.S. and U.K.).³⁷ This allowed the Germans to fully utilize their existing munitions industry more efficiently than the U.S.. However, the U.S. had a much larger industrial base that allowed them to produce munitions in much greater numbers in spite of lower efficiency rates.

There are some similarities between the industrial mobilization of Germany and the U.S.. The German and American governments recognized the need for securing strategic raw materials for the production of munitions in the interwar period and both countries created an allocation plan. The U.S. and Nazi Germany both encountered challenges in the administrative structure for industrial mobilization, which would not be corrected until after the start of the war.³⁸

The U.S. and Germany both recognized the importance of strategic materials for industrial productions. The two countries developed administrative offices and plans to manage the flow of strategic materials and establish a system of priorities. The U.S. recognized the need for a plan to allocate strategic resources for industrial support in the 1930 versions of the industrial mobilization plans.³⁹ The ANMB would continue to refine this concept through use of the priorities system,⁴⁰ critical list⁴¹ and finally the Critical Materials Plan.⁴² In 1936 Herman Goering established the Office of the Four Year Plan.

The Office was tasked to enable German self-sufficiency in raw materials, allowing Germany to conduct military operations without dependence upon other countries. In support of this objective, Germany conducted several major military operations to secure strategic materials throughout Europe. On April 9, 1940, Germany invaded Norway to establish naval and air bases to secure the movement of iron ore from Scandinavia that accounted for 50 percent of the German supply.⁴³ As German military operations increased, the Office of the Four Year Plan was also tasked with the distribution of raw materials for civilian and military applications.⁴⁴

Industrial mobilization in the U.S. was hampered by the lack of a centralized authority and efficient organizational structure. FDR's administration often proved more of a hindrance to industrial mobilization rather than an asset. The ministries throughout the German government that were responsible for mobilization were more dependent upon relationships with the Fuhrer and his inner circle rather than the actual responsibilities and tasking of a specific office. As an example, the Ministry of Economics theoretically had full control over the national economy, which would be exercised through twenty-seven "Reichsstellen;" however, the minister actually exercised almost no authority and Hitler or Goering often made decisions regarding the economy.⁴⁵

United States Munitions Production

The strength of the U.S. in World War II was its massive industrial production potential. In addition to its industrial base, the U.S. possessed unparalleled agricultural stocks, one of the highest standards of living in the world, a modern and efficient transportation system that consisted of both rail and road networks, and a registration for selective service that was over 17 million men.⁴⁶ The U.S. war effort did not absorb more

than 40 percent of the gross national product. While critical materials such as rubber and fuel were rationed, the American people were “subjected to inconvenience rather than sacrifice.”⁴⁷ An argument could be made that the average U.S. citizen prospered during the war. Joblessness had disappeared, in terms of calories people were better fed and the standard of living was one of the highest in the world.⁴⁸

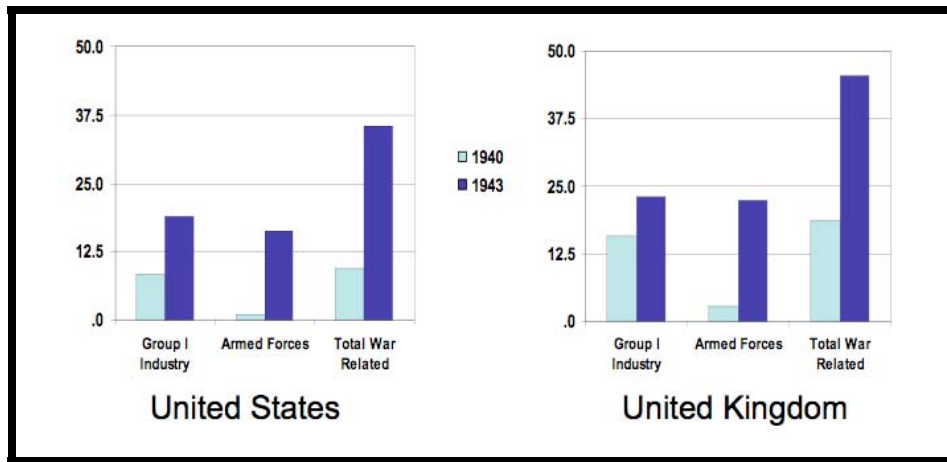


Figure 3. Mobilization of the Workforce for War: U.S.A., U.K. and Germany, 1939 and 1943 (percent of working population)

Source: Figure created by author with information from Alan Gropman, *Mobilizing U.S. Industry in World War II: Myth and Reality* (Washington, DC: National Defense University Press, 1996), 111.

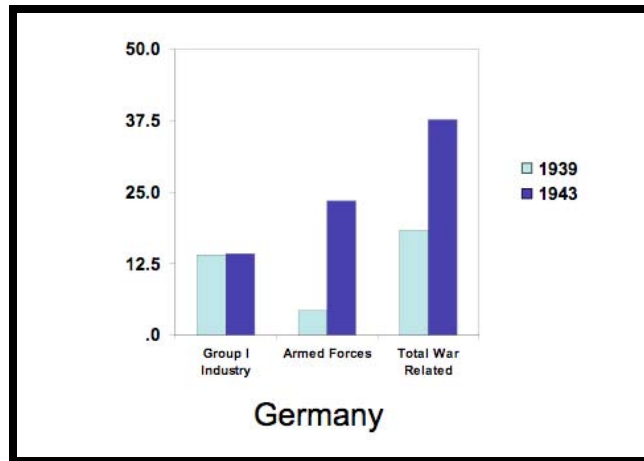


Figure 4. Mobilization of the Workforce for War: U.S.A., U.K. and Germany, 1939 and 1943 (percent of working population)

Source: Figure created by author with information from Alan Gropman, *Mobilizing U.S. Industry in World War II: Myth and Reality* (Washington, DC: National Defense University Press, 1996), 111.

The U.S. was able to out-produce both the Allied and Axis nations through the mobilization of its national industrial base towards military production. The great advantage that the U.S. had over these other nations was a solid and readily expandable industrial base and a (comparatively) strong national economy.⁴⁹ Between July 1940 and December 1941, American aircraft manufacturers turned out 22,077 planes, but the air corps got only 9,932 and the navy 4,034 with the remainder going to the U.K.. As of October 1941 the President directed the AAF to allocate two-thirds of the tactical aircraft coming off production lines to the U.K. and other anti-Axis countries.⁵⁰

Cardozier argues that the U.S. was able to win the war of materials in spite of the internal conflicts due to several factors. The first is the level of total dedication in which the American people displayed in the execution of the war effort. The infamous “dollar-a-year” men (chapter 4) who were often snubbed by the administration and military, and

criticized by the civilian population, were essential to the industrial mobilization process. Finally, Cardozier credits the autonomy of the military services in the procurement process as an essential element to the success of the war effort.⁵¹

One of the greatest challenges to the effective mobilization of U.S. industry was the number of agencies that were created to manage the process. As discussed earlier, the reticence of the administration to give central responsibility to any one service or committee resulted in the proliferation of multiple specialized boards, often lacking authority from the administration. Cardozier points out that FDR found it difficult to dismiss people; when confronted with an issue or area that needed further attention, the administration would create a new board without rescinding the responsibility from the original organization.⁵² The result was the creation of multiple boards, often with conflicting areas of responsibility, which proved detrimental to the mobilization process.

Conclusion

The ANMB was effective in preparing the U.S. for entry into World War II. However, the Board did not fill the tasks for which it was originally intended, mostly due to a lack of authority and support from the government, private industry, and the two services. The mission of the ANMB was to “coordinate the planning for acquiring munitions and supplies required by the War and Navy Departments for war purposes or to meet the needs of any joint plans; the board also has the duty of developing a suitable legislative program which will enable the procurement program to be put into effect.”⁵³ The ANMB only had responsibility for military procurement and interservice coordination. It was neither a vehicle for overall economic coordination nor had the ability to promote larger political-economic reorganization.⁵⁴ The task of acquiring

munitions and supplies in support of the services and joint plans should have been addressed in the industrial mobilization plan. However, the industrial mobilization plans were flawed by a lack of accurate information from the services. The Industrial Mobilization Plans contained several flaws, which should have been corrected by the ANMB, such as being built upon the assumption that the military would control the economy and that industrial mobilization would start on a designated “M-Day.” (As discussed in chapter 3) The plans were also flawed due to a lack of reliable information from the services in spite of several requests from the ANMB through the Joint Board for more accurate figures.⁵⁵

John Nelson states that the Industrial Mobilization Plans were not utilized due to their structure, probably referring to the M-Day concept, which was never clearly defined in immediate months leading up to World War II.⁵⁶ The NDAC felt that newer solutions had to be implemented,⁵⁷ which could be read to mean that they did not like the solutions presented in the Industrial Mobilization Plan.

Unfortunately, the industrial mobilization plans were unworkable. First, they contained inaccurate estimates and figures from the services. Secondly, the plans were based upon the military taking control of the economy. This would never be endorsed by the administration or private industry. Nazi Germany, with a significantly greater degree of obedience to the military, failed miserably when attempting to place the military in charge of the economy.⁵⁸ Finally, the situation had changed so rapidly between the last revisions of the Industrial Mobilization Plan in 1939 that by 1941 most of the solutions were outdated. There is not any documentation that shows a revision to the Industrial Mobilization Plan after the 1939 update. However, it is hard to accept that the plan

remained without any updates as the nation prepared for war. Observers place the size of the Industrial Mobilization Plan between 200-400 pages, so a revision would not seem that difficult a task.

While the Industrial Mobilization Plan was not used as a total document, it did serve an important purpose in preparing the U.S. for entry into World War II. Parts of the plan were used independently. The elements and annexes of the plan were used in the development of the priorities and allocation systems, the critical list of raw materials and the CMP.⁵⁹ The process of planning a national industrial mobilization plan also stimulated a significant degree of thought and debate on some of the topics such as economic planning, industrial expansion and the administrative structures required for the task.

The ANMB never became the centralized procurement authority that was envisioned in the original mission statement until the months immediately before the start of the war. The reasons behind this can be traced to (1) a lack of authority, (2) a lack of support from the services and (3) a lack of organization. These factors individually and collectively prevented the ANMB from achieving a higher degree of success in the concept of joint operations. In spite of these challenges the ANMB accomplished a significant amount of useful planning.

The ANMB never had the authority to accomplish many of the missions that it was assigned in its mission statement as later tasked. In spite of the fact that the ANMB was designated the joint authority for the procurement of munitions and supplies, both the Army and the Navy maintained their own procurement sources. The ANMB did not have

the authority to coerce the services to accept it as a sole procurement source. As a result, the services utilized the ANMB at their own convenience rather than as a necessity.

The ANMB received only limited support from the services, which also prevented the Board from accomplishing their designated tasks. As pointed out earlier, the services maintained their own procurement sources, effectively limiting the authority of the ANMB. This resistance to the ANMB could be attributed to the time period and the politics involved rather than be viewed as a procurement issue. As discussed in the earlier chapters, there was an intense rivalry between the Army and the Navy. Any structure that was considered “joint” in mission was distrusted by the services. In spite of the fact that the ANMB was the titular procurement authority for both the Army and the Navy, it was widely considered an “Army” organization. The ANMB was staffed with more Army officers than Navy officers, especially in the early interwar period. The offices for the ANMB were located at the Department of War (Army) and it was the Army that provided the “life support” (office supplies, furniture, transportation) to the Board.

Finally, the ANMB suffered from a lack of organization, which would not be corrected until Ferdinand Eberstadt reorganized it after the U.S. entry into the Second World War. As stated earlier, the ANMB was considered an “Army” activity; Navy participation in the ANMB was very limited in the early part of the interwar years. Even after the U.S. entry into the Second World War, Navy activity on the ANMB remained minimal. However there was no action within the administration, between the services or on the part of the Joint Board to correct the issue. While the ANMB answered to the Assistant Secretaries of War and the Navy, there did not seem to be a coordinating authority at a higher level.

The final task of the ANMB was “developing a suitable legislative program which will enable the procurement program to be put into effect.” The ANMB did not have the authority to place any legislation into effect, though the Board did make several recommendations regarding necessary legislation required for national industrial mobilization.⁶⁰ As stated earlier, the process of planning for industrial mobilization allowed the ANMB to envision the need for a centralized mobilization authority. Unfortunately these recommendations were not followed to a degree that allowed for the successful development of this office until the establishment of the WPB, after the start of World War II.

The establishment of the Army Industrial College cannot be directly attributed to the ANMB, rather it was a product of the national concerns regarding industrial mobilization. The Army Industrial College was established with the concept of military involvement in private industry and the national economy. While this did not happen, the Army Industrial College still provided hundreds of industry-trained officers that took positions throughout the industrial, government, and military structure. In a situation similar to the ANMB, the Army Industrial College did not accomplish the mission that was originally envisioned, but still provided an invaluable service to the nation.

While the ANMB may not have accomplished its original mission, it did effectively serve the nation in preparation for entry into the Second World War. The most important role the ANMB played towards the end of the interwar years and during the Second World War was to serve as an intermediary between the services and private industry.⁶¹ The ANMB established and revised the national industrial mobilization plans, which may not have been used as a total document, though many aspects of the plans

were utilized independently. The planning process behind the industrial mobilization plan enabled government and military leaders to address critical issues in advance. The ANMB also served to establish the priorities and allocation systems and had significant involvement with the Controlled Materials Program.

Areas for Future Research and Consideration

There are numerous issues within this scope of study that should also be researched for further consideration. The first is a further study of the relationships between the various personalities that served and led the ANMB. Ferdinand Eberstadt is the first name that jumps out when considering personalities that had an effect on the ANMB, but he also was instrumental in several other areas of civil-military development. The ANMB was the first organization to attempt joint procurement and one of the few organizations to function in both doctrine and practice as a joint organization.

As with every organization, the positive and negative aspects of the ANMB were formed by the personalities of its members. The name that stands out when reviewing the ANMB is Ferdinand Eberstadt. In addition to serving as the chairman for the ANMB, Eberstadt had a major influence on the national mobilization policies. Eberstadt had a lifelong friendship with James Forrestal, and these two men had a major influence on the national mobilization and security policy.⁶² Eberstadt also had a contentious relationship with Donald Nelson, which would lead to a “power-play” at the WPB resulting in Eberstadt’s firing from the organization. While Eberstadt made significant contributions to the ANMB, he is mostly remembered for the National Defense Act of 1947 and the establishment of a unified (joint) command structure.

The ANMB was one of the first attempts at joint procurement and one of the first organizations to be created with a joint structure, following the concepts that created the Joint Board. While the success of the ANMB is debated in this thesis, it did establish the framework that would serve in the development of joint doctrine and operations between the services. The majority of the correspondence and reporting for the ANMB was done through the Joint Board, which was left unexplored in this thesis. Additional study could be done on the success of the Joint Board, which would include the subordinate “joint” boards such as the ANMB.

The mobilization process of the U.S. included numerous organizations and committees, which have only been lightly touched upon in this thesis. The WPB was the subject of numerous studies, though many subordinate committees played an important part in the mobilization process. A study on one of these organizations could provide a greater amount of focus, which is often lacking in the study of a major organization.

Relevance

The challenges faced by the ANMB during the interwar period provide important lessons that can be applied today. The mission of the ANMB, established in 1922, has never been accomplished by any subsequent organization. The Defense Logistics Agency covers many of the procurement and logistical functions that were the responsibility of the ANMB, though the services still retain a degree of individual procurement ability.⁶³ The challenges associated with the implementation of joint operations remain the same today as in the interwar period. Though numerous lessons were learned with the establishment of the ANMB, mistakes would be continually repeated until modern day.

The ANMB had the unique mission of accomplishing a procurement and legislative task. The ANMB was tasked to serve as the procurement authority for both the Army and Navy and provide recommendations for a legislative structure to assist in the issue of munitions procurement programs. In modern times, the military has moved away from recommending legislative programs (at least to the degree of including such actions in a mission statement) to Washington. In turn, government leaders seemed more concerned with exercising control over military funding rather than enacting legislation regarding the procurement of military munitions.

The U.S. has not learned many lessons from its experience with the ANMB. Frank Gaffney points out in his *Washington Times* article “Plane Wreck” that even in Operation Desert Storm the U.S. was forced to purchase replacement parts from the foreign market.⁶⁴ The reliance on foreign support is reminiscent of the AEF from World War I that also had to rely upon foreign munitions support (chapters 1 and 2). Gaffney points out that such reliance on foreign suppliers comes from the U.S. reliance on “off the shelf” technology, which was implemented to reduce the cost of munitions to the government.⁶⁵ This situation places the U.S. in danger of losing valuable munitions support if they should come into conflict with one of their suppliers.

The U.S. experience with the ANMB has both positive and negative aspects. On one hand, the ANMB illustrated how quickly an organization could become hamstrung from a lack of support and authority. The ANMB was not a positive precursor into the area of joint operations for the Army and the Navy, specifically during the interwar years. On the other hand the ANMB provided both the government and the services the opportunity to work under a joint structure and achieve different levels of success outside

of the Board's mission. After the entry of the U.S. into World War II, the services began to work towards common goals and the ANMB was able to function as a vital part of the industrial mobilization process. The ANMB serves as a reminder of what a joint organization can achieve in the face of adversity and its potential for a greater contribution to the nation.

¹R. W. B. Clarke, *The Economic Effort of War* (London: George Allen and Unwin Brothers Ltd., 1940), 13.

²Gropman, 1.

³Ibid., 1-3.

⁴Ibid., 3.

⁵William D. Boutwell, eds., Archibald Thomas Robertson, Glenna Nixon, Pauline Frederick, Benjamin Paul Brodinsky, Joseph Pratt Harris, *America Prepares for Tomorrow: The Story of Our Total Defense Effort* (New York: Harper and Brothers Publishers, 1941), 107.

⁶Cardozier, 19, 182.

⁷Naval Historical Center.

⁸Clarke, 21-26.

⁹Cardozier, 198-201; NOTE: Cardozier points out that shortages in the munitions industry were due to the fear among workers that the end of the war would result in the loss of their jobs. In 1944 many war industry plant workers took jobs in other industries for this reason, creating a labor shortage in selected industries.

¹⁰Ibid., 8.

¹¹Mark Harrison, "Resource Mobilization for World War II: The U.S.A., U.K., U.S.S.R., and Germany, 1938-1945," *Economic History Review*, no. 2 (1988): 174.

¹²Ibid.

¹³Boutwell, 106.

¹⁴Ibid., 107.

¹⁵Naval Historical Center.

¹⁶Smith, 420.

¹⁷Clarke, 35.

¹⁸Ibid., 37-39.

¹⁹Robert G. Albion, and Jennie B. Pope, *Sea Lanes in Wartime - The American Experience 1775-1945*, 2nd ed. (New York: Archon Books. 1968), <http://www.usmm.net/battleatlantic.html> (accessed May 11, 2008).

²⁰Smith, 308-309.

²¹Clarke, 199-200.

²²Dorwart, 52-57.

²³Harrison, "Resource Mobilization for World War II," 178.

²⁴First World War, "Who's Who: Lord Beaverbrook," November 11, 2001, <http://www.firstworldwar.com/bio/beaverbrook.htm> (accessed May 15, 2008).

²⁵Harrison, "Resource Mobilization for World War II," 178-179.

²⁶Ibid., 178.

²⁷The United States did lose the Aleutian Islands of Attu, Kiska and Agattu in 1942, but these were quickly recaptured mid-1943. German submarines established patrol routes outside of major east coast ports to include New York City, but never presented a serious threat to the security of the eastern seaboard; and World War II History, "Aleutian Islands," <http://www.worldwar2history.info/Aleutians> (accessed May 18, 2008); and American Merchant Marine at War, "Battle of the Atlantic Statistics," <http://www.usmm.net/battleatlantic.html> (accessed May 11, 2008).

²⁸William J. Fanning, "The German War Economy in 1941: A Study of Germany's Material and Manpower Problems in Relation to the Overall Military Effort" (Ph.D. diss., Texas Christian University, 1983), 10-12.

²⁹Smith, 420.

³⁰Fanning, 25-26.

³¹Ibid., 24.

³²Harrison, "Resource Mobilization for World War II," 174-175.

³³Ibid., 176.

³⁴Smith, 450-452.

³⁵Gropman, 34.

³⁶Smith, 453-454.

³⁷Gropman, 34.

³⁸It should be noted that some of the issues regarding German economic and industrial mobilization would not be corrected, such as the over-centralization of power within the party, personality conflicts among the party leadership and faulty policies implemented by Hitler and the party leadership.

³⁹Gropman, 88-93, 508.

⁴⁰Ibid., 528-529.

⁴¹Ibid., 510.

⁴²Dorwart, 50-51.

⁴³Cardozier, 8.

⁴⁴Fanning, 10-11, 28.

⁴⁵Ibid., 12-14, 18-19.

⁴⁶Boutwell, 26.

⁴⁷Gropman, 107.

⁴⁸Ibid.

⁴⁹Ibid., 97.

⁵⁰Cardozier, 82.

⁵¹Ibid., 129.

⁵²Ibid., 129-130.

⁵³The Joint Board, FTP 155, 3.

⁵⁴Dorwart, 51.

⁵⁵The Joint Board, Joint Board Number 325; and The War Department, Office of the Chief of Ordnance; and The Joint Board, August 25, 1933.

⁵⁶Nelson, 3.

⁵⁷Ibid., 92.

⁵⁸Fenning, 12-15.

⁵⁹Dorwart, 51.

⁶⁰Gropman, 20-21, 25.

⁶¹Ibid., 24.

⁶²Dorwart, 4-5.

⁶³Defense Logistics Agency.

⁶⁴Frank J. Gaffney, "Plan Wreck," *Washington Times*, March 11, 2008: 14, <http://www.ebird.afis.mil/ebfiles/e20080311586989.html> (accessed March 11, 2008).

⁶⁵Ibid.

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