Architects of War: The Economic and Industrial Strategies of the Third Reich and United States under Albert Speer and William Knudsen

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ARCHITECTS OF WAR

The Economic and Industrial Strategies of the Third Reich and United States under Albert Speer and William Knudsen

Submitted to
Professor Jonathan Petropoulos

By
Spencer Taylor

Thesis in History
Spring 2024
Monday April 22nd, 2024
Dedicated to my mother, Anita.

Because my sister’s history thesis
was dedicated to my father.

And because the protagonist of this story
was a proud and patriot Dane, just like her.
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<td>The Congress of Industrial Organizations (federation of unions)</td>
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<td>Executives hired to bridge the gap between Washington and the private sector.</td>
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<td>Lebensraum</td>
<td>Living space for the German people in the East.</td>
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<td>NDAC</td>
<td>National Defense Advisory Commission (Active 1940-41)</td>
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<td>OKW</td>
<td>Oberkommando Wehrmacht - Army Forces High Command</td>
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<td>OPM</td>
<td>Office of Production Management (Active 1941-42)</td>
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<td>OWM</td>
<td>Office of War Mobilization (Active 1943-45)</td>
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<td>Operation Barbarossa</td>
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<td>Ostarbeiterlager</td>
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<td>Program to prepare the Wehrmacht for war in the East (1940-41)</td>
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<td>“Self-Responsibility”</td>
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<td>Selektion</td>
<td>“Selection” of which Jews are fit for work or those deemed to week and thus sent directly to gas chambers.</td>
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<td>SS Schutzstaffel</td>
<td>Elite guard of the Third Reich and Hitler's executive force prepared to carry out any security-related duties; led by Heinrich Himmler</td>
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<td>U-boat</td>
<td>German submarine</td>
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<td>Untermensch</td>
<td>Subhuman – Nazi Party reference of non-Aryan people (namely Jews, Roma Gypsy, and Slavic people)</td>
</tr>
<tr>
<td>Wehrmacht</td>
<td>Combined Armed Forces of Nazi Germany</td>
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<tr>
<td>Wunderwaffe</td>
<td>Singular “Wonder Weapons” that could change the tide of the war.</td>
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<tr>
<td>WPB</td>
<td>War Production Board (Active 1942-45)</td>
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<td>Zentrale Planung</td>
<td>Central Planning Board</td>
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Preface & Introduction

The British public have a notable fascination in the grotesque regime that was the Third Reich and history’s most destructive war, I am no exception. Ironically, five years ago, I decided Southern California was the place I wanted to take myself to bolster my education in modern European history – so far so good… well you judge the progress after reading this thesis. Many of my earliest memories are of my father’s dinner table World War II knowledge quizzes; fiercely competitive with my older sister, who would also become a CMC graduate in history studying with Jonathan Petropoulos, I began voraciously watching as many films, television series, and documentaries as time permitted. Books and audiobooks soon followed but I would be lying if I relayed that I was book worm as a child. To this day, my world view is shaped by a belief that the Second World War is the key source to understanding the world we live in today.

I found my way to the comparative historical themes of my thesis through several avenues: first, my freshman fall semester final paper under Petropoulos was titled: “Albert Speer: The Maker of the Bullet; The Distributer of the Bullet; and The Dodger of the Bullet” – like many historians, I concluded the life of Albert Speer personified the Third Reich more than any singular figure. Second, is pertaining to my future career – I will be working in the venture capital industry post-graduation because of a critical interest in entrepreneurship and corporate governance; when doing my research, I couldn’t help identifying parallels between building and managing a total war economy and scaling a cutting-edge company in some of the most Darwinian of capitalistic markets. In many ways, there are arguments to be made that William S. Knudsen, Albert Speer, among the other Armaments Ministers of World War II economies, were the most powerful chief executives of the largest outputting corporations in history. Third, is in my second major:
economics. Studying history through an economic lens helped me conclude that financial and economic restraints were just as, if not more, critical to understanding total war than politics, military tactics, and cultural policy. Economics serves as the fundamental tool for unraveling the intricate forces that dictated the strategic decisions of the war, revealing how resource allocation, industrial capacity, and financial stability were monumental and reign supreme in shaping the conflict’s trajectory.

Despite generous literature offerings on war production and economics in World War II, I greatly feel the theme has been overlooked. For example, Ian Kershaw’s biographies of Adolf Hitler – *Hubris* and *Nemesis*, perhaps the most widely read of all Hitler biographies, only includes the word “steel” on four occasions.¹ This thesis will advocate that Germany’s limited access to raw material would dictate Hitler’s most monumental strategic decisions and would be the most critical factor for determining the Reich’s demise. In contrast to Germany, Roosevelt’s fundamental strategy of outproducing his foe at all costs, arming his allies, and drowning Germany in billions of tons of firepower is the clear and simple reason why the best army, perhaps in military history, the Wehrmacht, was finally beaten. According to military historian Col. Trevor Dupuy’s battlefield study as outlined in Max Hasting’s article: “Their Wehrmacht was better than our army:”

“On a man for man basis, German ground soldiers consistently inflicted casualties at about a 50 percent higher rate than they incurred from the opposing British and American troops under all circumstances. This was true when they were attacking

and when they were defending, when they had a local numerical superiority and when, as was usually the case, they were outnumbered, when they had air superiority and when they did not, when they won and when they lost.”

I agree with this fact, therefore I must conclude that the surplus that propelled the Allies to victory came from their home fronts. Germany lost World War II primarily due to the overwhelming war of attrition, which outstripped its resources and capabilities, despite the Wehrmacht’s initial superiority; this engine of attrition was powered by the vast industrial output of the American economy. With all these thoughts and ideas in mind, I decided to write about the economic and industrial strategies of the Second World War. A total war which was unrestricted in its weapons used, the territory involved, the objectives pursued, and its mobilization of war economies.

Given my time constraint, I chose the focus on two belligerents – Germany and the United States – whose two stories have rarely been written in tandem. The Nazis carried Germany into a 1940 in which the shame and hardship of the proceeding two decades had been eradicated – this new German state was unstoppable – now possessing an empire stretching from the Atlantic to the Southern Baltics. In a mere number of months, the Germans had defeated the world’s two leading armies, France, and Britain, respectively, and were just getting started. The United States, in contrast, possessed a dormant defense industry, decades behind all major powers, with a dwindling armaments stock to defend themselves. A mere five years and seventy-five million deaths later and the United States’ military and economic supremacy would rarely ever again be

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called into question. The new superpower would outproduce all other World War II belligerents combined through harnessing the formidable power of mass production. Germany, in contrast, would be the most broken of nations, divided four ways and denazified; brutally crushed at home the same way they had barbarically inflicted misery on the world. However, it is important to keep in mind that only a year before the bitter end, in 1944, Germany was hitting production output records. This crisscross paradox was the effect of a small number of men on the American and German home front who bridged the gap between government officials, the armed forces, and their respective war lords; the financiers in the central bank and the production capabilities of the private market championed by industrialists; and technologists, inventors, and the labor market. These gaps were widened by a vast ranging spectrum of ideology which would take human nature to its darkest extreme and stretch the fundamental laws of economics to their bitter limits to prolong the fight. The objective of this thesis is to recount this story, specifically through the lens of those who bridged that gap, namely, William S. Knudsen and Albert Speer.

Albert Speer is a character who has never failed to fascinate historians; branded as the “Good Nazi” and “the Nazi who said sorry” through his the notorious “Speer Myth,” Speer cheated the hangman and made a vast fortune recounting his tale in the three-and-a-half-decades succeeding his capture. With no military, corporate, or political background, this thirty-six-year-old architect and so-called friend of the Fuehrer was thrust into his new role of Armaments Minister in February 1942. He rapidly consolidated more power than perhaps any other Nazi save Reichsfuehrer-SS Heinrich Himmler and the Fuehrer himself. Speer was master to the largest slave labor operation in the history of humanity. Dozens of historians violently debunked the “Speer Myth” in the decades succeeding his death. The stands in contrast to Speer’s American
counterpart, William Knudsen, who has largely been forgotten in mainstream historical channels. Despite not directly overlapping with Albert Speer’s tenure, William Knudsen served on the newly created National Defense Advisory Commission in 1940, he subsequently chaired the Office of War Production from 1941-42, and finally in 1943 received a commission as a Lieutenant General acting as a troubleshooter for the economy’s most critical war projects. Despite not serving as armaments chief executive during the latter years of the war, Knudsen designed and implemented a self-perpetuating war machine. This machine that was fueled by free market forces and a triangular flow chart populated by Washington, the Pentagon, and the private sector; it was Knudsen who oversaw the conversion of the US economy from a mass producer of consumer goods to a mass producer of armaments.

If Speer is a character who galvanized the world, Knudsen legacy absolutely hasn’t. By his death on September 1st, 1981, Speer wrote two best-selling autobiographies Inside the Third Reich (in German, Erinnerungen, or Reminiscences) and Spandau: The Secret Diaries. He later penned a text on Himmler and the SS – published in English as Infiltration: How Heinrich Himmler Schemed to Build an SS Industrial Empire (in German, Der Sklavenstaat - Meine Auseinandersetzung mit der SS). An exhausted and far older Knudsen died shortly after the war ended—with his passing taking place on April 27th, 1948. Many of the American war economy’s most prolific industrialists would also pass away in the decade succeeding the war such as Henry Ford in April 1947, synthetic rubber tycoon Bill Jeffers in 1953, both landing craft inventor Andrew Jackson Higgings and Merlin engine mass producer Alvan Macauley died in 1952. In the year proceeding his death, Knudsen worked on his memoirs with automotive writer, Norman Beasley – a somewhat rambling biography in 1947 that failed to gain traction, a factor that
contributed to his relative obscurity. Except for minor references to Knudsen in selected Roosevelt biographies and accounts about automotive history, it was 2012 when historian Arthur Herman wrote the best-selling *Freedom’s Forge*, the story of the industrialists who armed America. Herman’s widely praised anecdotal account greatly credits Knudsen for being the principal architect and operator behind the American production achievement, which I have found few historians to dispute.³ Herman credits Knudsen’s forgotten legacy to the latter’s modest personality; *Freedom’s Forge* shares an anecdote of a conversation between Knudsen’s aircraft advisor, Babe Meigs, and his boss:

“If you think the New Dealers are going to let anyone from private industry, and you especially, get credit for this production job—”

“I don’t care who gets the credit,” Knudsen interrupted, “just so this job gets done.”

This greatly contrasts with Speer, widely known for his unequivocal ambition and self-promoting character. His ego was evident by his close relationship with Hitler; his vigorous efforts to place himself in the limelight as the savior of the Nazi regime until the dying days of the regime; and his efforts to mythicize his legacy – sole creator of the “armaments miracle” who was able to keep the German war machine operational far longer than would have otherwise been possible.⁴

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⁴ Speer, Albert: *Inside Third Reich* (1971)
Critically, neither Knudsen nor his colleagues ever had a chance to offer their telling of history. This brings me to Herman’s second explanation for why Knudsen was forgotten by history. According to Herman, after World War II, narratives shaped by New Dealers and Keynesian economists dominated the historical interpretation of the war's economic mobilization. These arguments, outlined in literature such as the *New Dealer’s War* by Thomas Fleming (who mistook the Dane Knudsen for being Swedish), credited the success of wartime production and economic recovery to government actions and policies. These opinions overshadow the contributions of business leaders like Knudsen. His efforts, along with those of other business leaders, were depicted as merely benefitting from federal initiatives rather than being fundamental to the war effort. The focus on government-led economic strategies, reinforced by influential economists like Paul Samuelson, effectively minimized the role of private sector ingenuity and management skills in achieving wartime production miracles. This led to a historical memory that largely overlooked the critical contributions of figures like Knudsen. My agreements with Arthur Herman were a key reason why I wanted Knudsen to be a protagonist in my thesis.

This thesis aims to be a culmination of all my academic interests. While initially I had hoped to tie this thesis with current geopolitical threats, sources of which can be traced back to the Second World War, I unfortunately did not have the time. I would like to thank my reader, mentor, and the biggest supporter of my college career – Jonathan Petropoulos. JP is an extraordinary historian, teacher, and friend who was able to help me organize my vast constellation of interests into a single coherent body of work – many of these curiosities were introduced by him. His classes have been the highlight of my academic college career and his talents in teaching,
communicating knowledge, and wisdom inspired me most to work hard and create work I am and will continue to be incredibly proud of. I would also like to thank holocaust studies savant Professor Wendy Lower for her support along the way.

I greatly enjoyed working on this thesis project. I offer huge thanks to all of you who take the time to read and reflect on my interests and work. I look forward to hearing and digesting your feedback.

Sincerely,

Spencer D. Taylor

Monday, April 22nd, 2024
Literature Review

In exploring the economic and industrial strategies of the United States and the Third Reich during World War II, this thesis scrutinizes the efforts led by figures like William Knudsen and Albert Speer, pivotal in orchestrating their respective nations’ war-time economies. The American narrative, often celebrated for its robust industrial mobilization, is vividly captured in Arthur Herman's 2012 *Freedom's Forge*. This text, while aimed at a broader audience, lauds the American industrial response with a fervor that necessitates scrutiny against primary sources such as presidential executive orders, Roosevelt’s State of the Union addresses, reports of the Special Committee and archived articles from publications like The New York Times and Time Magazine. Francis Walton’s 1956, *Miracle of World War II: How American Industry Made Victory Possible*, proved to be a highly valuable non-biographical study that validated many of Herman’s statistics. The diaries and journals of industrialist Charles Sorensen and Charles Lindbergh’s helped validate many of Herman’s anecdotes on Ford’s production achievements. In summary, these sources helped in evaluating the claims of Herman's narrative and offer a more nuanced view of the American home front during the war.

Further dissection of the American industrial efforts is supported by Charles K. Hyde’s 2013 *Arsenal of Democracy*, which focuses on the automotive industry's pivot to defense manufacturing. Hyde’s detailed account, alongside Donald M. Patillo’s 2001 *Pushing the Envelope: The American Aircraft Industry*, provides a granular look at how specific sectors transformed under wartime pressures. These texts are instrumental in understanding the scale and speed of industrial conversion that supported the American war effort.
Norman Beasley's 1947 biography of Knudsen offers an intimate, albeit meandering, perspective on the protagonist. Though less precise in its narrative, Beasley's account which is essentially a telling of Knudsen’s diary provided personal insights into the challenges and triumphs of leadership during unprecedented times. Despite being less scholastic, Beasley’s anecdotal style recounted many of Knudsen’s verbal interactions which helped acquire a better grasp into the personal influences of the man.

The thesis also navigates through contrasting political interpretations by balancing accounts from both Republican and Democratic perspectives, reflecting on how political ideologies shaped the portrayal of industrial mobilization. Thomas Fleming’s 2001 *The New Dealers' War* provides a critical examination of Franklin D. Roosevelt's administration and the New Deal policies that influenced the economic strategies during the war. Fleming’s critique offers a counterbalance to more celebratory accounts, enabling a more balanced discussion of how political and economic strategies intertwined during this period. After reviewing the personal diaries of both cabinet members such as Henry Morgenthau and Henry Stimson, I chose to disagree and ignore many of Fleming’s more provocative findings.

In delving into the German war economy and the strategic role of Albert Speer, I benefited from already having a strong background of the life and complexions of Albert Speer through my numerous classes and lengthy discussions and debates with Speer and Himmler expert Jonathan Petropoulos. There is no doubt that JP’s interests and knowledge on Speer was my most significant influence.
My personal investigation into the man first builds upon a comprehensive understanding of Speer's own perspective, initially through a re-examination of his autobiographical works, 1971’s *Inside the Third Reich* and 1976, *The Spandau Diaries*. As a narrative tool, I treat these sources as fact to provide a self-portrayed narrative that while rich in detail. I then break down the arguments informing that such sources must approached with caution due to Speer’s reputation as a pathological liar. I used Speer’s ego-fuelled narrative as a tool to communicate the story.

To counterbalance Speer's autobiographical narrative and ensure a more objective portrayal, I turned to authoritative biographies such as Martin Kitchen’s 2017 *Speer: Hitler's Architect*, which provides a critical and meticulously researched charge sheet of Speer’s life and his crimes. Gitta Sereny’s 1995 *Albert Speer: His Battle with Truth* offers deep insights through extensive interviews, revealing the complexities and often the contradictions of Speer’s character. Similarly, Joachim Fest’s *Speer: The Final Verdict* and Dan Van der Vat's *The Good Nazi: The Life and Lies of Albert Speer* critically analyze both the man himself and the impact of his actions, providing a broader understanding of his role in the Third Reich’s wartime production efforts.

I found interesting information in IMT and reports from Nuremberg; John Kenneth Galbraith's 1946 interviews with Albert Speer played a significant role in shaping the “Speer Myth,” as Galbraith's portrayal contributed to a more favourable image of Speer as an efficient technocrat, inadvertently glossing over his involvement in Nazi atrocities.
Adam Tooze’s 2008 *The Wages of Destruction* serves as a pivotal academic resource, detailing the Third Reich's economy with a rigorous analytical framework that challenges many conventional narratives about Germany's wartime economy. Tooze’s work, renowned for its thorough analysis and innovative arguments, provides an essential foundation for understanding the economic strategies that underpinned the Nazi war effort. I found this comprehensive study crucial both for its economic accuracy but also Tooze’s brilliance in layering the incredibly informative accounts of Germany’s military strategies and campaigns. Mark Harrison’s 1998 *The Economics of World War II* delivers a scholarly analysis of wartime economies, complementing narrative histories with economic data. Additionally, Williamson Murray and Allan R. Millett’s 2000 *A War to Be Won: Fighting the Second World War* links economic resources with military operations, offering a comprehensive view of how strategic decisions were influenced by economic capabilities.

Further deepening the research, Lutz Budrass’s 1998 *Flugzeugindustrie und Luftwirtschaft in Deutschland 1933–1945* offers specific insights into the aviation industry’s role in Germany's war economy, reflecting the broader themes of mobilization and management under Speer’s ministry. The utilization of such detailed studies ensures a multi-faceted understanding of the economic underpinnings of Nazi Germany’s war efforts.

In addition to these secondary sources, primary sources like the diaries of Franz Halder, which provide day-to-day accounts of military decisions and political dynamics within the High Command, offer invaluable perspectives that ground the broader economic and industrial strategies in the immediate realities of the wartime period. Furthermore, utilizing speeches from
Hitler, Goebbels, Speer, and Himmler during the latter years of the war provided invaluable insights into the inner workings and ideological shifts within the Nazi leadership, enriching my analysis of their strategic responses as the war's dynamics evolved.

In building a robust argument about the economic strategies during World War II, this thesis draws on significant historical texts that offer a broad context of the period. Ian Kershaw’s biographies, including key insights into Hitler's leadership (published dates ranging from the late 1990s to 2000s), alongside Max Hastings’ vivid war chronicles in 2011’s *Inferno* and 2004’s *Armageddon*, provide essential backgrounds on the war's impact and strategic dimensions. These sources collectively enrich the thesis by connecting economic strategies directly with broader historical and military contexts.

Finally, I would like to thank my Econometrics Professor Angela Vossmeyer’s for sending me her study on "Stock Volatility and the War Puzzle.” Her research, documenting the impact of U.S. military spending on reducing stock market volatility through stable demand and predictable cash flows, provides a foundational element in understanding the broader economic implications of wartime policies. This insight was particularly valuable when juxtaposing the economic environments of the United States and the Third Reich, highlighting how government spending can modulate economic stability even during tumultuous times.
Introducing our Protagonist and Antagonist

Pre-War life of William Knudsen

William Knudsen was born as one of ten children in Copenhagen, Denmark on March 25th, 1979, to a customs inspector father. With a meagre family income, Knudsen started working at an early age: at six, he pushed a cart of window glass around Copenhagen’s cobblestone streets and when he was a teenager, he put his love of everything mechanical to use by working for a bicycle import business. He squeezed school around his work schedule and then took night courses at the Danish Government Technical School. At the age of 21, Knudsen set off to New York City on the Norge ship in 1900 with a suitcase and thirty dollars in his pocket seeking the American Dream. Studies of Knudsen place great emphasis on his drive, according to Arthur Herman:

“No king or emperor had built these mighty edifices (New York skyscrapers), the twenty-year-old Danish immigrant told himself. No king or emperor had built this country of America. It was ordinary men like himself, men who worked hard, who built with their minds and hands, and became rich doing it. Signius Wilhelm Poul Knudsen was determined to be one of them.”

By day, Knudsen’s first job in the United States was reaming holes in steel plates for Navy torpedo boats for 17.5 cents per day. By night, the six-four giant became a presiding champion boxer of the shipyards. After two years of working shipyards, Knudsen took himself to Buffalo.

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6 Herman, Arthur: Freedom’s Forge, (2012), c.1.*
*due to the use of Apple Books with digital changing page numbers, I reference chapters instead of pages.
to learn to build steam engines and carriages before landing a contract with an upstart entrepreneur from Detroit named Henry Ford in 1904. At 29 in 1911, Knudsen would have a critical year: he was now superintendent at Keim employing 1,500 people building Model T components; he also got married to a German descanted girl named Clara Elizabeth Euler. Later in the year, Ford bought Keim and moved Knudsen’s operation from Buffalo the Highland Park, Detroit; it was in this new factory that Henry Ford, with the help of Knudsen and fellow Dane, Charles Sorenson, would build the world’s first mass production factory.

Knudsen explained in his biography that the key to mass production was not uniformity or even speed. It was creating a continuous linear sequence that allowed every part to be fitted where and when it was needed, while keeping costs down by growing the volume instead of skimping on materials. The key to the economy of scale underlying all industrial manufacturing. “In other words, the less complex parts were, the easier they were to make; the easier to make, the less the cost; the less the cost, the greater the demand.” It was a guaranteed formula for success and profit. His talent for understanding mass production was so great, Ford entrusted him with developing and setting up clones of the Highland Park facility in twenty-eight factories across world, including in Europe and the Soviet Union.

During the First World War, Ford placed Knudsen in charge of the company’s war time production. Knudsen built Ford’s Eagle boats for the Navy and Liberty aircraft engine cylinders for the Airforce. Ford and Knudsen’s operation took the automobile production industry from

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8 Ibid.
building 90,000 automobiles in 1910 to 900,000 in 1915 – Ford built two-thirds of these cars.\textsuperscript{9} Despite Ford’s incredible success, Knudsen’s notoriously blunt and outspoken character would come to clash with the old patriarch; this disagreement would come from Knudsen’s belief in allowing buyers to customize their purchases, such as choosing colors other than black. A second disagreement would come in 1920, the Dane believed it was time to upgrade the Model-T’s 10-year-old design, but Ford refused given the six months timeline to get a new model into production. Due to his differences with Ford, on April 1\textsuperscript{st}, 1921, Knudsen decided to quit his $50,000 per year salary and leave: during his ten-year tenure at Ford, Knudsen helped grow sales from $90 to $680 million.\textsuperscript{10}

Alfred Sloan called Knudsen to help him weave out dramatic issues at General Motors. The GM brands – Oldsmobile, Buick, Cadillac, Pontiac, and Chevrolet – had been conglomerated by Billy Durant. Durant was a brilliant dealmaker but struggled to administer finances or realize his synergies. After two bailouts from investors, GM was taken over by J.P Morgan and Pierre S. du Pont; du Pont took Durant’s place with Alfred Sloan as his assistant. The GM brands were decentralized, and Knudsen was put in charge of GM’s low revenue generating ugly duckling: Chevrolet.

Within just a year in charge, Chevrolet made a sharp U-turn. Sales jumped from 72,000 to almost a quarter million cars and trucks in 1922, and the company that had lost $8.6 million when Knudsen stepped in showed a net income of $11.2 million.\textsuperscript{11} During his tenure, Knudsen had

\textsuperscript{9} Nevins, Allan: \textit{Ford: Decline and Rebirth}, (1963).
developed what the experts would call “flexible mass production” which allowed for constant modification and change to the factory line without switching it off allowing for car manufactures to build annual car models. By 1926, the ratio of Chevy: Model-T sales went from 13:1 in 2:1 in the space of one year.\textsuperscript{12} The 1927 Chevrolet model was the first car to hit one million sales forcing Ford to finally abandon the seventeen-year-old Model-T for the Model-A. So rigid was the Model-T production operation, it took Ford a year to rebuild his production line. GM’s successful decade had allowed the company to weather the storm of the Great Depression far better than most; except for 1930, 1931,1935, Chevrolet would outsell Ford in every future year Knudsen stayed at the company. By 1937, Alfred Sloan, now Chairman, made Bill Knudsen his successor and President of General Motors.

Bill Knudsen’s life would be turned upside down Tuesday, May 28\textsuperscript{th}, 1940.

Pre-War life of Albert Speer

Albert Speer was born the second of three sons in Mannheim, Germany, in 1905 to an upper-middle-class architect father. Speer’s father candidly admitted that his sole interest in architecture was that it was an excellent way to make a lot of money. Bullied by his two brothers growing up who were clear favorites of each of his parents, Speer grew up in home of “misery in an emotionally cold atmosphere,” according to biographer Martin Kitchen. Having been born too young to serve in the Great War but excelling in school, Speer followed in his father and grandfather’s footsteps and studied architecture under the renowned “reform architect” Heinrich Tessenow at the reputable Technical University of Berlin. Speer’s daughter Hilde later described her father as a Manichean, infused with a simplistic fascination with social Darwinism and technology. After passing his exams in 1927, Speer took the honored feat of being Tessenow’s assistant; the youngest in the university. Tessenow impelled his students to be firmly grounded in the basics of the architect’s crafts, concentrating on simplicity: “the simple is not always the best, but the best is always simple” – Speer revered him. On 28th August 1928, to much dismay of his classist parents, Speer married his girlfriend Gretel on Johann Goethe’s birthday and would have six children.

In January 1931, Speer applied for Nazi Party membership becoming member 474,481: he found Nazism’s appeal of radical solutions, false prophets, and counterfeit messiahs hard to resist in

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such a broken country.\textsuperscript{19} He also on occasion let slip an identification with Nazi racial prejudice.\textsuperscript{20} According to Kitchen, Speer “combined a modish cultural pessimism and antimodernism with a fascination with technology; it was a ‘reactionary modernism’ combined with a rhapsodic love of nature, canoeing, and hiking in the alps with a rejection of a degenerate urban world that would find a radical expression in National Socialism.”\textsuperscript{21}

Soon after becoming a party member, Speer joined the radical brown-shirts bullyboys in the SA and subsequently joined the SA’s motorized section. He was promptly joined the Action Group of German Architects and Engineers. Thanks to his engagement in party politics, the Western District Party Organizer in Berlin, Karl Hanke – a man who was to rise to great heights in the Third Reich – asked him in 1931 to refurbish his office in a villa he had rented in the exclusive Gruenwald neighborhood.\textsuperscript{22} Speer undertook this job free of charge. Following the austerity cuts of the Bruhning government during the peak of the depression, Speer lost his assistant job at the university and worked for his father managing properties.

On 28\textsuperscript{th} July 1932, Speer was called back to Berlin by Karl Hanke who requested he renovate the interiors of Nazi Party’s recently acquired headquarters on Vossstraasse 11, in the heart of the governmental district. His work received delightful reviews from the Fuehrer. By the time Hitler was appointed Chancellor on January 30\textsuperscript{th}, 1933, Speer was tasked to refurbish Goebbels new ministry in the Prince Friedrich Leopold Palace in the Wilhelmplatz which he completed in a

\textsuperscript{19} Kitchen, Martin: Speer: Hitler’s Architect (2017), c.2.
\textsuperscript{20} In 1945 he was to talk at some length about the racial superiority of Siberians and White Russians over the Germans – at least in terms of fortitude and resolution – and of Europeans over Arabs. Ulrich Schlie (ed.), Albert Speer: Die Kransberg-Protokolle 1945. Seine ersten Aussagen und Aufzeichnungen (Juni–September), Munich, 2003 – from Tooze, p. 447.
\textsuperscript{21} Kitchen, Martin: Speer: Hitler’s Architect (2017), c.2
\textsuperscript{22} Ibid.
record time of two months – once again, Hitler was greatly impressed with Speer’s work despite his addition ‘degenerate paintings’ including Emil Nolde watercolors that were swiftly removed.\textsuperscript{23}

Hitler chose Paul Ludwig Troost’s neo-classicalist totalitarian, colossal, and overpowering style to became the official architecture of the Third Reich. Speer’s association Tessenow’s modernism would put him at odds against Hitler’s aesthetic vision for the New Reich: based “on blood and race” and to “build in order to fortify our authority.”\textsuperscript{24} He would work hard to distance his association from his former mentor. Speer’s status as an architect slowly grew within the party in the first year of the Third Reich, though his prospects still looked far and non for by this time, his portfolio of brick and mortar projects completed were a suburban house and two garages. His first major work that truly grabbed the attention of the Fuehrer were his designs for the “Jewish-Bolshevik world conspiracy” demonstrations on May 1\textsuperscript{st}, 1933, at Berlin’s Tempelhof Site. Speer proposed nine flagpoles behind the speakers’ tribune, each of them 33 meters high, from which hung flags as if they were sails.\textsuperscript{25} The effect was dramatic for the 1.5 million attendees; searchlights were placed around the perimeter pointing upwards, creating his first “cathedral of lights.” Speer would subsequently get the commission for the Nuremberg rally ground – to build a ‘national place of pilgrimage’: he designed a 390-meter wide and 24-meter-tall stands on the Zeppelin Field adorned with a gigantic swastika and flanked by dozens of pillars on either side. The megalomaniacal structure was complete for the party rally in 1936.

\begin{footnotesize}
\begin{enumerate}
\item\textsuperscript{23} Kitchen, Martin: \textit{Speer: Hitler’s Architect} (2017), c.2
Speer, Albert: \textit{Inside Third Reich} (1971) p. 40;
\item\textsuperscript{24} Kershaw, Ian: \textit{Hitler: 1837-1945 Nemesis} (2001).
\item\textsuperscript{25} Teut, Anna: \textit{Architektur im Dritten Reich 1933–1945} (1967) p.187.
\end{enumerate}
\end{footnotesize}
Speer’s sudden rise to power and fame came at age 28 when he became site manager, on behalf of architect Troost, in the renovation of the chancellery building in Berlin. Troost was based in Munich and was unfamiliar with Berlin building companies; Speer was tasked overseeing a speedy completion – by this point he had already gained a reputation for his organizational skills. It was this job where Hitler watched Speer closely, inspecting the site daily at noon; the fuehrer was impressed with his precise and direct answers to questions, his lack of intimidation to Hitler, and his impeccable manners. After a number of lunches that would bind the two lovers of architecture together, Speer became the obvious candidate to take over from Troost after his death on January 21st 1934: “congratulations – you are now number one” Hitler told the young architect. Speer’s his genius lay in providing the dictator with exactly what he wanted – theatrical backdrops to enhance his stature and the realization of his dreams of building vast monuments to his boundless imperial ambitions, designed to last for thousands of years. Hitler moved into the Reich Chancellery apartment in May 1934. The project would be followed by commission to renovate the Italianate Palais Borsig on the corner of Vossstraße and Wilhelmstraße – next door to the chancellery extension – as a headquarters for the SA.

On the 30th January 1937, Hitler appointed Speer as Berlin’s Inspector General of Buildings, tasked with “rebuilding Berlin as ‘Germania’, home of National Socialism, an expression of the conquest and subjugation of lesser peoples and a potential world power. Speer was now as much a propagandist as an architect,” as explained by Kitchen. He reported directly to Hitler, independent of the mayor of Berlin, his authority centered on a three-mile-long grand boulevard.

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26 Kitchen, Martin: *Speer: Hitler’s Architect* (2017), c.3
running from north to south, which Speer called the Prachtstrasse, or Street of Magnificence; he also referred to it as the ‘North–South Axis’. At the northern end of the boulevard, Speer planned to build the Volkshalle, a huge domed assembly hall over 210-meters high, with floor space for 180,000 people. At the southern end of the avenue, a great triumphal arch, almost 120-meters tall and able to fit the Arc de Triomphe inside its opening, was planned. From 1939 on, Speer's Department used the Nuremberg Laws to evict Jewish tenants of non-Jewish landlords in Berlin, to make way for non-Jewish tenants displaced by redevelopment or bombing. Eventually, 75,000 Jews were displaced by these measures – Speer would later deny knowledge that these Jews were being sent to concentration camps. As the war started, construction stopped in Berlin and Nuremberg, though stockpiling of materials continued.

Albert Speer life would be turned upside down on Sunday, February 8th, 1942.

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Chapter I: 1940

On Tuesday, May 28th, 1940, in the General Motors Building in Detroit, Bill Knudsen’s office phone rang.

“Mr. Knudsen,” said a voice on the other end, “the president of the United States wants to talk to you—here he is.”

The refined and commanding voice of Franklin D. Roosevelt, familiar from radio and newsreels, came on the line.

“Knudsen? I want to see you in Washington. I want you to work on some production matters. When can you come down?”

On that day, King Leopold III of Belgium had surrendered his troops to the Wehrmacht stating that the “cause of the Allies is lost” after only eighteen days of battle. Three weeks later, Western Europe would collapse in its entirety to Nazi Germany with only Great Britain standing on one leg. Despite being the most productive economy in the world, the United States in 1940 was still in a position of perceived weakness: its steel output was less than half of its pre-1929 levels; unemployment was rife; and a meagre spending on national defense of $1.5 billion in the past seven years had allowed it to become ranked only eighteenth in terms of size and power.

Great Britain had been mobilizing its factories, plants, and shipyards for war since 1936; Germany, since 1935; and Japan, long before that. Together with the Soviet Union, they were

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outspending the United States on weaponry at a rate of ten to one. This position of weakness was created by the United States’ prolonged policy of rampant isolationism. U-turning this state of vulnerability against ideological enemies so fraught with aggression, would be faced with the most extraordinary of headwinds.

In stark contrast to the United States, Germany was at the peak of its global dominance, having conducted the most intimidating and successful battle campaigns perhaps in the history of modern warfare. The invasion had sent shockwaves across the world with all major powers asking what the seemingly indestructible Fuehrer might do next. Despite Hitler’s success in toppling the French state he failed to break Britain.

According to economic historian Adam Tooze, the preeminent expert of the Nazi war economy and author of *The Wages of Destruction*, Nazism’s ultimate confrontation would not be against the Soviet Union, for victory in the East was taken for granted, but against the vast industrial might of the British Empire and the United States, a far more comparable enemy to German and its industrialized population. German military high command believed Germany had a yearlong window before the Britain could pose a serious air threat and the United States would make the decision to join the war. In the year 1941, the Kriegsmarine would fight the British in the Atlantic, with a now tripled figure on the production of U-boats, starving the island of precious resources and food being shipped from North America; the *Wehrmacht* would fight the Soviet

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Union; and the *Luftwaffe* would face both foes.\(^{33}\) Operation Barbarossa was expected to be completed in three-months with a strategy of “Speed! No stops! Do not wait for railway! Do everything with motor vehicles. There must be no hold ups, that alone guarantees victory,” stated by army Chief-of-Staff Franz Halder.\(^{34}\) Speed was the key component to the Wehrmacht’s Blitzkrieg orchestra of lightening warfare, Germany’s greatest military innovation. In six weeks, Blitzkrieg had allowed Germany to demolish France, widely considered the most fortified country, defended by the Maginot Line, and operator of the most powerful and well-equipped army in the world. The Soviet Union was thought feeble in comparison to the French; the Untermensch Slavic people had a GDP per capita 40 per cent of that of the ruthless modern Reich.\(^{35}\) “We only have to kick in the door and the whole rotten structure will come crashing down,” as confidently proclaimed by the Fuehrer.\(^{36}\)

Fuehrer Adolf Hitler’s strategic masterplan was now at its fourth stage. The Reich’s Eastern territories and puppet governments had been established in Scandinavia, France, and the Low Countries. This stage would comprise of an invading force numbering no less than 3,050,000 million men, the largest in history would operate on three fronts, over a front line measuring 1,000 kilometers that would soon stretch to 3,000 kilometers. This force would conquer everything up to and beyond Moscow spreading into the depths of the Asian continent. The three army groups would primarily be enabled by weaponry and armaments held in stock, weaponry confiscated by now defeated European armies, and anything produced in the year succeeding the fall of Western Europe and proceeding Barbarossa. Battle-tested veterans were to manufacture

the final weapons needed against the Soviet Union with a continued importation of raw materials secured through the 1939 non-aggression Molotov-Ribbentrop Pact. Subsequently German industry would be stripped of its most valuable workers now turned soldiers. Industrial output was bound to suffer until victory over the Soviets in which time the factories would return to peak productive capacity; Hitler promised that one million of his soldiers would return to their workbenches by the end of August 1941. In the meantime, Germany “employed” 1.2 million French prisoners of war and 1.3 million Polish “civilians” to make up for the deficit. Such that Poles would account for 8.4 percent of the German workforce; this would only rise with the Reich’s western transportation of a further million Poles. Despite Nazi Germany being by far the most mobilized society in Western Europe it was also one of modest resources. Therefore, the key reward to Barbarossa was the four million tons per annum of Ukrainian grain and the Southern Caucuses’ one million per annum tons of Azerbaijani oil needed for the Reich’s future military campaigns. By February 1940, the OKW promised 70 percent of the Soviet Union’s industrial potential would soon belong to the Reich. This new input to Germany’s industrial capacity would then be thrust into the all-important aircraft and naval industries required for the ideological showdown with Britain and the United States. Munitions and tank-heavy production needed for the short-term battle with Russia would be sacrificed to finally allow for the construction of ‘American-style’ mega factories needed for the mass-production of aero-engines

37 BAMA RW19/164, 192 – from Tooze.
38 Herbert, U: *Hitler’s Foreign Workers: Enforced Foreign Labour in Germany under the Third Reich* (1997)
39 Birkenfeld, Der synthetische Treibstoff, 164, Budrass, Flugzeugindustrie, 718, and Eichholtz, II. 13–18. The German navy in November 1941 made the same assumption, demanding the occupation of Maikop by December 1941 so as to enable oil production to begin by the spring of 1942. See W. Meier-Doernberg, Die Oelversorgung der Kriegsmarine 1935 bis 1945 (Freiburg, 1973), 59 – from Tooze.
**due to the use of Apple Books with digital changing page numbers, I reference chapters instead of pages.**
and high-volume ship building. Such factories would be built with Fordist principals of vertically integrated production systems.  

Hitler’s 1940 ‘conventional strategy’ propelled by his dream to realize the overturning the global balance of power was inseparably intertwined with racial ideology. As explained by Holocaust historian Philippe Burrin, “it was understood in Berlin, the war in the West had been forced on Germany by the ‘World Jewish Conspiracy’ pulling the strings in London and Washington.” In the new French and Polish territories of the Reich, documents captured from Foreign Ministries in Warsaw and Paris only served to confirm that a vicious British and American plot to encircle and strangle Germany, concocted by wealthy and powerful Jews, was unfolding. The Nazi identification of Roosevelt with the ‘World Jewish Conspiracy’ was unrelenting. Thus, according to Tooze, Hitler’s long-held ideological vision to conquer Lebensraum in the East was just as perverse as the need to silence the urgent threat posed by the hidden linkage of the Anglo-American alliance, masterminded by world Jewry.

II

Roosevelt’s decision to militarize rapidly in 1940 were influenced by a complex array of factors, including geopolitical strategy, economic interests, and a genuine commitment to democratic values and opposition to totalitarian regimes. The Nazis’ unwavering belief in the ‘World Jewish Conspiracy’ that plagued the US was certainly a considered factor. So unpredictable was Hitler and his Japanese allies, Roosevelt could not rule out attempts by Axis powers, the term coined in

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43 Ibid.
May 1939, to militarily intimidate the ideologically different but neutral American continent. This Axis power thought little of ruthlessly attacking countries without a formal declaration of war. The President, therefore, hired men like William S. Knudsen to ensure his balance of power would prevail by turning an economy geared around producing consumer goods and services into one making more weapons and war materiel on a scale never previously imagined.

In May 1940, Roosevelt founded the Council of National Defense Advisory, a branch of the Office of Emergency Management, which he had set up to dispense any and all executive powers that the situation in Europe might demand. According to Knudsen’s memorandum to himself, “In true New Deal style, [we have] no authority except what the President delegates piecemeal.”

The committee was made up of leading industrialists, a Federal Reserve Board Member and a Securities and Exchange Commissioner, union and railroad leaders, and the dean of women from the University of North Carolina. This group was known as ‘the one-dollar-a-year men’ who would bridge the ideological and geographic divide between New Deal Washington and the private sector, namely the automobile industry in Detroit. Knudsen’s committee had no official authority to force the changeover of the economy or order any firm to make anything. They would have to go from business to business with hat in hand, as Knudsen later put it, to persuade them to prepare for a war that two-thirds of the American people opposed—including many businessmen themselves. These were not the only headwinds that Knudsen faced: life-long Republican Knudsen had now associated himself with the archetype of, unpopular among industry, New-Dealism. The day prior to Knudsen’s first visit to the White House, his final meeting with Alfred Sloan, his mentor, and Chairman of General Motors, had been branded as a

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betrayal – he vehemently opposed Knudsen’s decision to meet Roosevelt.\footnote{Herman, Arthur: Freedom’s Forge, (2012), c.5.} Knudsen reminded Sloan about his contractual ninety-day leave of absence clause to ponder prior to making a final decision to resign. Sloan was insistent: the next day, Knudsen’s $300,000 a year salary was off the GM payroll.\footnote{Hyde, Charles, Arsenal of Democracy (2001)}

“Decentralization [is] analogous to free enterprise. Centralization, [is analogous] to regimentation.” to quote Alfred Sloan.\footnote{Sloan, Confessions – from Herman. p.134.} The New Deal had tried once to mobilize and energize the nation’s productive resources through regimentation and results were sluggish. Now with war coming, the industrialists’ fears spoke that Washington was coming to complete the New Deal agenda with a super New Deal.\footnote{Thomas Fleming: The New Dealers’ War (2001) p. 85–86} Radical economist Waldo Frank spoke of the regimentation of mobilization: the government could now finally transform all sectors of American society—business and labor, rich and poor, managers and the unemployed—into a single vast cooperative enterprise. Thus, Knudsen was placed in the center of a vicious battle between corporate interests and Washington: he was neither trusted nor accepted by either faction.

Knudsen’s role in mobilizing a war economy started from scratch; “to formulate and execute in the public interest all measures needful and appropriate in order to increase, accelerate, and regulate the production and supply of materials, articles and equipment required for the national defense.”\footnote{Executive Order 8629—Establishing the Office of Production Management in the Executive Office of the President and Defining Its Functions and Duties January (1941) p.7} Prior to 1941, Washington held a strict mantra that the country would never again involve itself in a foreign war. It was a Democratic Congress and Franklin Roosevelt that passed
two Neutrality Acts in 1935 and 1936, prohibiting American companies from selling any war equipment to any belligerent in an armed conflict. Furthermore, Roosevelt encouraged Republican Senator Gerald Nye in his sensational investigations into the conduct of American armaments manufacturers in the First World War. With US defense contractors being labelled as “Merchants of Death,” their lies, deceit, hypocrisy, greed, and graft” were responsible for forcing the United States into the war in the first place.\textsuperscript{51} As Arthur Herman, writer of Freedom’s Forge concluded: “companies drew the same lesson: supplying America with arms was business you did not want;” thus, the American armament industry was for all intents and purposes, dead.\textsuperscript{52}

When Knudsen was given the Industrial Mobilization Plan, first drawn up by the War and Navy Department back in 1922 and since revised, he discovered it to only be eighteen pages long. Knudsen could not get a straight answer about what the US armed forces would need and the armed forces were left waiting for Knudsen to tell them what the volumes the American economy was capable of producing. It became quickly apparent to Knudsen that his role was a poisoned chalice – no one figure wanted to become the poster child of the rearmament effort with such aggressive stigma surrounding militarism. There was such fierce stigma to the extent that service members became hesitant to wear their uniforms in public, and often suffered from verbal harassments from the general public.\textsuperscript{53}

The weekend after Dunkirk in early June 1940, Time Magazine’s Henry Luce exclaimed “the nation clearly, almost violently wants a man of action, a powerhouse of strength and sureness” in

\textsuperscript{52} Herman, Arthur: Freedom’s Forge, (2012), prologue.
\textsuperscript{53} Ibid
its Sunday edition. The country was worried instead that it was getting Bill Knudsen, “a ponderous, accented, self-made man, a production genius.”\textsuperscript{54} This created the debate of about forming a so-called ‘production czar’ of the War Economy role capable of regulating industry directly; to show industry what had to be done and do everything in his power to thrust productivity. This would include stepping in if the marketplace failed deliver fast enough and offering state subsidies should an incompetent or underperformer need it. While at this point in the war, neither the Empire of Japan, nor Nazi Germany had such a singular figure quite yet, though individuals such as Fritz Todt and Lord Beaverbrook, Britain’s Minister of Supply, wielded considerably more direct authority than Knudsen ever would. Roosevelt and Knudsen both determined that the war mobilization effort was too big a task for one plan or person. As concluded by economist Eliot Janeway: “If the American people really did need Washington to tell them what to do, then the war was lost.”\textsuperscript{55} Instead, their confidence rested on the free market generating its own spontaneous order matching supply to demand, even in wartime with the Head of War Production acting as an easy line of communication between the government issuing the orders and then businesses carrying them out.

III

Two months prior to Knudsen’s appointment, Adolf Hitler appointed Fritz Todt to become the first Reich Minister for Armaments and Munitions. He would become Knudsen’s German counterpart on the 17\textsuperscript{th} March 1940. An \textit{Alter Kämpfer}, Todt joined the NSDAP, or Nazi Party, in January 1922 and then joined \textit{Sturmabteilung} (SA) in 1931. He steadily rose through the ranks

\textsuperscript{54} Time Magazine, June 12, 1940, p.18–19.
\textsuperscript{55} Janeway, Elliot: \textit{The Struggle for Survival: A Chronicle of Economic Mobilization in World War II} (1968) p.16
securing his role by “deliberately posing as a technical expert, a man without interest in internal power struggles, saved from the adversaries of the more important party leaders for a long time,” as described by Alan S. Milward.\textsuperscript{56}\* By July 1933, he was named Inspector General for German Roadways, subordinated only to Hitler placed with the task of organizing the construction of the Reichsautobahnen, termed “Adolf Hitler roads” – the country’s first national highway system. Furthermore, Todt served as Director of the Head Office for Engineering and General Plenipotentiary for the Regulation of the Construction Industry appointed in December 1936 and December 1938, respectively.

By 1940, Todt’s authority was focused on leading most areas of the war economy with the notable exceptions of allocating of raw materials, prices, labor flows, aircraft, and ship production. Todt operated under a management philosophy that combined centralized authority with decentralized execution. He made strategic decisions based on raw material rations and output targets signed off by the Fuehrer himself. He set broad objectives at the top level through the creation of committees attached to his ministry with members including ideologically supportive industrialists such as Man, Daimler Benz, Porsche, and Thyssen; raw material producers such as Vereinigte Stahlwerke (United Steel Works); with military muscle employed by members of Todt’s ministry. These committees were then supported by sub-committees known as Organizing Devices chaired by Karl Otto Saur, self-explained by his nickname: the Rottweiler of the Armaments Ministry, Todt’s right hand. Saur would become notorious throughout German industry as “a blunt-talking and intemperate bully, who was by no means

\textsuperscript{56} Milward, Alan: The German Economy at War, (1965).
\*An \textit{Alter Kämpfer} is a term referring to the earliest members of the Nazi Party, those who joined it before the 1930 German federal election.
averse to physical violence.” On at least one occasion during a plant visit Saur personally assaulted a group of recalcitrant workers. Organization Todt operated under the constraints of a centralized, command economy that proved highly effective for specific projects, but inflexible due to its reliance on coerced labor and strict hierarchies. Such hierarchies and the delegation of considerable responsibility to his subordinates made it difficult for Todt to pivot away from German industry’s fixed and antiquated production systems. Though he did somewhat succeed in empowering on-the-ground managers to make decisions within this framework, the economy did struggle without the benefit of a rich history of mass-production culture to advance the war economy. This differed from the less hierarchical and more collaborative approach of Knudsen that leveraged the existing structures of American industry, stimulated by his connections and influence within the manufacturing sector of the economy. Despite this, Knudsen’s decentralized approach would need to prove all this could be coordinated and maximized, harness innovation through the flexibility and responsiveness of the private sector, all while being motivated by a profit maximizing objective.

During the operation designation of Ruestungsprogramm B, October 1940 to April 1941 – the period proceeding Barbarossa, the year-on-year increase in the output of weapons and military vehicles was 54 per cent, for aircraft the figure was 40 per cent, and the production of U-boats more than tripled. According to Tooze, “what has tended to obscure this considerable growth in the production of weaponry is the simultaneous decline in the production of ammunition, which, had been Hitler’s number one priority in the first nine months of the war.” In his analysis, Hitler’s priority to slow the production of weaponry for the needs of the Wehrmacht in the East is

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58 Ibid.
evident along with the priority given to grow U-boat and aircraft production to confront Britain; this German decision was reactionary to Knudsen’s hiring. Back in the US, Knudsen and Washington had much to fear for Germany were tuning their total war against the United States. Despite this the American population and industry were still unwilling to engage. Alfred Sloan, President of GM and perhaps America’s most powerful business executive, wrote a note to his friend John Pratt stating:

“It looks as if the war in Europe is rapidly moving toward a conclusion. I am probably wrong about this but I can’t see how it can be otherwise. It seems clear that the Allies are outclassed in mechanical equipment…. They ought to have thought of that five years ago. There is no excuse … except for the unintelligent, in fact stupid, narrow-minded and selfish leadership which the democracies of the world are cursed with.… [Now] there is nothing for the democracies to do but fold up. And that is about what it looks as if they are going to do.”

VI

Knudsen categorized the war products that needed to be manufactured into six divisions and named one man to head each. According to Knudsen’s diary, his preparations based on “starting on the weapons that required a long cycle in manufacturing,” that would be ships, tanks, airplanes, guns, smokeless powder, and TNT. The second stage was to plan for shorter-cycle

items such as trucks and vehicles, clothing, food, and smaller arms like rifles and machine guns. The third step was to assemble a team who understood the dynamic power of mass production, and the technical problems facing a modern economy.\textsuperscript{62} It’s clear that Todt came to similar conclusions considering that Albert’s Speer’s so-called “armaments miracle” of 1942 that was primarily driven by incredible aircraft production output statistics that succeeded Hitler’s drive to invest significantly in arming the \textit{Luftwaffe} in 1940. As said by Tooze: “the key to understanding German armaments strategy in 1941 is to recognize that, unlike in the first months of the war, it was not directed primarily towards maximizing immediate output.”\textsuperscript{63} The aircraft production timeline of design to assembly to raw material to finished airplane would take over two years for both the Americans and Germans.\textsuperscript{64}

Knudsen’s initial challenge was not solely to build America’s military arsenal, but support that of the United Kingdom. The Battle of Britain commenced in early July 1940: the air battle was the first stage of Operation Sea Lion, the German campaign to invade the British Isles. With all its tanks, trucks, and field artillery left on the beaches of Dunkirk, Britain had little to defend itself and. With limited production potential, Prime Minister Winston Churchill had little choice but to turn to his American counterpart President Franklin D. Roosevelt. Churchill confessed to one intimate that there might be fewer than seventeen tanks left in the entire British Isles.\textsuperscript{65} Before seeking whether a transfer of surplus weaponry was available, Roosevelt had to bypass the Neutrality Act; the United States still could not directly turn over weapons to a wartime

\textsuperscript{62} Herman, Arthur: \textit{Freedom’s Forge}, (2012), c.4.
\textsuperscript{63} This was made explicit by Keitel on 20 May 1941 in discussion of the post-Barbarossa armaments programme – from Tooze.
\textsuperscript{64} Tooze, Adam: \textit{The Wages of Destruction} (2006), c.13.
\textsuperscript{65} Clark, Kenneth: \textit{The Other Half: A Self-Portrait} (1977) p.17.
belligerent—not even a democratic ally like Britain—facing imminent extinction. Additionally, in the winter of 1940, German U-boats were sinking their merchant ships three times faster than they could replace them—Secretary of War Henry L. Stimson was told Britain had lost “four million tons of shipping so far”—even as British shipyards were being pounded by Nazi bombers.⁶⁶

Britain’s first order from the United States were two hundred Lockheed-Hudson coastal reconnaissance aircraft, over the course of the war this aircraft would be ordered in a unit number of thirteen hundred.⁶⁷ This order would dwarf what the Royal Air Force really needed: fighters to defend its shores and skies. Britain had lost half of its fighter-class Spitfires in the Battle of France and now fewer than seven hundred Spitfire and Hurricane fighters remained to defend the island. British factories were working flat-out to produce sixteen hundred planes a month. But those planes also needed engines, especially the twelve-cylinder in-line Rolls-Royce Merlin engines, which gave the Spitfire its crucial edge over the Nazis’ best fighters. With no steel in Britain, the island could not achieve their needs and would thus leave the incoming German Junkers unobstructed skies to drop paratroopers over Britain. This task would be Knudsen’s first priority undertaking.

Early in his tenure, Knudsen had many requests from congressmen and senators who wanted defense plants in their districts; these he politely rejected. He decided that most contracts for war good would be awarded to companies with leading engineering departments that was required to reengineer production lines. At first, Knudsen concluded that the only manufacture who was capable of producing the Merlin engines at the scale proposed was his old employer: The Ford

⁶⁷ Herman, Arthur: Freedom’s Forge, (2012), c.5.
Motor Company. Initially, Knudsen agreed that Ford would produce nine thousand of the Merlin engines under a non-royalty license [with Edsel Ford, Henry Ford’s oldest son]. Two-thirds of them were to be shipped back to Britain, and one-third would remain in the States to boost American defenses.68 A few days later, the deal was cancelled: “Father won’t do it, and you know how he is.”69 Despite Knudsen’s best efforts, he was unable to dissuade Henry Ford – the fierce critic of Roosevelt: “you’re mixed up with some bad people in Washington,” he said to his former deputy.70 He would not endorse breaking American neutrality by supplying an ally at war and drowning the US’s defense efforts by adding 60 percent more needs to the war burden.71 Ford’s isolationist proclivities were a huge source of relief for German economic planner; unbounded fear surrounded the legend of Ford. It was the unknowns that shook Berlin most: “Was macht Ford? (What will Ford do?)” they asked. 72

Knudsen instead went to Packard, the maker of the Model B – the first car to possess a steering wheel and a gas pedal – now nearing bankruptcy due to a struggle to compete with the likes of Ford and GM. The Merlin engine’s clandestine blueprints for one of the world’s most advanced machines were shipped by battleship across and Atlantic and by August 1941, Packard had a working prototype for testing which proved as reliable and resilient as the British counterpart. The difference was that whereas the English Merlin was still made by hand, with workmen still shaping every part to fit each specific motor, Packard’s mass-production approach allowed relatively unskilled labor to do the same job three times faster. Indeed, one-third of Packard’s

68 Ibid.
69 Beasley, Norman: Knudsen: A Biography (1947)
70 Sorensen, Charles: Forty Years with Ford (1957) p.275–76.
new employees were women who had never set foot on a factory floor. The engines were built in a new wing of the factory and were still able to launch their latest car in 1941: the Clipper. While the first nine engines had cost both the government and Packard more than $6.25 million, the company’s profit for the entire Merlin deal came to barely $6,000 due to the government’s new contract structure.

Starting in December 1941, the Merlin system that would allow American factories to fill British orders without the British paying dollars was born; this system would be known as Lend Lease. Considering that making arms for Britain was just as critical to America’s national defense strategy, orders for Britain would be made by the federal government. If the Army and Navy needed them, the United States would keep them. If Washington decided that the defense of the country” was better served lending them to Great Britain, then “we could either lease or sell the materials, subject to mortgage, to the people on the other side,” as Roosevelt explained in a press conference. Roosevelt compared the transaction to lending a garden hose to a neighbor whose house was on fire. It’s still our hose, he explained. We are just letting the one who needs it most use it first.” This system allowed Knudsen to coin the phrase ‘the Arsenal of Democracy’ – to explain the United States pre-war approach to the Second World War: to position the United States as a central supplier of war materiel to democracies fighting against totalitarian regimes, without directly involving the U.S. in combat.

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73 Ward, James: *The Fall of the Packard Motor Car Company* (1997), p.15
75 Roosevelt, Franklin: Press Conference (12/15/1941)
The Germans faced their own issues with regards to aircraft production; the Reich Air Ministry in early 1941 found it hard to come up with a coherent long-range production plan. Germany’s only hope, it seemed, was to counter quantity with quality. As the Luftwaffe chief of staff put it, in far from optimistic tones, in September 1941: “if there is any way for the German air force to achieve a decisive victory over the American-British aerial enemy, then it can only be the qualitative superiority of its armaments.”\textsuperscript{76} The competitive process of development firms Junkers, Heinkel, and Messerschmitt entering bids was “a profusion of prototypes and innovations, but not the optimal exploitation of economies of scale,” as described by Tooze.\textsuperscript{77} Despite this, with huge new schemes to produce synthetic rubber and air fuel, and the production of aero engines allowed for a major process of acceleration. This would only increase with major plans to open gigantic aluminum production in Norway to quadruple output to 200,000 by 1944.\textsuperscript{78} With these developments, by mid-1941, the Air Ministry proposed a doubling of output to 20,000 aircraft per year over the following three years.\textsuperscript{79} Once the Caucuses were under Reich’s control, three millions tons of air fuel would be produced to allow the Luftwaffe to fight an air war, not against the Soviet Union, but against the looming air fleet of Britain and the United States.

\textsuperscript{77} Tooze, Adam: \textit{The Wages of Destruction} (2006), c.13.
The arms race was gaining momentum and thus the US needed to amend defense contract legislation. Prior to Knudsen’s arrival, the public’s attitude to war procurement was effectively summarized in Stephen Rauschenbush 1935 book *War Madness*: “We ran the last war in such a way that we made thousands of millionaires at the same time that we took millions of men away from their jobs and families and put them in to uniforms and paid them only a dollar or a dollar and a quarter a day.”

The postwar reaction against “war profiteers” led Congress and the Treasury Department to impose sharp curbs on the profit companies could make on orders larger than $25,000. They also required an advance audit to guarantee that company profits would never be more than 8 percent even before the contract was signed. Furthermore, no capital was ever advanced to companies for prototype designs or new machine tools to manufacture the armament; there was no incentive to invest millions of dollars into making a bid when there was no guarantee of winning and nothing to inhibit the government from terminating the agreement. Finally, amortization rules made the short-term investment in plant, property, and equipment necessary for the defense buildup almost impossible.

Through Knudsen’s persistence, in July 1940, Congress approved for the War Department and the Navy Department to put up more than $7 billion and $2 billion, respectively, in advanced payments for its civilian business contractors. Roosevelt’s administration had to ensure they found the stable profit rate for in 1935, England’s rearmament efforts were incredibly slow: Chancellor Philip Snowden uttered the words, “let the world come against her, England stands there still,” one now might add, “waiting for 15 per cent profit.”

Germany and Italy’s contract rate was cost plus 5 percent which Rauschenbush

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described as “Hitler and Mussolini squeezing the big industrialists.”

Though this was accepted as relations were strong between the regime and the industrialists in the early years of the war. Congress decided contractors would work on a cost-plus 7 percent fixed fee; this would be the rate to kick start production.

Hitler’s megalomaniacal plans and authority was always going to come into conflict with fundamental principles of macroeconomics as government spending was always a secondary concern to the regime. A decade prior, the German economy was the hardest hit by the Great Depression. The economy never experienced a major boom significant enough to justify the eyewatering increases in defense spending that rapidly rose 0 to 20 percent in five years. Not to mention, the Treaty of Versailles had prohibited Germany from rearming anyway. It was the Reich Ministry of Finance whose job it was to keep spending expectations realistic without opening the flood gates of hyperinflation. Thus, it was the talented President of the Reichsbank Hjalmar Schacht who devised a form of promissory note called the MEFO. This allowed the government to build their war machine with a concealed mechanism that would kick start industry, defeat unemployment, paid for in future tax revenue. MEFO’s were supposed to have a maturity of half a decade but five years in, in 1938, a mere matter of months from war, and no liquidity existed to pay off the loans. In the short term, Nazis would do what Nazis do best: pay off MEFOs by raiding Jewish bank accounts and shortly thereafter loot new Reich territories of wealth, primarily France; naturally, high-ranking Nazis would not fail to line their pockets during these crusades. As war progressed, Schacht’s economic system closed itself from external forces: money was printed by the Reichsbank, this injection would pay off MEFO bills, pay

84 Ibid.
worker salaries, and pay industrialists’ contracts. Cleverly, as German workers lost their ability spend their money due to the closure of consumer markets due to a prioritization of defense industries, hyperinflation was avoided, and price stability remained stable. In the true form of the Third Reich, impending hiccups never converted to disaster as they were always ruthlessly suppressed by the Nazis.

Unlike the Americans, the Nazi regime took far greater control of war industries. Firms were given production quotas and could and would be nationalized if they failed to meet the regime’s demands. Emphasis was on fulfilling the Fuehrer's objectives, usually at the expense of workers’ rights and welfare. Todt had the authority to make wide-reaching decisions quickly, without the need for consensus-building or concern for public opinion. Crisis could and would be concealed from scrutiny. This centralized decision-making allowed for rapid deployment of resources; any industrialist who attempted to voice concern about the system could expect a less than friendly visit from the SS.

Back in the world of transparent democracy, Knudsen’s system would face further headwinds from oversight-obsessed Senator Harry S. Truman of Missouri. In a 1940 report, he was understanding that out of $100 billions of defense contracts, 70 percent went to America’s hundred largest corporations, namely, General Motors, Ford, Sears, Dow, DuPont, and General Electric.86 The fact that these companies were so closely associated with Knudsen and Donald Nelson, formerly of Sears, was not helpful to the NDAC’s already limited and youthful authority and reputation. Truman would insist on the establishment of a Smaller War Plants Corporation, as a counterweight to the NDAC’s perceived bias toward bigness. Unbeknownst to Truman, this

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strategy was deliberate for the biggest companies had the biggest engineering staff. Knudsen told his colleagues: “this is a job calling for quantity and quality […] it is absolutely necessary to have an engineering boss on every job.”  

Critically, no better example of the trickle-down effect would be seen. As the war progressed, the depression had finally ended and resolved the unemployment problem; half a million small businesses were created to be subcontractors; GM would end up hiring 18,000 small enterprises during the war and Boeing’s B-29 project alone would employ over 1,400.

A further group who supported Knudsen’s belief in working with the largest companies were unions; for the biggest companies had the greatest concentration of laborers making mobilizing them easy. Union membership had surged during the New Deal years, from 6 percent in 1933 to 16 percent of the workforce in 1940. Infected with the most radical of leaders, the United States Congress of Industrial Organizations was Marxist to its core. The official party line was that the war raging in Europe was a bourgeois struggle and the working class had nothing to gain by getting involved. The Molotov-Ribbentrop Pact hadn’t made the Soviet Union Hitler’s ally exactly, but Stalin and his Communist followers had no desire to help Britain or its Dominions win. As labor historian Max Kampelman has shown, the Communists’ goal was to halt or at least hamper the American war effort, and strikes were one way to do it. Whether war were to happen or not, it was essential that Roosevelt and Knudsen stayed in control of the daunting shadows of unions for their all-out mobilization.

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By December 1940, Roosevelt was ready to vest more power in Bill Knudsen and thus replaced the National Defense Advisory Commission (NDAC) with the formation of the Office of Production Management (OPM). This new body would issue directives and make decisions with Knudsen as the single head in charge, labor leader Sidney Hillman as his deputy, and joined by Secretary of War Henry Stimson, Secretary of Navy Frank Knox.\(^{91}\) By the end of 1940, some 50,000 planes, 130,000 engines, 380 Navy ships, 9,200 tanks, and 17,000 heavy guns, plus rifles, helmets, and clothing for an army of 1.4 million men, were being made or under contract to be made in the United States.\(^{92}\) This order would compensate for having close to zero armaments in reserve, and would service production for years ahead to be used in a double theatre war. To put this in context, Germany, already with a large stockpile of weapons, produced 10,247 aircraft and 1,180 tanks in 1940.\(^{93}\) 2023 statistics of the US Airforce and Navy figures indicate a stockpile of approximately 9,512 aircraft, 299 Navy ships. The US army has 5,500 tanks stockpiled, and over 2 million active and reserved military personnel.\(^{94}\)

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\(^{93}\) Tooze, Adam: *The Wages of Destruction* (2006), c.15.

Chapter II: 1941

1941 was a critical year for the United States for at any point, an incident such as a mistaken U-boat strike on an American ship could occur jolting the country into war at a moment’s notice. As America attempted to prepared for war internationally; battles were already being fought domestically. 1941 alone, the steel industry had seen four million labor hours lost in 18 weeks of strikes; United Mine Works threatened to pull 400,000 workers nationwide; and the aircraft industry saw 15 strikes.95 Despite the creation of a National Defense Mediation Board on May 9th, little was done to crush the malady effectively. Knudsen would later calculate that unions were slowing the war effort by as much as 25 per cent in the year that proceeded Pearl Harbor.96

No matter the torment that the unions were inflicting on the war effort, little can compare to the struggle Germany were facing in 1941. With Ruestungsprogramm B coming to an end, the planning of Barbarossa was coming to a critical stage. However realistic the Oberkommando der Wehrmacht may have been in their assessment of the Wehrmacht’s capabilities, the sheer scale of the daunting task ahead of them in the Soviet Union could not be denied. Germany’s stock of armaments would be empty come December 1941 and thus Hitler had no time to waste to inflict a single decisive blow on the Red Army. The Wehrmacht had to take advantage of the summer Blitzkrieg season and it had to happen in 1941 before the Great Britain or the United States posed as a serious threat in the West. Thus, Hitler’s entire war strategy was built on a series of assumptions built beneath a thick layer of hubris and optimism that if proven wrong, the Reich

96 Ibid.
would be facing a “long drawn-out war, beyond the capacity German forces could realistically wage and dominate.”\textsuperscript{97} It is clear that in the months prior to June 1941, there were deep divisions both about the design of Operation Barbarossa and its strategic rationale; unfortunately for the Reich, they were no match for Hitler’s authority following his surprising victory in France.

Known by his planners but ignored by Hitler’s ideological ignorance, Stalin’s Five-Year Plan of 1928 had increased the Soviet Union’s total industrial output by 2.6 times between 1928 and 1940. Armaments output grew vastly more as well; Moscow cleverly built a new Soviet Industrial base safely to the east of the Urals, protected from the West, which had the capacity to sustain a self-sufficient population of at least 40 million people.\textsuperscript{98} Not to mention the population of the Soviet Union cannot have been less than 170 million in 1941 and thus had the ability to call up millions of reservists if needed. The population of Germany was less than half of that: 83.76 million people in 1939 and the Wehrmacht was at its full fighting strength with only teenagers and middle-aged men as reservists.\textsuperscript{99} Furthermore, little was thought of the worrying possibility for Czar Alexander style scorched earth tactics easily employed to deprive the forward marching Heer of precious resources needed to live off the land. Germany’s plan to conquer and steal Soviet natural resources would be assumed by the Russians, assuming that Stalin wouldn’t order a self-sabotage of the Unions resource procurement ability would be incredibly naïve. Realistic assumptions for Barbarossa should have factored in years just to rebuild Soviet heavy industry should the invasion be successful. Critically, if the shock of the

initial assault did not instantly destroy Stalin’s regime, it was already evident in February 1941 that the Third Reich would find itself facing an existential strategic disaster.¹⁰⁰

I

After months of talk and planning, on 22 June 1941 the invasion of the Soviet Union began. Never or since, has battle been thrusted with such ferocity by so many men, on such an extended battlefront. The SS Einsatzgruppen were immediately unleashed to wreak havoc on Jewish populations with one group killing 270,000 victims “murdered by hand, using rifles, pistols and machine guns” in the first six months of the invasion alone.¹⁰¹ Subsequently the Hunger Plan was introduced to begin annihilating the Slavic population. The first months of the invasion proved incredibly successful, no less than 3.3 million Red Army soldiers fell into the hands of the German army.¹⁰² Special rations were prescribed providing far less nutrition than for any other category of prisoner and no adequate plans were made for housing them over the winter months; many were wounded, exhausted, suffering from shock – the SS Einsatzgruppen had a license to execute any Soviet citizen deemed “dangerous.” This was not necessary for many were dying of natural causes anyway. By October 1941, German and Finnish pincers closed around Leningrad with two and a half million civilians and soldiers trapped in a giant encirclement. According to Tooze, the following arose:

¹⁰¹ Ibid.
¹⁰² Ibid.
“Uncertain about the situation of the Soviet defenders, the German 18th Army, which had responsibility for the siege, began canvassing options for dealing with the population. The army’s staff proposed three possibilities: encircle the city and ‘starve the lot’ (alles verhungert); evacuate the civilians westwards into the German zone of occupation; or arrange for their evacuation behind Soviet lines. The memo presented no decision, but set out the advantages and disadvantages of each option. […] The one option that was never even considered was the possibility of feeding the Soviet population from German stores. By December 1941 Leningrad was in the grip of a severe famine. Over the Christmas period and into January 1942 men, women and children died at the rate of nearly 4,000 per day.\footnote{Glantz, David, The Siege of Leningrad, 1941–1944 (2001), p.75–81.} According to the best available evidence, 653,000 Leningraders died in the first eleven months of the siege. By 1944 hunger and hunger-related disease may have claimed as many as 700,000 lives.”\footnote{Tooze, Adam: The Wages of Destruction (2006), c.15.}

By August 1941, the main Panzer force of Army Group Centre southwards completed gigantic right hook. This maneuver was to produce what was arguably the greatest single German victory in the Eastern war. In three weeks of savage fighting, Kyiv was encircled, 665,000 men were taken prisoner, and the road was opened for the complete conquest of the heavy industrial zone of the Donitz. As late as the last weeks of October 1941, the Wehrmacht was still planning for the imminent dissolution of one-third of the army’s strength and the redirection of hundreds of thousands of soldiers back home to restart peak capacity production needed for the next great
Premature victory celebrations were regular back in the Reich, as told by Ian Kersaw, Hitler proclaimed:

“The Bolshevism began in hunger, blood, and tears. It would end the same way. Asia’s entry gate to Europe would be closed, the Asiatic forced back to where they belonged. A similar fate to Leningrad would befall Moscow and the operation to surround Moscow should be completed by October 15th. Japan would not miss the opportunity to make gains in the East and Stalin will capitulate or seek a ‘special peace’. With its military broken, Bolshevism would represent no further threat. England would lose its last hope on the continent. Prime Minister Churchill would be removed from power, England would remain an alien to Europe, England has no future in Europe.”

It was clear to all involved and all spectators that a Germany victory was not just possible but inevitable. Russia as the world had known it for centuries could now cease to exist; a one-front war was now coming to the doorstep of the Western Allies, as planned. The world balance of power was quickly shifting.

II

Momentum on the Eastern Front was complemented by major developments within the sphere of the growing Anglo-American alliance. Following the announcement of Lend-Lease, the Anglo-

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105 Kroener, in DRZW 5/1 – from Tooze.
American alliance showed every sign of further consolidation; news of imminent collapse of Soviet Union was painting the bleakest of pictures for Churchill and Roosevelt. In July the United States occupied Iceland to further extend its coverage of the Atlantic shipping lanes with shooting encounters between the German and American navy occurring on a monthly basis.\textsuperscript{107} The dramatic expansion of American production was a mounting concern for Berlin, unless the Kriegsmarine could soon begin an all-out attack on Atlantic shipping lanes and begin the earnest process of starving the British out, the huge capacity of America’s dockyards would be in a position to negate any losses with the standardized Liberty ship that the U-boats might inflict.

Every month of the second half of 1941, $2 billion of munitions were being stamped, milled, riveted, punched, or rolled out. The war production curve was moving steeply upward through the creation of what Arthur Herman described as “Knudsen’s creation: an almost self-perpetuating mechanism that fed upon its own individual dynamic elements.”\textsuperscript{108} On 14 August 1941 the United States sealed its irrevocable commitment to the British war effort with the announcement of the Atlantic Charter. Churchill had hoped for an American declaration of war. Roosevelt could not go so far. But in Berlin, the outbreak of open war with the United States was now considered only a matter of time.

Despite the growing momentum of the American military industrial complex, “the OPM was suffering from internal and external infighting between all-outers.”\textsuperscript{109} These were built around those who wanted rapid conversion to military production and drastic curtailment to civilian

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\textsuperscript{108} Herman, Arthur: Freedom’s Forge, (2012), c.8.
\textsuperscript{109} Hyde, Charles, Arsenal of Democracy (2001).
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output and those who preferred a more gradual conversion. Historian Thomas Fleming described the defense program as a mess but according to Herman “in Roosevelt’s mind, it didn’t matter how confused and disorganized Washington was, as long as mobilization became an irresistible, overwhelming force across the country.”¹¹⁰ Many New Dealers felt contempt for Knudsen “distrusting [him] because of his obvious links to big business claiming he was only appointing Republicans to most key jobs in the OPM,” as described by Hyde.¹¹¹ Of the twenty-six ‘dollar a year’ men Knudsen hired, all but two were Republicans. Of the two, one had no affiliation. When Knudsen sought to hire more democrats as ‘dollar-a-year men, “their interest quickly melted away when they were informed the jobs would only paid a salary of one dollar a year.”¹¹²

III

By November 1941, fortunes very quickly started to change for the Germans now deep in Russia. All three German army groups had reached the feasible limit of their supply lines and had halted their advance in the Russian colossus. The fuel situation, as long predicted by the Wehrmacht military-economic office, was rapidly approaching a critical point. Army Group Center on approaching Moscow, was delayed by rasputitsa or Taifun, the phenomenon that turned all open areas and roads into mud lakes and 97 percent of Soviet roads were unpaved. The delay caused 150,000 of Hitler’s front-line soldiers to be killed in intense fighting and another 230,000 to die from illness, malnutrition, but mostly frostbite by December. Appropriately named the ‘Moscow Crisis’, that month, outside the gates of Moscow, Field Marshall Fedor von Bock measured temperatures of negative 45 degrees celsius. Hitler’s prediction of the Japanese

¹¹² Memoranda, Frankin Roosevelt to William Knudsen, (6 March and 12 March 1941), box 2, folder 44, series 1, Knudsen collection NAHC.
Empire invading Eastern Siberia proved overly optimistic. Informed by excellent intelligence sources, the Japanese now intended on honoring their April 1941 Neutrality Pact with the USSR. Thus, from Siberia Manchuria border to Moscow, the Red Army moved and formed the 1st Shock Army to create a force of 1.1 million men, 7,652 guns and mortars, 774 tanks, and 1,370 aircraft to make their first counter strike against the Army Group Center; this was Nazi Germany’s first shock attack of the war. The *Oberkommando der Wehrmacht* had not just underestimated just how the Soviet Union’s vast geography would affect its Blitzkrieg orchestra but underestimated the Soviet ‘triumph of the will’ both on the battlefield, in the factories, by its Politburo, and by its leader himself: Josef Stalin. As described by economic historian Mark Harrison, “not only did the Soviet regime not crack like its Tsarist predecessor, it proved capable of absorbing casualties vastly greater than those suffered by any other combatant. And despite its relative economic backwardness, it proved capable during the emergency of 1941–2 of mobilizing a greater share of national economic resources.”

Despite Stalin’s pessimism turned depression six months earlier, his achievement of propelling Soviet industrialization had resulted in the creation of excellent weaponry for the Red Army. Stretched so far from home, Heinz Guderian’s Blitzkrieg orchestra fell out of harmony and Hitler’s war machine was slowly breaking down in the vicious cold outside the gates of Moscow.

Back in Berlin, the economic strain of Operation Barbarossa and Luftwaffe’s huge new production schemes were significantly stretching the limits of the German economy. A precarious fiscal situation characterized by a halved supply of consumer goods and a doubled money supply was resulting in heightened inflationary pressures. To prevent the overwhelming

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of price and wage controls and a potential economic collapse reminiscent of the early 1920s hyperinflation, the Reichsbank proposed urgent measures, including a crackdown on the black market, a propaganda push for continued savings with a compulsory savings scheme, increased taxation on Germans, and a significant reduction in armaments prices. The latter of these schemes created the first cracks in the otherwise harmonious relationship between German industry and Todt’s Ministry – the political foundations of the war effort. A confrontational stance was taken against munitions manufacturers to confront the fiscal emergency of swelling debt and ballooning military expenditure. Gauliter Josef Wagner proposed reducing profit rates by 20 per cent and rather than providing individualized prices for each government contractor, firms would be required to meet a standard price, set at the level of costs achieved by a ‘good firm’, minus 10 per cent. This detracts from the current system of cost plus the 5 per cent fee.¹¹⁴

One year prior to this, Knudsen had negotiated a 7 per cent fee for his contractors. German producers were on the brink of losing their near total ability to make any profit to prevent the economy from overheating. Finally, Wagner’s plan never came into play following a visit of “intrigue by the SS,” as described by Tooze.¹¹⁵ Nonetheless such incident was indicative of the tensions building within the German war economy; the near beginnings of a descent into chaos and crisis. Though this would be dwarfed by the impending attack in the mid-Pacific for the Empire of Japan were not going to attack Siberia, the attack would strike the heart of the arsenal of democracy itself: Pearl Harbour.

IV

¹¹⁵ Ibid.
The day after the Japanese attack the Hawaiian base of Pearl Harbor on December 8th, 1941, Adolf Hitler declared war on the United States. As Japan had intended, the Pacific Fleet was crippled with eight battle ships either sunk or smoldering wrecks, plus two cruisers and four destroyers. Roosevelt immediately ordered Knudsen to surge 1942 production targets; this would increase year-on-year levels by 54 per cent for aircraft output, 1,035 per cent for tank output, 101 per cent for antiaircraft guns, and 625 per cent for merchant shipping cargo. Impressively, Knudsen had already surpassed his 1941 targets. Although his staff believed that Roosevelt’s forthcoming orders—set to be announced in his State of the Union address—were solely for propaganda purposes, Knudsen was convinced that such levels were indeed achievable. Hitler received the speech “as Roosevelt’s quest to destroy Germany backed by the entire satanic insidiousness” of the Jews. Finally, the automobile industry fundamentally changed its attitude to war production and were willing to push aside their consumer models with greater intent. A month after Pearl Harbor, on January 5th, 1942, Knudsen returned to Detroit and convened every automobile executive available for a meeting. With his memorandum titled “Items of Munitions Appropriate for Production by the Automobile Industry,” Knudsen now sought for the automobile industry to produce another $5 billion in additional war materiel that had no obvious connection with car production. In that one meeting, Knudsen flocked $2 billion of contracts to General Motors to build tanks and another $2 billion of contracts to Chrysler and Ford to produce machine tools. In that meeting, all $5 billion of contracts were assigned, the industry now had a backlog of $14 billion in total – three times more than the year before.

118 Hyde, Charles, Arsenal of Democracy (2001)
119 Business Week, January 17, 1942, p.18.
Motors started up war production only twenty-nine days after ending the civilian line. By war’s end, the company would contribute 10 percent of all U.S. war production.\textsuperscript{121}

Despite the success of the conference, Knudsen would receive tremendous outrage from Washington and the press. Time Magazine accused Knudsen of “putting the nation’s defense up for auction” but also wanted to know why “all this hadn’t been done a year ago, so that every company capable or willing to manufacture important war materiel was already hard at work at it.\textsuperscript{122} Such an answer lies in the fact that prior to being at war, Knudsen had no authority to compel any manufacture to produce anything such as participate national inventory of machine tools surveys or available factory space for conversion to defense work reports. Authority was not in place to impel industries to retool for war work in ways that would have involved a breach of existing union contracts.

Public ignorance to this fact placed Knudsen in great peril in the realm of public opinion with Washington breathing down his neck. By January, 450,000 civilian vehicles now in the carmakers’ inventory and the other quarter million still on the assembly line were not to be sold through dealers in Roosevelt’s thrust to close unnecessary civilian production. This thus led to 45,000 autoworkers being made redundant.\textsuperscript{123} Despite the fact that these workers would soon be reemployed into the war production economy, huge backlash was felt, and Knudsen was blamed, even though disagreed the crudity of Roosevelt’s imperative. Despite Knudsen impressive track record as an impressive speech maker to his fellow auto producers, he was made a pariah and

\textsuperscript{122} Time: PROCUREMENT: 100 Days (18/01/1941)  
was thus a liability to Roosevelt’s administration. Days later, Roosevelt replaced the OPM with the War Production Board. Knudsen’s had gained an unpopularity among Roosevelt’s administration and thus he was quickly made into a scapegoat to the public. The proud Knudsen made little effort to defend his actions. As previously sensed, Knudsen knew he was a “a production genius” but sensed “the formalized rituals of government and politics are not for him.”

Thus, Roosevelt followed the wind and chose Knudsen’s deputy Nelson to chair the new administration and Knudsen was made a lieutenant general where he operated as a troubleshooter with the title, Director of Production.

V

Back in the Reich, Fritz Todt would soon face a similarly disheartening couple of months that radically changed Germany’s fast faltering war machine. Todt had sent his head of the Main Committee for tank production, Walther Rohland, and a team of armaments to the Reich’s front line approaching Moscow in November 1941. They returned depressed; they witnessed lightly dressed soldiers freezing to death using Russian ponies to push equipment now that frozen up fuel-dry Wehrmacht trucks were abandoned on the side of the road. Weapons and tanks were jammed and failed from the cold; Rohland relayed a message to Todt: “the war in Russia cannot be won!” The next day, Todt met with the Fuehrer, according to Tooze the following dialogue took place:

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“Once the United States entered the conflict, there would be no way of winning the war. Todt then drove home the point by insisting: ‘This war can no longer be won by military means.’ Hitler listened calmly before asking ‘How then shall I end the war?’ To which Todt replied with the obvious conclusion: ‘It can only be ended politically.”126

Defeatism was now the Reich’s industrial engine’s most aggressive tumor. Minister for Economic Affairs Walther Funk had disgraced himself at Goering’s birthday party, where he had declaimed morosely about the ‘misfortune that had broken over the nation’.127 The Chief of the Luftwaffe’s procurement organization and the head of Germany’s largest railroad contractor had just shot themselves. There was no illusion about the situation; thus, if Germany was to negotiate, it had to do so from a position of strength, and this depended on the Wehrmacht’s fighting power for a second great effort in the East in 1942. Furthermore, the army Chief of Staff Franz Halder drafted a planning paper in December 1941 entitled “The Requirements for Victory.” This concluded that the Reich would need to commit the equivalent of $150 billion to arms manufacturing in the succeeding two years; this sum exceeded weapons expenditure for the entire conflict.128 Todt did his best to rally Germany’s leading industrialists around the war effort and went about existing system of regional and national armaments committees was reorganized into a structure of five Main Committees. The three existing committees for ammunition, weapons, and tanks and two new committees, one for engineering, the other for general

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Wehrmacht equipment. In one weekend in late 1941, the armaments industry was shut down, rebooted, and replaced with a new structure.

Two months later, on the 8th February 1942, Todt boarded his plane to return to Berlin following a round of meeting with Hitler in the Wolf’s Lair; these meetings left no surviving record but testimony from those who were there suggest they did not end well. As his aircraft took off, it veered to the left as if to make an emergency landing. Seconds later it exploded in mid-air. Todt, as described by Kershaw as, “one of Hitler’s most trusted and gifted ministers” was tot and his deputy Rohland was immediately convinced he was assassinated by the SS; though no formal evidence supports this view.” What is clear, though, is whatever the true circumstances of Todt’s death, the fact that such suspicions were crowding in upon a man as level-headed as Walter Rohland is evidence of the acute sense of crisis pervading the leadership of the Third Reich. As noted by Tooze, “it is no less indicative that as Todt’s replacement Hitler chose, not an insider to the war effort, but a man of unquestionable personal loyalty and myths of extraordinary talent, in the form of Albert Speer.” In the space of a month, both of engines of the two most important war machines in history had radically changed.

Hitler, along with all his staff, no longer expected to win the war with a single decisive blow. In line with Hitler’s _Stufenplan_, the theory that states that Hitler had consistency of aims, but that he was also an opportunist and flexible in his strategy, war would proceed. The Reich’s new strategy would be to eliminate the threat posed by the Red Army and to consolidate the raw-material base necessary for a long war against Britain and the United States. According to Albert

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Speer, Chief of Army Equipment Friedrich Fromm in fact was already convinced that only a miracle weapon could save Germany from defeat. Days before Todt’s death, shrouded in secrecy, Himmler had entrusted Reinhard Heydrich with conducting the Wannsee Conference in which a final solution to the question of the outcome 11 million Jews living in Reich territories would be answered. Heydrich’s proposal received no criticism from the fifteen state secretaries from the Foreign Office, the justice, interior, and state ministries, and representatives from the SS who attended. As for the proposition of defeat against Germany’s ideological foe, Hitler had no intention to ever consider negotiations with Stalin as any rational leader would. Even if the prospect of victory was increasingly untenable, Hitler was still to succeed in his objective of Operation Barbarossa being Vernichtungskrieg “a war of annihilation” and if that meant a suicidal battle of annihilation, so be it.

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Chapter III: 1942

The United States were thrust into war immediately and Hitler was sure to waste no time intimidating his new enemy. U-boat commander Admiral Doenitz saw an opportunity to exploit the country’s unpreparedness and authorized *Unternehmen Paukenschlag* (“Operation Drumbeat”). The Kriegsmarine was tasked with targeting vital shipping lanes on the American Eastern Seaboard with U-boats. The first wave was seeing little resistance and enjoyed considerable success, sinking 601 ships totaling 3.1 million tons and only losing 22 U-boats.\(^{134}\)

The US lacked coastal defenses, used insufficient convoy systems, had poor and inexperienced antisubmarine tactics, and failed to blackout the coastline. Americans were quickly learning just how vulnerable they really were.

I

German intimidation in early 1942 would help build momentum on the American home front but would also reveal the inefficiencies and setbacks that overwhelmed the vulnerable system. The War Production Board now seemed likely to become a “super agency” and Donald Nelson, formerly the executive vice president of Sears Roebuck, could now become the “czar of war production.” President Roosevelt had granted wide and broad powers to Nelson who now singularly chaired the WPM and reported directly to the President. Unfortunately for the war effort, the opposite was happened; Nelson was “not an aggressive, dynamic, or effective leader,” as described by Charles Hyde.\(^{135}\) “A majority [of his 1,100 staff] believe that Mr. Nelson had

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more power than he was not using and wondered why he does not use it.”136 Primarily he was
leaving control of planning of defense production to the hands to the armed services, which
received first priority in the allocation of raw materials, factories, and manpower, leaving the
civilian economy with leftovers.

Tremendous debate arose over the extent to which the US should mobilize; on one hand, Britain,
starved of food and resources by the German U-boat blockade. Furthermore, Britain was
consistently bombed in the Blitz and thus Britain’s very existence was existential; these huge
hardships were faced by its people in the name of survival. Rationing was implemented to ensure
a fair distribution of food and prevent inflation. Additionally, factories producing goods such as
clothes, furniture, and luxury items were now converted to armaments production; the
government’s “United Scheme” standardized the design and production of clothing to conserve
material and labor for the war effort.

In Germany, similar food rationing schemes were implemented. In order to counterbalance the
unpopularity of rationing plans on the home front, the Nazi Government drastically fed the
German people better than the occupied territories; this was to maintain an element of business
as usual on the home front despite German boys dying in tens of thousands on a daily basis a
thousand kilometers East of the Reich. Germany similarly curtailed production of civilian goods
though this did not matter because of Schacht’s closed system. Despite the short-term hardship
of the lacking consumer market, wages were still being paid now and few were complaining for
savings were quickly grow. Support for the war only grew due to the success of the Goebbels’s
propaganda efforts. Advertising efforts such as the “Beautiful Veneer of the Third Reich”

136 Executive Organizational Survey, War Production Board, April 1942” Box 10, folder II, item 8, Nelson Papers.
promised the German people endless possibilities of exciting channels to which they could spend their hard-earned savings on by victory day. By then, all German’s would be rich.

With Britain and Germany’s closure of much of consumer industries, the United States had to decide whether to arm totally or only partially. America’s existential existence was never at risk and thus why should Americans face the same hardship as the European? As Nelson delegated to more powers of the Armed Services, consumer industries did quickly close. By early 1942, in true New Deal style, wages were regulated and in some cases prices too. It was decided the government would ration meat, sugar, gasoline, coffee, textiles, house construction and other household goods based on the system of priorities; two years after Britain, the US system of rationing essentially mirrored Great Britain’s. Both governments, as well as Germany, ran movements such as “Dig for Victory” in the UK; “Victory Gardens” in the US; and “Schrebergarten” in Germany. These movements encouraged both urban and rural dwellers to grow their own fruit, vegetables, and herbs for personal consumption.

Despite an effort to maintain Knudsen’s approach to contracts, firm leadership was still required to set an appropriate agenda. Naively, Donald Nelson was convinced the armed services could work cooperatively with the WPB believing they served better interests then dollar-a-year-men. When this failed, he u-turned and tried to impose civilian control over production.

Fundamentally, Nelson was a soft-spoken chemical engineer by training but had no industrial production experience unlike the titan of industry who proceeded him; a man described as “being blunt and outspoken; with a strong conviction that their way was best until proven otherwise.”\(^\text{137}\) Nelson was conditioned to see the big picture of the war effort in one image: a live flow of

\(^{137}\) Herman, Arthur: Freedom’s Forge, (2012), c.11.
materials flowing from a myriad of sources to an equally complex network of suppliers and manufactures that ultimately had to be delivered on time. This meant an innumerable number of toes were being stepped on. Unlike his predecessor or his German counterpart, Nelson failed to delegate effectively. His system created tension between government, the army, businessmen, and labor leaders. Nelson would soon lose most of his authority when the White House placed the WPB under the control of a new agency created in May 1943, the Office of War Mobilization. The armed services planned to purchase $58.2 billion in war materials in 1942 but by mid-March, this projection had fallen to $45 billion. Nelson failed to live up to the aggression, dynamism, or effectiveness of his predecessor. Supreme Court Judge Felix Frankfurter described Nelson as “was an utterly weak man incapable of exercising authority or making decisions.”

Nelson had proved that Knudsen’s fragile system only worked well if run by the correct leader; critically, because of the uniqueness of the role, Knudsen thrived because he managed to wield and command the required authority and respect.

II

Efforts to command authority and respect would perhaps be undertaken by no one more than the man who would come to assume one of, if not, the most critical role in the Reich. As described in his best-selling autobiography Inside the Third Reich, Hitler had called his General Building Inspector for the Reich’s Capital into the Chancellery office on Monday 5th September 1942, the day after Todt’s death:

“Herr Speer, I appoint you the successor to Minister Todt in all his capacities.”

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I was thunderstruck. He was already shaking hands with me and on the point of dismissing me. But I thought he had expressed himself imprecisely and therefore replied that I would try my best to be an adequate replacement for Dr. Todt in his construction assignments. “No, in all his capacities, including that of Minister of Armaments,” Hitler corrected me.

“But I don't know anything about ...” I protested.

“I have confidence in you. I know you will manage it,” Hitler cut me off.

“Besides, I have no one else. Get in touch with the Ministry at once and take over!”

“Then, mein Fuehrer, you must put that as a command, for I cannot vouch for my ability to master this assignment.”\(^{139}\)

Albert Speer was certainly not Todt’s obvious successor. Hitler had not consulted anyone about his decision; Hitler’s second in command, Hermann Goering, Chief of the Luftwaffe, Reich Plenipotentiary of the Four-Year Plan, and shortly held former Reichsminister for Economics, among many others, had volunteered himself for the role. Hitler ignored Goering’s proposal leaving Goering both stunned and alarmed, Speer of no rank and was an outsider – he was Hitler’s thirty-six years old architect.\(^{140}\) Despite this, it is clear that he was one of the few men that the increasingly paranoid Hitler really trusted; Speer’s enormous influence after 1942 depended above all on that fact. Furthermore, Knudsen was too an apolitical outsider, and his legacy can most clearly be defined as the architect who designed US war machine and he had and was incredibly successful at his role and would continue to be in his new role.

\(^{139}\) Speer, Albert: *Inside Third Reich* (1971) p.195
\(^{140}\) Ibid.
Speer commenced his monumental new role by proclaiming his authority. Like Todt, Speer did not control the entirety of the armament’s economy, let alone the rest of the industrial economy. His immediate authority extended only to the equipment needs of the Wehrmacht. Only in the field of ammunition did Speer have overarching responsibility for all three services. Until the summer of 1943, his authority extended to about 45 per cent of the armament effort, consuming perhaps one-sixth of industrial output of the economy.\(^\text{141}\) Both the Kriegsmarine and the Luftwaffe, however, retained their autonomous procurement authorities and due to the Goering’s Four-Year Plan embrace of the entire economy, Speer hands were tied to the self-serving ogre’s arrangements.

1942 brought more victories for the Axis along with the sinking of record numbers of American and British merchant and naval ships by Kriegsmarine U-boats – nearly double gross tons of the year prior; General Erwin Rommel’s humiliation of British Army troops in North Africa; and most importantly a counter-offensive in Russia that would take Army Group Centre down to the Caucuses to attain the necessary raw materials to continue to fight.\(^\text{142}\) Speer’s new ministry would be built on two fundamental principles that would coincide with the “the spectacular successes that the Axis would enjoy in 1942” as concluded by Max Hastings.\(^\text{143}\) Speer’s two principals were *Rationalisierung*, meaning a philosophy of rationalization, and *Selbstverantwortung*, meaning the ‘self-responsibility’ of industry. These concepts were clearly not new to the ministry, but Speer would enhance them to the fullest.

According to Speer’s accounts in *Inside the Third Reich*, after six months of taking control, “as compared with the February production, [armaments] had increased by 27 percent for guns, by 25 percent for tanks, while ammunition production almost doubled, rising 97 percent. The total productivity in armaments increased by 59.6 percent.” Such gains are credited to Speer’s reorganizing structures, such as creating “directive committees” and “directive pools” for the allocation of supplies. Furthermore, development commissions in which army officers met with the best designers in industry. These commissions were to supervise new products, suggest improvements in manufacturing techniques even during the design stage, and call a halt to any unnecessary projects. The system had been handed from antiquated inefficient systems to “thousands of technicians with special achievement to their credit to whom we now entrusted the responsibility of whole segments of enthusiasm” that would contribute to the impending “Armaments Miracle.” By Nelson’s appointment in 1942, the Americans were now introducing a more authoritarian stiffening to the industrial structure, whereas according to Speer, “we tried to loosen the regimented economic system” and burst the bubble of bureaucracy. Speer’s achievements can most succinctly be explained in his own words:

“By dint of these changes, the armaments production of the early years of the war, which had been on a more or less piecework basis, was converted to industrial mass production. Amazing results were soon to show up; but significantly enough, not in those industries which had already been working along modern lines of efficiency, such as the automobile industry. These scarcely lent themselves to any increase in production. I regarded my task principally as one of

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145 Ibid.
tracking down and defining problems so far screened by long years of routine; but I left their solution to the specialists. Obsessed with my task, I did not try to keep down the extent of my responsibilities, but rather to take in more and more areas of the economy. Reverence for Hitler, a sense of duty, ambition, pride—all these elements were operative. After all, at thirty-six I was the youngest minister in the Reich. My Industry Organization soon comprised more than ten thousand assistants and aides, but in our Ministry itself there were only two hundred and eighteen officials at work. This proportion was in keeping with my view of the Ministry as merely a steering organization, with the chief thrust of our operation lying in “industrial self-responsibility.”146

“It was said that I applied rough- and-ready or “American” methods. My comment, “If jurisdictions are sharply separated, we are actually encouraging a limited point of view,” was prompted by rebellion against the caste mentality of the system, but also bore some resemblance to Hitler’s notions of improvised government by an impulsive genius.”147

Through Speer’s battles with bureaucracy and the Wehrmacht’s successes on the battlefield, Germany was back in the war and the darkest days of the Moscow Crisis of the prior year now seemed like history. Josef Goebbels’s Ministry of Public Enlightenment and Propaganda spoke proudly of Speer’s achievements which undoubtedly sent shock waves back to the American home front. According to the J Tobin, “Even in the Second World War, the mobilization of our

146 Ibid.
147 Ibid.
potential strength was almost too late.” With the loses inflicted to the US Navy at Pearl Harbor, it is no surprise that there was still major uncertainty on the home front on which side would be victorious.

What has failed to be mentioned is perhaps most crucial. Albert Speer saved his neck at Nuremberg with a mixture of confession, contrition, and denial, and apology. Hailed as the good Nazi, Speer went on to serve twenty-years in Spandau Prison and then become a multimillionaire best-selling author. [A historian of sorts who was present in the events that would fascinate and grip the world.] Truthfully, Speer’s legacy, other than serving at the highest level of the most malignant regime in history, is that of a maker of monumental myths that possess very little fact whatsoever.

There are two strands of the myth of Albert Speer, according to Adam Tooze. The first is the suggestion that Speer was ‘unpolitical.’ In one version of this myth Speer is presented as an artistic soul, an architect, who was pushed reluctantly to take on wider responsibilities. This was a self-image that Speer shared with Hitler. A less romantic rendition casts Speer as an ‘unpolitical technician’, a man given the task of resurrecting the German war effort, who did his job without asking questions about the wider purpose of his work or the wider activities of the regime that he served. This version of the ‘unpolitical Speer’ was solidly founded on the second pillar of the Speer myth, the myth of the so-called ‘armaments miracle.’

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149 See Speer’s remarks to the Gauleiter Tagung of 24 February 1942, BAL R26IV 51, 441–8 and to his architect colleagues on 2 March 1942, BAL R3/1736, Chronik, 17. See also Speer’s insistence on the difference between architects and engineers discussed in K. H. Ludwig, Technik und Ingenieure im Dritten Reich (Duesseldorf, 1974) – from Tooze, p.412.”
Speer built his entire career on contacts within the Nazi party but above all, his closeness with Hitler, a trump card he played for all it was worth. “Speer maneuvered his way through the office politics of the Third Reich with skill and ruthlessness,” according to Tooze.\textsuperscript{151} Speer personified Nazism better than perhaps anyone besides the Fuehrer: likeable at the surface in his audience and deeply magnetic to a nation desperate for validation and triumph. But truthfully a risk-taker, fiercely intelligent, deceiving, thuggish, sinister, and creative to the most extreme degree. His role as Reichsminister for Armaments is best explained by Tooze:

“Of all Albert Speer’s contributions to Nazi propaganda, the ‘armaments miracle’ was by far the most important. From his first days in his new job, Speer displayed a clear consciousness of the symbolic importance of the armaments effort. He did not simply produce more weapons. He made them tell a story. The dramatic statistics of production were intended to demonstrate to the German people that the war could still be won, by the efforts of the German worker united with the heroism of the soldiers on the front line. The solipsistic rhetoric of production records served to silence the wider questions that had crowded in upon the German leadership during the winter crisis of 1941-42.”\textsuperscript{152}

Speer had watched Nazism’ rise with great awe and copied from the playbook of the man who gave him his powers. Like the fascistic palingenetic myth of national rebirth, promised by Hitler, Speer elevated Germany’s armaments productions by telling this story being told as a miraculous rebirth. Speer enabled the continuation of the war not only providing the Wehrmacht with more

\textsuperscript{151} Ibid.
\textsuperscript{152} Ibid.
equipment, but “by expounding a propaganda story of limitless possibility.” [A “Triumph of the Will” that could only be thrust through with the genius of Nazi leadership combined with the iron determination of the people, on both the front line and the home front, to overcome any adversity.] By 1942, newsreels began to give extended attention to the home front illustrating the mass production of the most sinister and aggressive of weapons: the German Panzer.

Analogous to Knudsen, who’s idea it was to award the ‘E’ flag and pin award, given to the plant and men and women operating factories who met schedules or exceeded them, Speer followed his lead. Chrysler won the Army-Navy’s first award. A few weeks into Speer tenure, a dramatic public ceremony was staged in honor of Germany’s most productive armaments worker-foreman Franz Hahne of the Alkett tank plant. His medal was pinned by war hero Corporal Krohn. In attendance was Goering, Speer, and chief of each branch of the armed forces. Speer showcased his production statists on monthly rallies boasting crowds of 10,000 plus production workers as major industrialists and managers of the war effort were decorated with awards.

Speer’s propaganda gave no absolute figures and made no mention to the fact that the indices he chose in the prior years were selected from well-chosen periods in 1941 when production had been particularly low. Despite this, German armaments output was increasing but the historical accuracy of the Speer Ministry must be approach with a wary eye. Channeling back to Hitler’s 1940 strategy or gamble in which the Wehrmacht would “kick in the door and the whole rotten structure [of the Soviet Union] will come crashing down” by the end of 1941, would

153 Ibid.
155 See the sceptical remarks recorded by the SS-SD in Meldungen, XIV: 10 June 1943, 5341–2, and H. Kehrl, Krisenmanager im Dritten Reich (Duesseldorf, 1973) – from Tooze, p. 298.
precede the readiness of the Luftwaffe and the Kriegsmarine to combat Britain and the United States. The two-year procurement process to design aircraft and ships, erect mass production lines, source raw materials, and assemble the final product was now complete. As warned by Knudsen to Roosevelt: “Not everyone knows that mass production takes time to get started.” But “once you get going, the momentum takes you a long way.” Thus, with this explanation, Speer was the beneficiary and took the credit for decisions preceding his anointment by two years – an anointment of authority that did not include aircraft or naval production at this point in the war. From February 1942 to summer 1943, 40 percent of the increased armaments output of came from the aircraft sector and 10 percent from the navy. The final growth in armaments production would come from Speer’s sectors reinvigorating mostly shells, bombs, and bullet production back to pre-Barbarossa levels for the Wehrmacht’s 1942 campaigns. Specifically, production was for Army Group South’s southern offensive plans to reach the Caucuses and the Middle East. Time-factors were critical, for mere months that stood between making these calculations and the upcoming battles with Americans bombers and their boots landing on the ground.

Perhaps the greatest success of Speer’s shakeup of the production efforts of the Reich were industrialists. They did not appreciate the bureaucracy of war meddling in their affairs with price controls, and wrangling over raw materials but they did enjoy a booming in demand for their goods which allowed profits to rocket to unprecedented levels. Consequently, should war be lost, Nazism would surely bring German industry down with them – war was now a matter of life and death and the awful specter of Stalinism looming over Germany; no group had more to fear of communism than leaders of German business. These business leaders now sat on Speer’s newly created “Ring Committees” created to “manage the supply of raw materials, semi-finished

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156 Beasley, Norman: Knudsen: A Biography (1947)
products, and subcomponents. The chairmen of each of these committees were carefully selected and weighted from every realm of the German industrial establishment. In total, Siemens held eight chairmanships, Krupp, AEG, Mannesmann, Rheinmetall, Flick, IG Farben, all held many. German industrialists would come to grow a fondness for Speer for he made it clear he would accept no interference by the meddling bureaucrats of the Finance Ministry, managing inflation, seeking to audit producers on compliance with their fixed pricing systems, profit ceilings, and taxes. “For Speer, wider concerns about spiraling state expenditure and inflation were irrelevant. All that mattered was the enthusiastic cooperation of German business in his drive to maximize production.”

II

Unlike German industrialists who were now sheltered from the meddling bureaucrats of the Finance Ministry, the War Production Board were facing extreme headwinds from Senate Special Committees established to investigate waste, inefficiency, and corruption. With the record billions of dollars of spending on munitions for both US defenses and Lend Lease came the necessary regulation. German industry was more sheltered from this sort of oversight primarily because of the more extreme measures of price controls and lower profits percentages allowed. Not to mention the fascistic elements of the Third Reich. Despite popular opinion and despite losing the war, far fewer German industrialists accumulated extraordinary wealth from the war than one might believe.

Following his time in the spotlight highlighting the NDAC favoritism towards America’s largest of companies, Senator Harry S. Truman formed and chaired the US’s Special Committees. Under

his leadership, hundreds of hearings were conducted, numerous military installations and factories were visited, and extensive reports were compiled that highlighted issues and recommended reforms. One devastating report on the OPM in 1942 found millions of dollars misspent through incompetence and fraud.\textsuperscript{158} Critically, though, such failures of the free market can be sourced back to Roosevelt vesting no official authority in Knudsen’s OPM thus he had no authority to examine how government funds were spent by firms, he just had public access to the public records. As expected, reports created spectacles of public outrage to many who failed to paint the mechanics of contracts in a holistic picture.

What Speer failed to proclaim in all of his public appearances and speeches was the overwhelming fact that the United States alone was now vastly outproducing the Axis powers; under no circumstances would Germany outproduce the US again. In 1942, the American war machine was now producing 2.3 million and 663,000 small arms and guns, respectively; 2,618 B-24 heavy bombers; 136,000 aircraft engines; 92,000 20mm antiaircraft guns; 10 million rounds of small-arms ammunition; and 47,873 aircraft – just shy of the 50,000 had requested from Knudsen two years earlier – all which experts said was impossible.\textsuperscript{159} Roosevelt had now begun touring production plants all around America; his first stop was the Chrysler tank plant, dubbed the Detroit Tank Arsenal, on September 18\textsuperscript{th} 1942.

Two years prior, only one American producer was building tanks, named American and Foundry, the model was called the M3 Grant, and was barely rolling thirteen units per month of their outdated model. Knudsen had approached Chrysler to not only design a new modern model and a new air-cooled engine to power the beast but design a factory line that would produce

\textsuperscript{159} Gropman, Alan: \textit{The Big L: American Logistics in World War II} (2021) p.82–91
them. Chrysler had entrusted the Army-endorsed M3 design, and the first prototype was completed six months later. During testing, elementary engineering issues that made the vehicle slip and slide in the mud and were designed with M3 aircraft engines that easily overheated – a critical flaw considering the first models were to be deployed in North Africa. Once Chrysler discovered faulty chassis springs, they decided to redesign the entire tank. Mass producing the tank became a nightmare due to the lengthy process of boring rivet holes through two inches of steel plates, not to mention a drastic rise in the costs. It was in fact Knudsen who solved the problem of using the Maritime Commissions’ specialist heavy metal welding technique that massively sped up production times, drastically cut unit costs hundreds of rivets and proved to be far safer. Due to a lack of testing, the Ordnance people quickly discovered that heavy machine gun fire could knock the M3’s rivets loose, which then became deadly projectiles flying around inside the tank. A direct hit by an artillery shell was even more lethal and welding would become standard in America’s most famous battle tank: the M4 Sherman.

By March 1942, Chrysler got the go-ahead to grow their production facility by 500,000 square feet to increase output of 30-ton M4 Sherman tanks to 1,000 per month. In October, the M3 Grant and M4 Shermans started seeing warfare, they were enabling the British forces in North Africa to win the Second Battle of El Alamein. The two new models featured a 75mm main gun that were proving a serious upgrade from outdated British tanks and were incredibly effective against German armor. Fundamentally, the British Eighth Army, the 7th Armored Division and subsequently the inexperienced US Army II Corp and First Armored Division were benefiting most from quantitative superiority of tanks numbers. A British officer pronounced the M4 “the

160 Green, Michael; Brown, James: Sherman at War, (2007) p.20
finest tank in the world.” The impending victory in North Africa of early 1943 would prove a major morale boost, defeating Rommel’s formidable Africa Korp, for the Allies would subsequently enable the first invasion of Sicily and mainland Europe: The Italian Campaign. What started as pathetic excuse for an armored vehicle would become the principal instrument, mass produced, of the British and United States’ first Western Theatre victory of World War II. Critically it started on a drawing board in Detroit three years earlier.

Following Roosevelt’s visit to Chrysler’s Detroit Tank Arsenal he shared: “I was impressed by the large proportion of women employed,” Roosevelt would tell the country later, “doing skilled manual labor, running machines…. Within less than a year from now, there will probably be as many women as men working in our war production plants.” Six months after Pearl Harbor, barely 80,000 women worked in any defense industry. By the end of 1942, that number shot up to 3 million—and the War Manpower Commission warned they were going to need another 1.5 million as more and more men put on uniforms and went to war. By the fall of 1943, 36.5 percent of the workforce in the American aviation industry were women.

Back in the Reich, Hitler’s ideology had always made it clear the woman’s role was Kinder, Küche, Kirche – children, kitchen, church – and would not be involved in industry or fight. On the 3rd March, when Speer pressed Hitler to force females to work in the armaments industry, Hitler responded: “sacrificing my most valued principles is too high a price to pay.” German female workers primarily worked on small scale peasant farms, domestic services, in the retail

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164 Walton, Francis: Miracle of World War II (1947).
trade and as clerical workers. As the war progressed, Hitler never enforced mandatory female labor requirements, though most already did: in 1939, 52 percent of German women between the age of 15 and 60 were already employed in the economy; in Britain this figure was 45 per cent and the US it was 36 percent. Critically, Britain and US would see the largest proportional rise in female labor of their Twentieth Century whereas Germany’s rates would stay level – it was easier to hire foreign workers.

The war would also see major breakthroughs but also dramatic setbacks in the realm of the role and rights of African American workers. Executive Order 8802 of June 1941 had banned discrimination in defense employment based on race, color, religion, or creed. This kickstarted a major migration of 1 million African Americans moving from the South to the industrially war-rich and labor thirsty cities of the Rust Belt to enter paid service for the first time. By the early 1940s, prominent industrialists such as Henry Kaiser recognized the need for labor and hired African Americans in his shipyards, though often for peripheral roles rather than the more skilled positions of shipbuilding. Later in the war, “600,000 ‘Black Rosies’ worked in factories as sheet metal workers and munitions and explosive assemblers, in navy yards as shipbuilders and along assembly lines as electricians. They were administrators, welders, railroad conductors and more,” according to Dr. Maureen Honey, author of Bitter Fruit: African American Women in World War II. Some companies like Grumman hired without racial discrimination, others, like Glenn Martin's Baltimore plant and the Bethlehem-Fairfield shipyard, continued to enforce segregation.

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This pattern of employment clearly reflected the tensions and racial prejudices of the time, which were exacerbated by the war's pressures. Troublesome as usual, labor unions and those associated with the Congress of Industrial Organizations (CIO), frequently resisted the inclusion of African American workers, sometimes actively making their workplace conditions unbearable.

By June 1943, racial tensions would reach its first crisis. Detroit, a northern city known for its larger influx of southern Appalachian white workers, unaccustomed to large black populations, violently rioted widely in the blazing heat of the summer following rumors of an assault by black teenagers on a white man resulting in numerous deaths and injuries. The mayor responded by calming his city: “If we are one people,” he declared, “the Negroes should go into the project.” Calm arrived with the help of the national guard but in 1944, tensions escalated significantly. Rumors of a black man throwing a white man off a bridge in Belle Isle set off a murderous conflagration that tore through the city for two days. Roving gangs of whites, mostly teenagers, rampaged through the city killing blacks and setting cars and businesses on fire. Before federal troops poured onto the streets to restore order, 34 people were dead, 25 blacks and 9 whites. More than 670 were injured. “Detroit, the original arsenal of democracy, was shrouded in national disgrace,” as concluded by Herman. Sadly, little further literature exists pertaining to this topic.

III

Just as gasoline would become the Wehrmacht’s critical constraint in planning offensives, output of all of Speer’s finished products were directly determined by the Reich’s steel supply; this was

such a constraint that Hitler personally signed off all steel allocations. Speer’s “armament miracle” was possible because between the last quarter of 1941 and the first quarter of 1942, steel rations for ammunition production rose from 25,000 tons to 350,000 tons.\textsuperscript{172} This was “paid for” with cuts to the aircraft industry’s steel ration. So critical was steel production to the narrowness of Germany’s strategic opportunity in late-1942, that Hitler would personally bully industrialists to increase their production – historians rarely saw the Fuehrer intervene to such matters. “Herr Pleiger (Commissioner of Coal Supply), if, due to the shortage of coking coal the output of the steel industry cannot be raised as planned, then the war is lost.” After a moment of stunned silence, for Hitler scarcely discussed a prospect of defeat, Pleiger was left with no alternative but to reply: “My Fuehrer, I will do everything humanly possible to achieve the goal.”\textsuperscript{173} Critically, the steel crisis would be Speer’s first emergency of his tenure. The Reich’s coal and coke supplies were sourced from the Ruhr with an epidemic; 60 percent of workers reported sick in October. Publicly crisis was solved by consumer rations facing a 10 percent cut in allocation and a requirement for the largest steel firms to pool their output. Privately, the crisis was solved by 120,000 new slave laborers delivered from the east.

By February 1943, Speer’s creative ruthlessness had propelled him to significantly expand his authority creating the \textit{Zentrale Planung}, Central Planning Board, giving him total control of raw material procurement and the authority to manage the allocation of labor, including forced labor. This chairmanship finally gave Speer a genuine claim to overarching authority, especially considering his unrivalled access to Hitler that made him the chief conduit to which the Fuehrer’s

\textsuperscript{172} Tooze, Adam: \textit{The Wages of Destruction} (2006), c.17.
\textsuperscript{173} Kehrl, Hans: \textit{Krisenmanager im Dritten Reich: 6 Jahre Frieden, 6 Jahre Krieg - Erinnerungen} (1973) p.278.
priorities were transmitted down the chain of command. The same month the Reich boasted a wartime steel record of 2.1 million tons of output per month.

Steel was never a critical issue for the United States. Coal mines and steel plants in the Rust Belt produced at reduced capacity for years following the depression with maximized output would easily outproduce the Germans. In February 1942, the government loaned industrialist Henry Kaiser $111 million to build the first mega steel plants in Southern California; steel needed for Liberty ships. Laborers were easy to source – working at steel plants was far more lucrative than picking oranges. By the end of 1942, Kaiser’s plant in Fontana, outside the range of Japanese guns, was delivering 25 percent of the Reich’s entire output. The US aggregate rate of 5.4 million tons of steel per month by February 1943; over double Speer’s record month but now this figure was only growing.

American war production was constantly self-innovating its efficiency. Head of the Automotive Council for War Production, Bill Knudsen’s friend from Merlin engine producing Packard, Alvan Macauley, formed a salvage committee that would soon be replicated around the whole economy, that would allow the industry to curtail the 1943 wave of steel shortages. These committees promoted and enforced a pooling of data on factory scrap and centralized millions of tons of scrap metal and rubber to be reused and recycled. Furthermore, a culture of information volunteering, a sharing of materials, pooling of resources and methods became the norm among industrialists. This, in effect, had led resulted in natural centralization of industry but without the imposition of unwanted direct regulations and controls by the government.

174 Walton, Francis: Miracle of World War II (1947). P.421
175 New York Times, Feb 3, 1944: “STEEL PRODUCTION A RECORD IN 1943”
IV

By the end of 1942, all major belligerents of the Second World War were hitting record levels of output. If there was a true “armaments miracle” in 1942, it occurred not in Germany, but in the factories of the Urals of Central Russia. Despite losing territory that constituted a 25 percent fall in total national product, the Soviet Union in 1942 managed to out-produce Germany in virtually every category of weapons. The margin for small arms and artillery was 3:1. For tanks it was a staggering 4:1, compounded by the superior quality of the T34 tank. Even in combat aircraft the margin was 2:1. It was this industrial superiority, contrary to every expectation, that allowed the Red Army, first to absorb the Wehrmacht’s second great onslaught and then in November 1942 to begin launch a whole series of devastating counterattacks. The key to such extraordinary levels of production was a concentration on a limited number of weapons produced in a handful of giant factories permitting the fullest possible realization of centrally controlled economies of mass-production. The flip side to this realization was the cost to the human population: millions of people were starved to death for the sake of the war effort. Hence the war being remembered as the Great Patriotic War, one of extraordinary sacrifice and brutalism by its leader.

Marshall Zhukov and his colleagues are remembered admiringly for their battlefield triumphs of 1942, but what is conveniently forgotten by Soviet and Russian historians is the Red victory in the East would not have been possible without the $11 billion 17.5 million tons of armaments

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provided through Lend Lease. These critical transports were shipped through three major corridors: the Atlantic and Arctic which saw close to 4 million tons, the Persian, which saw 4.2 million tons material sail under the African continent and deposited and transported north through Pakistan and Afghanistan; and 8.8 million tons shipped through the Pacific and deposited in Eastern Siberia. By war’s end, Lend Lease saw the Soviets receive over 2.6 million tons of high-grade petroleum product; over 400,000 jeeps and trucks; 12,000 armored vehicles, including 7,000 tanks; 11,400 aircraft, and most important was the delivery of the 4.78 million tons of foodstuff taken from the Hitler-salivating Ukrainian grain capital.\textsuperscript{178} Though diminutive in comparison, the Soviet Union supplied the United States with chrome and manganese ore, platinum, gold and wood. According to the Russian historian Boris Vadimovich Sokolov: “without these Western shipments under Lend-Lease the Soviet Union not only would not have been able to win the Great Patriotic War.”\textsuperscript{179} By November 1942, American materials were now close to finding their way to a city sitting on the shores of the Volga River. A city turned battlefield that would become the most consequential clash in the history of modern warfare: Stalingrad.

\textsuperscript{178} \textit{Lend-Lease Shipments: World War II}, Section IIIB, Published by Office, Chief of Finance, War Department, December 31, 1946, p. 8.
Chapter IV: 1943

Six months of *Rattenkrieg* ("Rat War") was fought in the Volga River’s major city. Stalingrad, symbolic for its name and consequential due its location, stood millimeters on a map from the vital oil rich Caucuses that would justify Operation Barbarossa. After leaving estimated 1,100,000 to 3,000,000 million dead soldiers and civilians, the battle was the most violent and deadly in the history of warfare. The surrender and destruction of the German 6th Army and 4th Panzer Army at Stalingrad changed the course of world history. Stalingrad was “the biggest and most traumatic defeat in German military history,” starting with the first occasion in history a German Field Marshal would surrender.180 “The myth of the invincible Wehrmacht was now gone forever,” as described by historian Geoffrey Roberts, for the Reich had now lost the finest and most triumphant infantry in a most consequential of military conflicts.181 After the battle, a common saying was “you cannot stop an army which has done Stalingrad” – the Red Army were now on their way, fueled by apocalyptic vengeance, to annihilate their gravest foe.182

Days later, on February 18th, 1943, Josef Goebbels would make his notorious *Sportpalast* speech announcing “*Totaler Krieg – Kürzester Krieg*” (“Total War – Shortest War”) to a carefully selected audience reacting with fan faring applause and enthusiasm. Germany would not win the war, though it would not surrender either. Nazism would only go down after total defeat, taking the world down with them. Total war now meant the all-out mobilization of Germany, Goebbels

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181 Ibid.
asked, “do you want a war more total and radical than anything we can even imagine today?”

“The war would now, more than ever, be complete with the most radical exterm… exclusion of Judaism [and Bolshevism].” Hitler’s first order after the speech was the closure of restaurants, clubs, bars, theatres, and luxury stores.

Despite the beginnings of the crumbling of Third Reich’s wall, in the Spring of 1943, Hitler still maintained advantage in one theatre of war: the Kriegsmarine was still dominant in the Atlantic. Regardless the delivery of hundreds of Kaiser’s Liberty Ships, Britain and the United States could not find a concrete answer to “closing the Atlantic Gap” – this was the area of the Atlantic where bombers and other reconnaissance aircraft were unable to provide cover to merchant and naval convoys due to the fuel range restriction. The Air Force’s flagship bomber, the B-17 launched in 1938 lacked this range and therefore an alternative had to be found.

Two years earlier, Consolidated Aircraft of San Diego formed an aircraft design; the aircraft would be a four-engine long range bomber called the B-24 – the perfect bomber to close to North Atlantic Gap – but faced exceptional difficulties implementing a successful mass production system. Bill Knudsen’s aeronautics expert, George Mead, and future legend Major Jimmy Doolittle approached Edsel Ford and “Cast-Iron Charlie” Charles Sorensen to help them mass produce Consolidated’s engine design. Charles Sorensen was a Danish immigrant and moved to

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183 “Goebbels' 1943 Speech on Total War,” German Propaganda Archive. Calvin University. Archived from the original on 3 March 2016.
184 Ibid.
Detroit at the age of 16 to work for Henry Ford; very soon he had proven himself a master engineer. Decades later, in 1913, Sorensen’s status as Ford’s deputy would be overwhelmed at the arrival of fellow-Dane wunderkind William Knudsen. Sorensen’s biography lost no opportunity to poke fun at Knudsen and deprecate his achievements at Ford; though, once Knudsen left Ford for Chevrolet, bring with him his “flexible mass production” system, and subsequently joined Roosevelt, Ford’s Sorensen was keen to make his own grandiose mark on American industry.  

Unlike Consolidated’s initial request of producing engines and parts for the B-24, Sorensen wanted Ford to build the entire airplane, like a car, in a single facility. Knudsen thought the idea unrealistic; while cars demanded 15,000 parts, a B-24 required 488,193 parts and 300,000 rivets of five hundred different sizes – though the ambitious Sorensen was adamant. Consolidated only had capacity to build 350 units per year in unfavorable conditions; the hot California sun would cause the aluminum fuselage to expand therefore it was decided the plane would be built in Detroit. Days after Sorensen’s meeting with Mead and Dolittle, he convinced the Army Air Forces to buy the contract for $200 million.

Sorensen’s process would be broken into three stages: first, would come an “educational order” for parts and dies; second, Ford would make all parts, which would be assembled by Consolidated and Douglas in Texas and Oklahoma; third, the full plane would be manufactured stage to finish at a new Ford facility in a sleepy creek west of Detroit called Willow Run. Built on 4.3 million brick, two parallel mile long L-shaped assembly line, Ford’s Willow Run would

become the largest production facility in the world growing to 4.7 million square feet, described by Time Magazine as “the most enormous room in the history of man.”\textsuperscript{187} Additionally, the facility would be complete with an 850-acre air strip.

Like all major mass production projects during the war, the B-24 faced numerous challenges. The project required relocating 100,000 workers to a rural production facility, leading to housing issues, food logistics problems, and labor friction. Specialized tools had to be designed and manufactured for drilling 42 separate operations in 35 minutes.\textsuperscript{188} Meanwhile, Truman scrutinized the project for potential misuse of funds, and the press skeptically asked, "Willow 'will it' Run?" Conflicts arose among production designers and chiefs, flaws were discovered in the original design, production bottlenecks occurred, and there were constant design updates from the Air Force. Additionally, Charles Lindbergh, hired as a consultant, criticized the bomber's stiff controls, stating, “I would certainly hate to be in a bomber of this type.”\textsuperscript{189} The role of the B-24 was to fly hundreds of combat missions and carry hundreds of American airmen over supremely dangerous enemy lands and oceans, any engineering failure could cost untold lives among the armed forces’ among most accomplished soldiers.

Two years into the project, disasters were hitting the project from all directions, and no plane was yet to leave the facility. The public was losing patience and threats of a looming takeover government were persistent; rumors had reached Germany creating great \textit{Schadenfreude}. Goebbels took no hesitation to ridicule American efforts proclaiming that like the 1929 Wall

\begin{footnotes}
\item \textsuperscript{187} Nevins, Allan: \textit{Ford: Decline and Rebirth}, (1963) p. 189.
\item \textsuperscript{188} Herman, Arthur: \textit{Freedom's Forge}, (2012), c.13.
\item \textsuperscript{189} Lindbergh, Charles: \textit{Wartime Journals}, July 27, (1942) p.613.
\end{footnotes}
Street Crash, American capitalism had finally been overstretched by over ambition. The Willow Run leadership were also bogged down to find their Sisyphean tale had allowed for a hundred Allied merchant ships to be confronted by forty U-boats in a four day stretch in March 1943 – the largest single convoy battle of the war. Twenty-one Allied vessels and 140,842 tons were lost but only one U-boat was sunk: now the Allies were losing merchandise at a rate of 500,000 tons per month in the Atlantic.\(^{190}\) Something now had to change, for without control of the Atlantic, the US faced little prospect of continuing to ship the necessary materials needed for an invasion of Western Europe if 500,000 tons of goods were being sunk every month.

With few choices left, the Undersecretary of War sent his secret weapon to troubleshoot the disaster, Lieutenant Bill Knudsen, under his new role as fixer-of-bottlenecks-in-chief.\(^{191}\) Knudsen was told by Secretary Stimson: “you’ll have no set schedule, bottlenecks in production appear to be everywhere, so use your own judgment which ones to break first.”\(^{192}\) Strengthened by his rank and his legend, Knudsen would have use of a plane, and could go anywhere he wanted and see any data or reports he wished. Willow Run would be a priority, but over the course of three years he would come to visit 1,200 factories in North America, Southeast Asia, and Europe. “Starting at eight o’clock, every day. Knudsen often visited 11 plants a day—350 those first six months—fixing labor shortages, material shortages, and bottlenecks large and small” and rousing employees, as explained by Herman.\(^{193}\)

\(^{193}\) Herman, Arthur: *Freedom’s Forge*, (2012), c.13
By using strong words with the most senior military men in the government, Knudsen was able to impede the Airforce’s endless design updates that meant endless revision to the assembly line machinery. His solution was to convince Airliners – American, Northwest, Southern, Mid-Continental—to volunteer their repair centers and personnel to act as modification centers. Finally in January 1943, 31 Liberators were complete; each model then flew to modification centers across the country to be completed. Impeded by chronic labor shortages. February outputted 74 and March 106.194 Shortly thereafter, B-24s operated by the Royal Airforce made their way to Iceland.

The B24’s impact in the Battle of Atlantic was astounding. In the first twenty days of March 1943, the Germans sank ninety-seven allied ships, in the next twenty they lost one. The B-24’s, now nicknamed the Liberator, with a 2,850-mile range shuttle patrols flew between Newfoundland and Reykjavik and simply needed to spot U-boats, done with the help of code decryptions, and alert convoys. Submarines at the time were hybrid in design, this meant they operated mostly at the surface and collapsed under water only in battle. Along with the benefit the daily interceptions of U-boat radio communications and the deployment of new sonar equipment, the Allies broke the submarine menace instantly. By May 1943, Admiral Doenitz was losing U-boats and crews at the rate of one per day. With a fifth of his Atlantic fleet sunk in a single month and the loss of his younger son Peter at sea, Doenitz gave the order on 24 May 1943 for the wolf-packs to withdraw. Unable to sustain a battle of attrition against the overwhelming industrial and technological superiority of its enemies, the weakest branch of the German armed forces had been knocked out of the war. Later, Admiralty analysts calculated that

every VLR Liberator patrol saved no less than six Allied ships.\textsuperscript{195} All in all, the Liberator squadrons would be credited with no fewer than seventy-two U-boat kills.\textsuperscript{196}

With Sorensen and Knudsen’s new production schedule, Ford had turned a plane that formerly cost two hundred thousand man-hours to make into one that cost only eighteen thousand hours.\textsuperscript{197} In total, 18,188 B-24s would be built and flown in all theatres of war – the most of any bomber in military history.\textsuperscript{198} At its peak in 1944, one B-24 came off the assembly line every hour and 650 every month.\textsuperscript{199}

II

With the chilling updates from Detroit, Commander-in-Chief of the Navy Karl Donitz was desperate for his department to receive an “armaments miracle” of their own – naturally, he turned to Albert Speer. The Navy had been designing the world’s first true submarine, the Mark XXI, capable of operating under water for weeks away from sight of the menacing B-24 Liberator patrols and maximizing an underwater speed of 17 knots which would be enough to outrun Allied sonars. The Mark XXI was a wonder weapon and Speer’s role was to build it fast enough to impact the war. For Speer, the problem was not of constraints but of mindset; inadequate resourcing or a shortage of labor was not the problem. German naval production, championed by the sixty-five-year-old builder Blohm and Voss, was seen in Speer’s eyes as

\begin{footnotes}
\item[195] Middlebrook, Martin: Convoy (1976) p. 50–52
\item[197] Nevins, Allan: Ford: Decline and Rebirth (1963) p. 223
\end{footnotes}
“traditional” made piece by piece. Blohm and Voss was the builder of the megalomaniacal flagship beast of the Reich: 
*Bismark*, largest battleship to ever sail. Rudolf Blohm’s ships personified German quality and was greatly insulted by the naivety of Speer’s approach of copying Kaiser’s method of mass-producing prefabricated sections rapidly before final assembly. Speer turned to his deputy Otto Merker who impressively ran the Ministry of Armaments special committee for fire engines; critical for fighting the fires of RAF’s night bombing attacks. Merker would shake up the naval production industry, starting by sacking patriarch Rudolf Blohm, the Reich’s most prominent ship builder, as Chair of the Main Committee for shipbuilding. Speer’s power was proliferating for he was now taking personal control of a major department that previously wasn’t under his, or Todt’s, control.

A pure example of *Rationalization*, Merker had devised a system of mass producing the Mark XXI in three stages: first, separately construct eight cross-sections of the hull in heavy sheet metal in an in-land; second, each of the eight pieces, still divided from one another, would be fitted with their necessary internal equipment and machinery; finally, the prefabricated sections would be compiled in three assembly yards in Hamburg, Bremen, and Schichau in the East.200 This system would allow for a major element of the construction process to take place inland, thus freeing up valuable space in dockyard hampered by constant bottlenecks. As illustrated by Knudsen’s mass production techniques, with the subdividing of repetitive processes would allow for industrialists to use less specialized workers, and thus achieve significant economies of scale. This new program would be the Speer Ministry’s next great success story with all important elements of his story line: “conservative military bureaucrats and industrialists overcome by

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thrusting young managers (Merker), backed by the full authority and energy of Albert Speer, yielding the triumphant introduction of a radical new weapons system, capable of turning the course of the war against all the odds.\textsuperscript{201} The first Mark XXI U-boat would be completed in time for an awe-inspiring launch on Hitler’s birthday – 9 months later – the 19\textsuperscript{th} April 1944. Mass production would follow shortly with thirty revolutionary submarines per month rolling of the production line every month ready to sink every and all Allied ships.

Unfortunately for Hitler’s fast waning war dominance, there was no better example in which the gulf between armaments propaganda and reality was more extreme.\textsuperscript{202} Blohm and his traditionalists skepticism of Speer’s naivety was proved correct at every turn. Never once had Knudsen, or one of his colleagues, pushed a machine from drawing board to mass production so fast, let alone a revolutionary design. The only thing revolutionary about the Liberty ship was its production, technologically, it was cheap but functional. The Mark XXI was never extensively tested and time was never allocated to debugging; of the 175 days to manufacture, 120 days went to repairs. Speer’s grand Hitler birthday unveiling in Danzig was a fiasco – a quickly thrown together mockup that leaked so aggressively with water that it had to be towed back into the dry docks as soon as the crowds disappeared. Tensions between Blohm and Speer’s Ministry grew so bad, that Blohm was court martialed and sentenced to six months imprisonment for “failing to take adequate air raid precautions” when six aircraft were destroyed at the Blohm and Voss aircraft affiliate. Fellow shipbuilder Franz Stapelfeldt was also arrested by the Gestapo and held

\textsuperscript{201} Template for this storyline was provided by the earlier efforts of Gerhard Degenkolb, another of Speer’s poster boys, to reorganize locomotive production. See the critical discussion in A. B. Gottwaldt, Deutsche Kriegslokomotiven 1939–1945 (Stuttgart, 1973) and A. B. Gottwaldt, Deutsche Eisenbahnen im Zweiten Weltkrieg (Stuttgart, 1985) – From Tooze.

\textsuperscript{202} Tooze, Adam: The Wages of Destruction (2006), c.18.
hostage until the end of the war.\textsuperscript{203} Of the eighty March XXI-boats delivered in 1944, not one was fit for operations and only two went to sea in 1945 scoring no sinkings.

III

By now, America and Britain were attempting to wage a barbaric war of attrition against Germany; until March 1943, the Royal Air Force struggle to mount prolonged attacks against German industry due to incomplete supply of heavy bombers and feeble technology to successfully hit targets. On March 5\textsuperscript{th}, Britain waged “the Battle of the Ruhr” to attack the industrial city of Essen, the home of Krupp’s steel production. Between 8:58pm and 9:36pm, following the invisible new beam of OBOE electronic guidance system, 362 bombers hit the main target with a combination of incendiaries and high explosives leaving a trail of blazing destruction.\textsuperscript{28} This time the RAF not only attacked in force but returned repeatedly over a period of five months, dropping a total of 34,000 tons of bombs.\textsuperscript{204} These attacks would continue and include the innovator new “dam buster” bouncing bomb which inflicted monumental flooding around the region. Speer later acknowledged the RAF “hit the perfect target,” this was a colossal victory for the Allies. \textsuperscript{205} Coal mining would now fall by 200,000 tons in the first quarter of 1943 which would hurt ammunition production dramatically. Steel output for the entire Reich would fall by 15 percent; the best Speer could do now is hustle to keep output level but any effort to increase output would be near impossible.\textsuperscript{206} Allied bombings would continue with the US Air

\textsuperscript{203} Ibid.
\textsuperscript{204} Ibid.
\textsuperscript{205} BAL R3/1737, 23 June 1943, 96. This was so alarming to Speer that he immediately attempted to assert his influence over the Luftwaffe’s targeting – from Tooze.
Force taking responsibility for day attacks. On 5th July 1943, the Wehrmacht would launch their last major attack on the Eastern front in Kursk that would become the largest tank battle in history; 25th July, Mussolini would be deposed as the Allies made their way on to the Italian peninsula; and on the 27th July, the RAF would incinerate Hamburg – bodies would be mummified and glass would melt completely creating a 43 million cubic meters of rubble.207

Following the success of the “Battle of the Ruhr” and Hamburg, the RAF and US Air Force’s turned their eyes towards long-range “vain attempts to destroy Berlin.” Adam Tooze argues this was a major strategic error as “Berlin is an inappropriate target. It’s too large, it’s too far away and it’s at the end of the productive chain,” in contrast to “the Ruhr stands at the very beginning because it’s the center of German coal mining, without which the heavy industrial economy of Germany grinds to a halt.”208 The Ruhr was unparalleled in status to the war economy, Tooze therefore argues the war couldn’t have been shortened by inflicting further damage. Either way, Speer’s would now face the most infuriating challenges of his tenure – managing the attrition that was slowly causing his economy to collapse around him.

IV

Speer’s three plus years as Armaments Minister can be best described as a mission to consolidate power. First in his appointment of Todt’s responsibilities in February 1942, then his chairmanship of the Zentrale Planung a year later, and now control over the department for shipbuilding. This increase in authority would be complemented by the increase control of the state thanks to

207 Ibid.
208 Laurence Rees, "Interview with Adam Tooze," WW2History.com
Goebbels’s *Sportpalast* speech. The response by Hitler and Speer to the disasters of early 1943 would be predictable: a heightened mobilization drive and a crescendo of ‘armaments propaganda.’

Goebbels could no longer cover up battlefield defeats in his propaganda push which placed ever greater importance on Speer’s ministry. Albert Speer was pushing himself vigorously into the limelight as the only savior of the Nazi regime; and thus, to gain the necessary results, the alliance of four would need strengthening. By mid-1943, the Reich’s war would be managed by four of the most ruthless exponents of the Nazi ideology: Gauleiter Saukel, General Plenipotentiary for Labour Deployment; Herbert Backe, Minister for Food and Agriculture; Heinrich Himmer, *Reichsfuehrer-SS* and now *Reichsminister* of the Interior; and critically Albert Speer. Industrial muscle and merciless violence were now in full marriage to maintain absolute control.

When Heinrich Himmler took control of the Interior Ministry on the 24th August 1943, he delegated formal authority to the regional party leaders, the Gauleiters, to oversee local government. The judiciary was becoming increasingly politicized, taking on even more aggressive forms; the courts were now issuing death penalties against Germans for defeatism and sabotage at the rate of a hundred a week. Even prominent businessmen were no longer immune. Indeed, Heinrich Himmler and the Gestapo made a point of singling out bourgeois defeatists for especially aggressive reprisals. Speer, who after the war would brand himself as “the Good Nazi” used Himmler’s new repressive apparatus of the Nazi regime hoping once again for further expansions to armaments production. As described by Tooze, “[Speer] made himself

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209 Speer’s discussions with Goebbels and Goering concerning Ruestungspropaganda, see BAL R3/1737, March 1943, 34 – from Tooze.


into one of the foremost advocates of radicalization and used his authority ruthlessly to silence debate about the wider rationale of the war effort.” 212 This would begin with security operations added in all production plants across the Reich, overseen by the SS, and the creation of the SD’s informant network to carry out checks on civilian production throughout German industry. 213

In the United States, authority was shifting in the war department. In the summer of 1943, Roosevelt created a new centralized agency to oversee war production, manpower mobilization, and the Office of Economic Stabilization. It was called the Office of War Mobilization; it would be run by former Supreme Court justice James Byrnes. Such were his new vested powers, and his closeness to Roosevelt, many thought he would come to epitomize the “war production czar” character. Byrnes came to find that war production in America by 1943 was on autopilot; once factory lines were designed, build, and tested, they were best to be left to be managed by plant managers seeking to hit their quotas. Byrnes would keep a steady eye on war production but fundamentally he would find himself more consumed by needs to demobilize the war effort and prepare for an orderly transition back to a peacetime economy. The war was moving in a single direction and only the effort of the generals, fortified with the greatest armory ever procured, could now decide how long it would take to finish the job. Unfortunately for those generals, men like Speer would do everything in their power to ensure the war was fought to the last man.

V


212 Ibid.
213 Mueller, in DRZW 5/2. 340 – from Tooze.
What is critical to Speer’s legacy, and perhaps of greater importance to the study of the Third Reich, outside that of the Holocaust, was the war economy’s use of slave laborers. Beginning in 1941, Gauleiter Saukel had set in motion one of the largest coercive labor programs the world had ever seen, comprising of 3.5 million French POWs and Polish “civilians.”214 By the summer of 1943 the total foreign workforce had increased to 6.5 million, of whom 4.95 million were civilians rather than prisoners of war. The Nazis slave labor operation employed the most basic principles of classical economics, specifically, the optimization of resources to maximize production. Considering the ever more centrally planned economy of the Third Reich, the regime was responsible for feeding a total population (in occupied territories and puppet states) over 272.2 million large.215 Nazi leaders believed fiercely that their subjects, thus, must earn their right to eat and therefore would be expected to work vigorously. Critically, if populations living in combat zones had been evacuated, their labor was expected as payment – this includes 400,000 Soviet citizens marched west as the Wehrmacht continued their war in late 1943.216

Finally, nationality and ethnicity, the status of being a POW or a civilian, would fundamentally determine one’s food ration and critically his or her treatment.

Once workers, over half being females aged between 12-22, were imported into the Reich in extraordinary numbers, the task of housing these deprived people were one of chaos and insanity that only sustained as the home front war continued its decent into madness.217 In 1942, workers were compensated for their efforts in some cases: initially, they cost 1 Reichsmark per day but

214 Homze, E.L: Foreign Labor in Nazi Germany (1967)
215 Calculated by counting Tooze data.
this would rise to 6 Reichsmark for skilled and 4 Reichsmark for unskilled or women.\textsuperscript{218} Third Reich society was slowly playing host to at least as many foreigners as the ‘multi-cultural’ Germany of today; camps and hostels for foreign workers studded every city and town. To take just one example, Munich, the Bavarian capital where BMW was by far the largest employer, was home to at least 120 prisoner of war camps, 286 barracks camps and hostels for civilian foreigners, 7 branch facilities of concentration camps and 2 labor re-education facilities, as well as a brothel for foreign workers.\textsuperscript{219} To take another example, in December 1942 a commission of inquiry by the Ostministerium (East Ministry) visited Ostarbeiterlager (Eastern worker camps) across the Ruhr and reported back ‘picture of desolation and immiseration’ which would ‘never be extinguished.’\textsuperscript{220} Millions of foreign laborers either died on factory floors or worked to an inch of their lives, then they were shipped back to the East and replaced in closed train containers designed for freight. In International Military Tribunal Report XXV from September 1942, one transport was described in apocalyptic terms: “there were dead passengers on the returning train. Women on that train gave birth to children that were tossed from the open window during the journey, while people sick with tuberculosis and venereal disease rode in the same coach. The dying lay in freight cars without straw, and one of the dead was . . . thrown onto the embankment.”\textsuperscript{221} As expected, as the war progressed, any and all offices overseeing the payments this lost any interest in doing this job meticulously just as rations were never distributed properly.

\textsuperscript{218} Kitchen, Martin: \textit{Speer: Hitler’s Architect} (2017) c. 6
\textsuperscript{220} Eichholz, Dietrich: \textit{War for Oil: The Nazi Quest for an Oil Empire} (2012)
\textsuperscript{221} IMT XXV. 161–4 – from Tooze.
One of the most challenging ironies of the Third Reich’s home front is while Gaultier Sauckel made strenuous efforts to mobilize millions of workers for employment in the Reich, his colleague Heinrich Himmler’s SS and Wehrmacht were deliberately murdering millions of people, who could just as well served as workers for the German war economy. Judeocide had reached its peak in 1942, weeks after the Wannsee Conference, with the decision to murder 2 million Jews, Gypsies, and others deemed unworthy of existing inside Hitler’s Reich. Hundreds of thousands were shot, starved to death, or worked to death, but millions were killed efficiently in three notorious killing centers: Treblinka, Sobibor, and Chelmno, as well as the gas chamber complex at the concentration camp Auschwitz. These locations decimated first the Jews of Poland in 1942, the Jews of Western Europe in 1942-43, and the Jews of Hungary in 1944.

Despite the rhetoric espoused by Himmler, the SS were not oblivious to the economic concerns in their mass murder. Himmler’s conception of Jewish labor was always very specific: along with plans for Generalplan Ost, he envisioned Jewish slaves worked to death in the farthest reaches of the Reich – thousands of kilometers east. By contrast, Himmler consistently opposed the employment of Jews in war industries and manufacturing in the immediate vicinities of the Reich. Not long until the surrender at Stalingrad, and the prospect of immediate German settlements in the East was lost, Himmler lost any interest in retaining any Jewish labor at all.\textsuperscript{222} Of the 5.95 million victims of Judeocide, 1.25 million were killed in ghettos or shot by Einsatzgruppen prior to 1942.\textsuperscript{223} Within the realm of those perished in concentration camps and death camps, a practice of ‘Selektion’ was the ubiquitous first step in virtually every killing.

\textsuperscript{222} Tooze, Adam: \textit{The Wages of Destruction} (2006). c.16.
\textsuperscript{223} Holocaust Encyclopedia: “How many people did the Nazis murder?”
These were the primal activities that took place at the railway yard of Auschwitz; the population were divided into those incapable and those capable of work. The rest, deemed incapable of work, due to years of intentional subjugation and starvation, and the elderly and children, were swiftly killed in the gas chambers.\(^\text{224}\)

Contrary to the opinion that Auschwitz was simply a death camp, Auschwitz I, Auschwitz II-Birkenau, but particularly Auschwitz Monowitz-III, built and managed by IG Farben, were among the most important production plants in the whole Reich comprising of forty labor and extermination camps. Several other German industrial enterprises, such as Krupp and Siemens, built factories in subcamps around the premises, leveraging the labor. Twenty-four hours a day the facility worked and abused 90,000 inmates with 50 to 60 per cent judged fit to work with many of these individuals being Polish workers, POWs, and imported labor. 1.1 million Jews were deported to Auschwitz between 1941 and 1945. Of these 900,000 were killed immediately; 200,000 were retained for forced labor.\(^\text{225}\)

Auschwitz Monowitz-III opened its doors in October 1942 and it came to be conceived not simply as a Buna factory, but as a complex state-of-the-art chemicals facility, suitable for the production of Buna (synthetic rubber), methanol, carbide and iso-octane, the crucial additive for the Luftwaffe’s air fuel.\(^\text{226}\) Financed by both IG Farben and the state, the facility’s cost of 776 million Reichsmarks represented the single largest investment in Goering’s Four Year Plan. IG Farben employed the SS to manage the plant but it was the inmates “reduced to walking


\(^{226}\) Ibid..
“Totaling these deaths amongst various categories of forced labor after January 1942, we arrive at a figure of perhaps 2.4 million for the non-Jewish-worker victims of the Nazi regime. Added to the figure of at least 2.4 million potential Jewish workers we arrive at a total of at least 4.8 million workers murdered by the Third Reich after it confronted the military crisis of 1941—2, closer to 7 million

if we include the Soviet prisoners of war killed in 1941 [with 5 million surviving].”

VI

Of the many words that could describe Speer, perhaps none is better than ‘opportunist.’ He went to great lengths to amass a collection of trump cards in his back pocket with potential to change the tide of the war, even at a point of imminent defeat. These trump cards would come in the form of ‘Wunderwaffe’ (‘wonder weapons’). Weeks after Speer took office in March 1942, Head of German army weapons office General Fromm had approached Speer about research from the extraordinary work of a group of physicists who theorized that the energy contained in the elementary particles of matter might provide both a boundless source of power and a potentially war-winning explosive device. The carcinomatous and psychological power of such a wonder weapon in the grip of Hitler would instantly have the testicles of Roosevelt, Stalin, and Churchill in the grip of his genocidal hands; Speer paid attention. Unfortunately for him, the scientific proposition from Werner Heisenberg for an atomic project was a two-to-three-year time horizon at best at an eye watering cost. Speer decided against committing, he would instead commit to the creation of a different type of weapon: the V2.

By the summer of 1942, as Germany were being tormented by bombings, Speer sought a different retaliatory ‘Wunderwaffe’ mechanism dissimilar to the fledgling offensive capabilities of their inferior bombers and fighters. The competitive Speer was still searching for means to

outdo the Luftwaffe, the last branch of war production out of his control – he would turn to rockets. Wernher von Braun’s A4 (V2) rocket design promised to give Germany a means of attack against which there was no effective defense. It would be a huge technological gamble, and, from the start, it was unclear whether Germany would ever be able to produce enough of the rockets to deliver a truly decisive blow against Britain. Despite being in bitter need of defensive weaponry, Speer in his desperate state committed 2 billion Reichsmarks to this offensive missile. The project was also projected to drain one third of the Reich’s fuel alcohol supply.

Speer correctly concluded that the Herculean task of building the weapon would be possibly only with further consolidation of the union between his ministry and Himmler’s SS. Furthermore, as Allied bombs continued to decimate aircraft factories, Speer settled on doing this work in an underground factory. With the General Hans Kammler, the SS construction chief, in charge, at Mittelwerke GmbH overseeing the contract, 12,000 rockets would be built in an enormous underground cave tunnels, formerly a fuel storage facility, in Thuringia. BMW and Messerschmitt would build the jet engines with labor from Dachau and Oranienburg concentration camps.

On the 10th of December 1943, Speer paid his first visit to the new facility – he would hail the facility as a “triumph of the American logic of large scale.” In reality, he had built a pit of eternal damnation. So horrific were the conditions that he deny his visits Nuremberg: slave

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232 Massive ‘American’ scale was a hallmark of the entire underground factory programme. See Saur’s final report to Hitler in the summer of 1944, Mueller, in DRZW 5/2, 361 – From Tooze.
laborers slept in tunnels in the sight deprived clean water, sanitation, and daylight – daylight was rationed to once per week.\textsuperscript{233} The Dantean underworld was littered with corpses; Speer’s diary records in less emotive terms that the exertions of the Mittelbau: “the project required some members of the Ministry to take an extra period of leave after the visit.”\textsuperscript{234} Despite this, a week after the inspection Speer wrote to Kammeler to congratulate him on his achievement.\textsuperscript{235}

By January 1944, 56 seriously defected units had been delivered; by May output grossed at 400 units – though, misfires were the norm and output were 40 percent of the initial order target. The first rocket was launched against London on the 8\textsuperscript{th} February 1944; output would remain now at 600 per month. An estimated 2,754 civilians were killed in London by V-2 attacks with another 6,523 injured, which is two people killed per V-2 rocket.\textsuperscript{236} However, with persistent navigational issues of the V2, many rockets were misdirected and exploded harmlessly. The last weapon would be fired on the 27\textsuperscript{th} of March 1945; the weapon would have a serious psychological impact on the British public but as a machine of terror, its unwavering cost would never influence territorial control, let alone change the tide of the war.

VII

The most critical element to formula of building a war machine is the financing engine. Germany used the infamous MEFO bill as well as taxation; the United States would similarly rely on direct

\textsuperscript{233} Even the Chronik acknowledges that Speer was informed in January 1944 about the terrible health conditions, and in the light of their impact on performance he agreed to increase medical provision. BAL R3/1739, 13 January 1944, 8 – from Tooze.
\textsuperscript{234} BAL R3/1738, 10 December 1943, p. 205 – From Tooze.
\textsuperscript{235} “Eichholtz, III. 75 and Freund, Zement, 57.”
\textsuperscript{236} “Air Raid Precautions – Deaths and injuries”. tiscali.co.uk. Archived from the original on 8 March 2007.
taxes to fund 40 percent of the effort, but bonds would pay the rest.\textsuperscript{237} Taxes on capital were raised from 44 to 60 percent and labor taxes from 9 to 18 percent; this burden on the American public would be complemented with cleverly crafted campaign by the Department of Treasury – singer Irving Berlin, the cowboy musician Gene Autry, and even Donald Duck created songs and slogans to get the public onboard.\textsuperscript{238} Critically, the Treasury sought to minimize taxation seeking to spread the distorting burden of higher taxation over many years. The effect was to “tap you on the head very gently for ten years rather than someone hitting you on the head once,” as explained in the 1997 paper by Lee Ohanian for the American Economic Review.\textsuperscript{239}

The rest of the capital would come from an experimentation of selling war bonds; these started with the Federal Reserve designed fixed rate bonds returning 0.375 per cent.\textsuperscript{240} Despite the low rate, in an economy like Germany’s, American workers were making wages but little consumer markets existed to spend their money, therefore investing capital for tomorrow was advised as prudent alternative. Furthermore, there was little substitute market to invest savings, the mortgage, car loan, and consumer durable loan markets at been forced dormant during the war years, therefore war bonds were the only fixed income product available in this immobile capital market. Notable were the War Finance Committee’s Series E loans which were marketed as retail saving instruments which surprisingly were enacted with the First War Bond drive closing on December 23\textsuperscript{rd}, 1942 – three years into the American production project. Overall, seven more drive campaigns would take place raising an eyewatering $156.4 billion – all in the final two and

\textsuperscript{240} Greely, Brendan: “How the US actually financed the second world war,” Financial Times, (13-02-2019)
a half years of the war. Major creative campaigns were launched: FDR hosted fireside chats; singer Kate Smith raised $39 million during a single September 21st, 1943, CBS broadcast for the Third Drive; the Fourth was targeted women and farmers; the Fifth Drive included a one-hour broadcast and statement from Orson Welles and FDR; the Sixth Drive made us of the iconic Raising of the Flag on Iwo Jima image. 241 In the final two-and-a-half-years of the war, each drive raised an average of $23 billion. 242

By wars end, with the return of millions of liquid veterans and consumer instigated a party of rampant spending which led to inflation soaring to 20 percent in 1947; this quickly inflated the debts away. 243 The success of the War Bond drives during World War II exemplifies the power of creative capitalism, where strategic collaborations between government entities, celebrities, and the media not only fueled the war effort but also offered profitable opportunities for all involved. This innovative approach to funding showcased how patriotism and investment could merge to yield substantial economic benefits and societal victories. Hitler always viewed America as a “corrupt and outworn system” believing that “blossoming economic prosperity and power politics would only draw them deeper into a mire of self-destruction.” 244 Once again, the superiority of the so-called “the total domination of American policy by Jews” was inch the America ever closer to his annihilation. 245

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245 Weinberg, Gerhard: “Hitler’s Image of the United States” (1964)
According to Arthur Herman, as 1943 drew to a close, few could argue of the dominance of America’s war machine:

“In 1943 the numbers Knudsen and his colleagues had promised were taking on a life of their own. Production of Liberty ships was reaching 160 a month, while 18,434 Navy battleships, cruisers, carriers, subs, and destroyers poured out of America’s shipyards—along with 16,000 landing craft. Heavy bombers soared from 2,618 in 1942 to 9,616—bombers that would soon be leveling Germany’s cities and industrial heartland by day, while the RAF attacked them at night.

Tank production [in Germany] swelled to 29,495; small arms from 2.3 million in 1942 to almost 7 million; artillery shells from 693,000 to 800,000 tons; machine guns to 830,000; and airplanes of all kinds to 85,946—an air armada beyond anyone’s wildest imaginings. Imperial Japan and Nazi Germany, the symbols of modern military power just two years earlier, were being drowned in the flood. In 1943, American war production was twice that of Germany and Japan combined. Victory, which had seemed so elusive just ten months before, was now assured.”\textsuperscript{246}

\textsuperscript{246} Herman, Arthur: \textit{Freedom’s Forge}, (2012). c.17
Chapter V: 1944 & 1945

“Doom did not descend on the Third Reich with a single blow. It struck at irregular intervals and shifted from one theatre to another. In between, there were moments of relief during which Speer, Goebbels and the rest did their best to rekindle the flame of fanatical belief.”

Despite the fledgling remains of the Wehrmacht being comprised of children and middle-aged men, the Germans would wage one hell of a defensive fight. Combat between American and German troops had taken place in sands North Africa; in the red waters of the Atlantic; from the fireworks of Europe’s skies; and in the gridlocked fields of Southern Italy. It is now four years since Knusden first shook the hand of his wheelchair stricken president; 1944 would be the year for which years of calculating preparations would convert to hard results.

I

Through the authoritative muscle vested him by the Fuehrer and the power gained through his developed business relationship with Heinrich Himmer, Speer could use his muscle to break through any barrier with intimidation that faced him with great cruelty. Despite this, one critical element would also always stray out of his control. Over the course of his time in office, it seems clear that the biggest impediment that inhibited Albert Speer’s ability to raise armaments output was the Reich’s suboptimal supply of raw materials: namely, steel. On the American side, in

contrast, the fiercest obstacle the war-production effort faced, was not Washington or the military or even the Axis – it was labor unions. It should be argued that despite all blame unions got for slow productivity, there is little doubt that unions did bring value supporting workers attain improved living and working conditions in a time of mass domestic migration. Though in the holistic picture of the war, when compared to the atrocities and horrors that unfolded in Asian and European concentration and POW camps, it is safe to conclude that the unions operated with an incredibly aggravating and parochial mindset.

As Knudsen would observe in his memoirs, labor trouble, far more than business foot-dragging or profiteering, had been the bane of war production. Work stoppages in 1943 alone cost 13.5 million man-days: almost triple the man-days lost in 1942.248 The unions began their 1940 pushback against war production with a belief that war was a bourgeois struggle; back then 1939 Molotov-Ribbentrop non-aggression pact between the Soviet Union and Germany had convinced the CIO that in order to support the communism at-large, they ought to put up resistance to anti-German fueled war production. Four years later, and the tables would turn unequivocally. Lend Lease had now supplied $11 billion worth of aircraft, tanks, trucks, and other materials to the communist Allies; in 1944, support for the US economy meant support for communism. Surely this fact should have propelled the Marxist infested unions would quell their need to strike. It did not.

248 Beasley, Norman: Knudsen: A Biography (1947)
By 1944, Union membership had depleted due to the vast number of enlisters into the armed forces and many chasing more lucrative work in war industries. Thus, with depleting numbers and influence, threats of striking were the only weapons unions had left. In May 1943, all would come to boil when strikes broke out in the Pittsburgh-area coalfield over a $2 a day wage increase. Losing patience, Roosevelt made a public announcement threatening to have the Army take over the mines – this never happened as the miners went back to work until a month later, 60,000 dropped tools and “jumped the gun.”249 This time, the public reaction was overwhelming with newspapers denouncing the strike as unpatriotic and vile with sub headlines announcing, “decline in army production due to “complacency and overconfidence,”” as advertised by the New York Times the next day.250 This was the moment the unions went too far: the Republican-dominated Congress passed the War Labor Disputes Act, ordering a thirty-day notice for all strikes and ending the secret ballot for union membership. On June 25, Roosevelt vetoed it. It took 11 seconds for them to override him.251 By December 1943, a threatened railroad strike forced the Army to intervene for real; this time the Army ran the nation’s rail network system for three weeks. By 1944, lost workdays had fallen from 13.5 million lost in in 1943 to 8.7 million the next year.

II

1943 had created an air armada of 85,946 aircraft of all types in the United States.252 One model would see an upgrade that would instantly and absolutely become effective in battle more than

249 New York Times Special 06/19/43
250 Ibid.
perhaps any other World War II weapon, with the exception, perhaps, of the B-24 in the Atlantic or the Atom Bomb in Japan. This was the P51 Mustang’s winged disposable fuel tanks, helping the little single seat fighter fly equal range to B-17 bombers. Since 1942, the United States practiced strategy of attritional warfare. The strategy was simple, before the Reich could be invaded and final victory could be achieved, the Soviet Union had to have dented the Wehrmacht sufficiently and the Luftwaffe had to be knocked out. An aerial threat to what was expected to be the largest land invasion by the largest armada in history would be catastrophic; thus, now that bombers and fighters could fly in synchrony, the window to undermine the enemy’s air dominance was now. According to the Luftwaffe historian Williamson Murray, US Army Airforce airmen accepted their orders and were ruthless:

“In February the Luftwaffe lost one-third of its fighters and a fifth of its crews. In March, it lost more than half its fighter aircraft. In April 43 per cent were shot down and in May and June the loss rate hovered around 50 per cent. Over the first five months of 1944 the Luftwaffe’s entire complement of fighter pilots was either killed or disabled. A few German aces survived long enough to notch up extraordinary tallies, but the working life of the average Luftwaffe pilot was now measured in weeks.”

Faced with the imminent extinction of the Luftwaffe, Speer’s power consolidation to control the Reich’s war machine in its entirety was complete by the first weeks of 1944. The result was the formation of the diabolical Speer-headed so-called Jaegerstab (Fighter Staff) and included in this

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ring of predators was prior Luftwaffe production chief Erhard Milch and Speer’s rottweiler Otto Saur. As described by Tooze:

“Equipped with undisputed priority in the entire armament’s effort, empowered to take any measures necessary to raise production, the Jaegerstab successfully revived the ‘armaments miracle’. Measured in terms of airframe weight, aircraft output doubled between February and July 1944. The increase in the number of aircraft produced was even more spectacular—from 1,323 in February 1944 to 3,538 aircraft by September, of which almost 2,900 were fighters.”

This final consolidation is what the Speer’s Ministry owes its legendary reputation; for despite the earthquakes of territorial loses and bombers reigniting hellfire on the Reich, Speer’s record year of output was 1944. The secret to his success so many asked: ‘rationalization’ combined with the ‘self-responsibility of industry’.

In reality, a closely held secret formed by Speer’s Ministry diary points once again to an employment of the dark arts by Speer. Seeking credit for revitalizing the Luftwaffe, the Reich’s most productive industry, on average, that he never controlled, Speer had secretly hidden steel reserves allocated towards tank production and channeled the vital materiel towards to the reigns of the Jaegerstab. Thus, any narrative about Speer’s magical ability to increase output which maintaining consistent input—an example of ‘rationalization’—was again just more slyness. With increases to his material input, Speer now needed his contractors to rally around him.

'Self-responsibility of industry’ was central to the mythology of Speer’s entire regime. The term always bore definitions that went beyond Todt’s original conception of the term. In 1944, ‘self-responsibility’ was meant dictatorship uninhibited by any rule of law or code of civilization. Speer’s rottweiler Otto Saur and his colleagues dispensed a special train, code-named Hubertus. Starting in February 1944, Hubertus dispensed summary justice to plant managers they considered to have failed in their duties.\textsuperscript{255} Plant managers were now being threatened with many of the same punishments inflicted on their prisoners. In March 1944, speeches, such as the below made by Erhard Milch, were made to plant managers and supervisors now daily but senior members of Speer’s ministry.

\begin{quote}
“Please go wherever you are going and knock down everybody who blocks your way! We cover up everything here. We do not ask whether he [sic] is allowed to or whether he is not allowed to. For us, there is nothing but this one task. We are fanatics in this sphere . . . No order exists which could prevent me from fulfilling this task. Nor shall I ever be given such an order . . . do not let anything deter you, and get your people to the point that no one deters them . . . Gentlemen, I know, not every subordinate can say: For me, the law no longer exists . . .”\textsuperscript{256}
\end{quote}

Despite the impressive output results seen by Speer’s Ministry, Germany was facing ever greater intimidation. In Spring 1944, US Airforce finally introduced their first wonder weapon: the Boeing B-29 Superfortress. Creating this aircraft became most expensive development program

\textsuperscript{255} For an account of the train which provided a conference centre and accommodation for 60–80 men, see BAL R3/1740, August 1944 – from Tooze, p.205.
of World War II costing the $3 billion, far exceeding the $1.9 billion cost of the Manhattan Project.\textsuperscript{257} In fact, it would be B-29s’ Enola Gay and Bockscar that would drop the first two atom bombs Little Boy and Fat Man on Hiroshima and Nagasaki over a year later. The B-29 was the most technologically advanced aircraft in the world, one of the largest of the war, complete with a pressurized cabin to fly at altitudes far exceeding those of any defending fighters or anti-aircraft guns.

The aircraft was designed to carry large payloads over 3,000 miles of water in the Pacific to be dropped on Japan. The aircraft’s high altitude strategic bombings and low altitude incendiary bombings would be the tool to subdue the Island Empire into surrender without the need of an apocalyptically bloody land invasion. Like all major aircraft productions, the B-29 was no stranger to delays in its production. Following eighteen months of infighting and interruptions, as well as the horrific crashing of a test flight leading to the deaths of all on board, it was Bill Knudsen who was called in to complete the B-29 project. On the 8\textsuperscript{th} of May 1944, it was ready for action.

The B-29 was never intended on being deployed in the skies above Europe, though Germany feared its intimidating reputation; the Allies sought to capitalize on this fear by sending “Hobo Queen” to Britain days after the launch as part of a deception effort. The aircraft hopped from airbase to airbase receiving awe and fanfare from British and American servicemen who marveled at the giant plane. Even Prime Minister Winston Churchill, newly appointed Supreme Allied Commander Europe Dwight Eisenhower, and other VIPs were invited to meet the

\textsuperscript{257} O’Brien, Phillips Payson: How the War Was Won ((2015)).
revolutionary new bomber. Crucially, and as anticipated, the aircraft was captured by a high-flying German reconnaissance flight. To help reinforce the cover story, propaganda leaflets were dropped over Germany with details of the planes specifications and capabilities that were subsequently published in Nazi newspapers.\textsuperscript{258} \textit{Hobo Queen} shortly after flew to Asia to regroup with its squadron.

Few individuals came to fear such a campaign than Albert Speer for thus far, none of his expensive \textit{Wunderwaffe} projects were making a dent. Speer was now facing a groundswell of opinion from business against the increasingly brutal interventions deployed by his Ministry on the economy.\textsuperscript{259} Faced with skepticism in his authority, Speer played his strongest card: his unrivalled relationship with the Fuehrer. Despite the Speer–Hitler relationship had gone through turbulent times since October 1943, Speer would still proclaim himself to be Hitler’s best friend. In May 1944 Speer had resumed his intimacy with the Fuehrer and convinced him to speak at an armament’s economy conference. Speer would write his Fuehrer’s speech which he armed with fear, threats and bleak warnings of just how much industry had to lose: “If German industry failed to meet the demands of the war, the consequences would be catastrophic.” Speer clearly wanted to emphasize this point in particular. “No mercy was to be expected, even from the Western Allies.” Speer’s notes for Hitler were emphatic: ‘Should the war be lost! . . . merciless extirpation of German industry, to eliminate competition in world markets. The enemy has concrete economic plans, which confirm this.” \textsuperscript{42} To stave off this awful prospect, virtually any sacrifice could be justified. The brutal methods of the \textit{Jaegerstab} would have to be put up with. But, once victory had been achieved, German business could look forward to a return of

\textsuperscript{258} Mark Felton Productions: “B-29 Superfortress Operation Against Germany” (03-26-2020).
\textsuperscript{259} Eichholtz, Dietrich: \textit{War for Oil: The Nazi Quest for an Oil Empire}, (2012) p.18
entrepreneurial freedom. As Speer–Hitler put it: “When this war is decided by our victory, then the private initiative of German business will experience its greatest moment!” Hitler promised German business ‘perhaps its greatest flourishing of all time’.”

From May 1944, the *Jaegerstab* would now instigate a seventy-two-hour work week. The very best of German workers with extra rations of food, sweets, cigarettes, spirits, extra layers of clothes, and even special allocations of vitamin pills. Foreign workers of the aircraft production industry, in contrary, were used as an experience for a new system devised by Speer. Due to their absolute maltreatment and inferior education levels, data obsessed Speer calculated the productivity of *Ostarbeiter* (Eastern workers) was 40 percent that of a German laborer and thus by 1944, the time had come to invent more ominous tactics to maintain productivity among his workers. Starting with 90,000 laborers sent by Himmler days following the creation of the *Jaegerstab*, Speer would test a system he dubbed *Leistungsernaehrung*, or ‘performance feeding’.

As explained by Tooze:

[Speer] divided his *Ostarbeiter* into three classes. Only those achieving an adequate, average performance would receive the normal ration. Those underperforming would have deductions made from their rations. These deductions would then serve as bonuses for the above-average performers. The system was designed to manage scarcity. It implied no overall increase in the food ration. It simply rewarded the strong at the expense of the weak. The key idea was

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260 Eichholtz, Dietrich: *War for Oil: The Nazi Quest for an Oil Empire*, (2012) p.23
261 Ibid.
262 Tooze, Adam: *The Wages of Destruction* (2006), c.19
to concentrate the available food on those workers who were providing the best return per unit of calories. For the Ostarbeiter it implied a form of triage. Those falling below the norm were threatened by a fatal spiral of malnutrition and underperformance.”

Industrialists now had no choice but to implement this system for otherwise, the Hubertus mobile train court would come for them. Furthermore, food rations were delivered to factories in minimal quantities and thus could now make additions even if they so pleased. By the end of 1944 ‘performance feeding’ had been promulgated by order of the Armaments Ministry as standard practice in the employment of Ostarbeiter. Viewed in the large, working inmates to death was of course only marginally less irrational than murdering them outright.

III

One month later, further disaster was impending for the Reich: The Allies were finally preparing for the largest amphibious invasion in the history of warfare – the Normandy Landings and the Liberation of France. On June 6th, 1944, the might of the military might of the Anglo-American-Canadian war effort, the crux of the efforts of the billions of man hours that had gone into Roosevelt and Knudsen’s war machine were finally going to see warfare and take the Allies one giant leap closer to destroying Nazism and finally ending history’s most destructive conflict.

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264 Tooze, Adam: The Wages of Destruction (2006), c.19
Preparations for D-Day were years in the making; special amphibious vehicles such as the American designed landing Craft, Vehicle, Personnel (LCVP), known as the Higgins boat, were built at a volume of 23,398 to transport the 156,000 Allied soldiers from naval and merchant ships on to the five beaches of Normandy. Furthermore, the British designed the Mulberry harbor which were two temporary portable harbors developed to facilitate the rapid offloading of cargo onto the beaches that would see the safe passage of 2.5 million men, 500,000 vehicles, and 4 million tons of supplies. On the single D-Day, the invasion saw the use of 7,000 ships on the single day manned by over 195,000 naval personnel from eight allied countries. Additionally, 11,590 allied aircrafts-maintained control of the skies and dropped 18,000 British and American paratroopers of the British 6th Airborne, the US 82nd and 101st. That day the entire Luftwaffe in the West managed only 275 sorties, as compared with 14,000 flown by Allied aircraft.

Three weeks later, the British were pulverizing Caen, and the Americans were threatening to encircle tens of thousands of German troops in Brittany. Despite the overwhelming superiority of the near 1.5 million allied troops now fighting on the continent by the 25 of July, the Battle of Normandy saw fierce resistance from the battle-hardened troops of the illustriously decorated Field Marshal Erwin Rommel and Field Marshal Gerd von Rundstedt. Critically, due to his increased paranoia and distrust in his generals following years of military failure and his attempted assassination attempt on July 25th, Hitler insisted on making all major strategic battle decisions himself. This was greatly hampering the mobility of German soldiers: on the day of the invasion, German forces were left without orders for periods as long as 24 hours while

266 War Office; www.mulberryharbours.com/wp-content/uploads/2014/05/1.-War-Office.-Artificial-Harbours1
267 Eisenhower Presidential Library: “World War II: D-Day Landings”
information was sent back and forth to the Fuehrer's residence in Obersalzberg in Bavaria. It is said Hitler was still asleep and now member of his staff wished to be the bearer of the bad news. 

This battle in the west, however, was small-scale and slow-moving by comparison with the epic drama unfolding in the East. On 22 June, on the third anniversary of the German assault on the Soviet Union, the Red Army unleashed Operation Bagration against the Wehrmacht’s Army Group Centre. Compounding the numerical and qualitative superiority of their equipment, with superior intelligence and the logistical support provided by American trucks and half-tracks, Marshals Zhukov and Vasilevsky pulled off what is widely regarded as the “most impressive ground operation of the war,” as described by Williamson Murray. Within days of the attack three entire German armies were destroyed. By 4 July Soviet forces had liberated Minsk and were well on their way towards the Polish border. On 11 July the Wehrmacht reported that Army Group Centre had lost 28 divisions and 300,000 men. By the end of the battle for Belorussia that figure had risen to 450,000. On 24 July the troops of Marshal Konstantin Rokossovskii’s left-flank armies liberated the first major concentration camp, Majdanek near Lublin. Four days later, after an advance of almost 600 kilometers in six weeks, the Red Army was finally fought to a standstill within earshot of the Warsaw suburbs. After three years of savage fighting the Wehrmacht had been driven back to its starting line in June 1941. An outlying optimist

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Marshall Rokossovskii had proclaimed on the day Barbarossa began “The German army is a machine, and machines can be broken!” – he was proven correct.\textsuperscript{273}

It was clear that many of Germany’s military failures had been the cause of the Chief of Oberkommando der Luftwaffe Hermann Goering’s failure to lead; 40 percent of German armaments spend went into the Luftwaffe and this body was now completely crushed.\textsuperscript{274} It was clear that the creation of the Jaegerstab had completely undermined Goering’s authority and with effect from 1 August 1944, the Luftwaffe’s entire industrial complex was placed directly under the control of Czar Speer’s Super-Ministry. For the first time in the history of the Third Reich, the whole armaments effort was formally concentrated under one single authority. And this was not enough. The military emergency demanded that literally every facet of German society should be put at the service of the war effort. As described by Tooze: “Only the ruthless determination of National Socialist leadership could see Germany through. Even at this late stage, Speer refused to concede defeat.”\textsuperscript{275}

“On the back of the triumphs of the Jaegerstab, Germany in 1944 managed to produce a total of 34,100 combat aircraft. By contrast, the combined output of its major opponents—Britain, the Soviet Union and the United States—came to 127,300 of which the United States accounted for 71,400, a margin of superiority of 3.7 to 1. In tanks the disparity was similarly large: 18,300 produced in  

\textsuperscript{274} Tooze, Adam: The Wages of Destruction (2006), c.19
\textsuperscript{275} Ibid.
Germany as opposed to 54,100 by the Allies, with the Soviet Union in this category accounting for 29,000 of the Allied total.”\(^{276}\)

With sustained attacks impacting every corner of the Reich in the summer of 1944, Hans Kehrl’s economic planning office declared: “The German economy is threatening to fall into an anarchy, against which even an extended and improved system of economic controls \([Wirtschaftslenkung]\) will struggle in vain.”\(^{277}\) Despite a decade of aggressively curtailing inflation, by July 1944, money could no longer be ignored. “The erosion of the value of money was robbing economic actors of their incentive to comply with the demands of the regime,” as explained by Tooze; these effects were being felt all over the empire.\(^{278}\) According to one independent estimate shared by Tooze, the black market was now accounted for at least 10 per cent of household consumption; as cash increasingly flooded into illegal channels, the system for recycling excess purchasing power was quickly breaking down.\(^{279}\) The value of short- and long-term government bonds were rapidly losing value, forcing the Reichsbank to absorb ever larger quantities of government paper into its accounts. Cash in circulation ballooned and hyperinflation was coming. This kickstarted a rush to sink funds into stocks of hard assets such as raw materials and capital equipment; furthermore, a hasty wave of German capital was quickly exportation, namely to Swiss and Swedish bank accounts. At this point, all anyone could ask was what would break first, the Reich’s economy or the Wehrmacht.

\(^{276}\) Ibid.
\(^{277}\) Two drafts are in IWM FD 3038/49, Sc. 395, 145–53 and 154–8 respectively. The quotes come from the second document – from Tooze, p.420–21.
\(^{278}\) Tooze, Adam: *The Wages of Destruction* (2006), c.19
\(^{279}\) Ibid.
By the summer 1944, aircraft production was the most heavily targeted industry of Allied bombing, precipitously, despite gaining all out-output records of the whole war, the industry had now collapsed marking an end to the arms race between the Allies and Axis. The steel industry would collapse in September 1944 with the RAF attacks on the Dortmund-Ems canal reducing coal transportation capacity by 75 percent; the Rhine was blocked when the Cologne-Muelheim bridge was destroyed on 14th October and now rail shipments of coal had ceased completely; by January 1945, steel production was down 66 percent from the year prior; factories were closing all around the Reich from a termination of coal deliveries – the German industry was finally defeated.280 In contrast, in August 1944, the United States restarted their civilian goods. The direction of the world seemed understood now, all that remained was for Hitler to die.

VI

Back in the United States, in 1944 alone, the now superpower had produced 71,400 aircraft – almost double the number Roosevelt proposed in 1940 and which all spectators deemed impossible. Allied bombers were flattening cities left right and center: in 1942, the Allies dropped 47,122 tons of bombs on Germany; in 1943, this rose to 201,622 tons; in 1944, the number would peak at 914,637 tons; and 380,113 tons in 1945; this would make a grand total of 1.4 million tons over the course of the war; over a million more was dropped in other Axis controlled territories and by Russian strike forces.281 Complementing this, American B-29s would drop 160,000 tons on the Japanese Archipelago; though it must be stated that Japanese architecture styles made the vast majority of houses’ timber frame very vulnerable to the night

280 Ibid.
time incendiary raids designed to unleash unrepenting firestorms. Japanese cities therefore faced a far greater percentage area destroyed to their German counterpart.\textsuperscript{282}

The absolute vastness of the American Airforce meant logistics came the key to success; critical was maintaining the aircraft and their crew; keeping thousands of aircraft airborne, fueled, armed, ready, and in the right direction. In September 1944, in his last role, General Knudsen was placed in charge of the new Air Technical Service Command, or ATSC, the Army Air Forces’ logistical and air services in Dayton, Ohio.\textsuperscript{283} By this point in the war, the role of the head of war production had mostly faded away; the job on the home front was complete and now concerns feel to post-war disarmament. Achieving total victory was now up to Dwight Eisenhower and his colleagues.

\textbf{VII}

Hitler would mount one final counter offensive on December 16\textsuperscript{th}, 1944. Following orders from his Fuehrer, the still viciously loyal Speer mobilized of the tank industry permitted Hitler to indulge in the last great surprise of the war: the western Ardennes offensive. In an absurd attempt to repeat the success of May 1940, 1,800 tanks, each fueled with one load of petrol, plunged through the Belgian hills towards the Meuse and the gigantic Allied petrol dumps at Antwerp.\textsuperscript{284} This time, however, the Panzer would not make it far. The Battle of the Bulge lasted two weeks, slowed by an air force unable to resupply American troops due to low cloud. General George Patton announced: “it’s a clear cold Christmas, lovely weather for killing Germans.”\textsuperscript{285} By early

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1945, Speer still had not lost hope – he would request one final expansion of his powers by taking control of the Reich’s entire transportation system to ensure Red Army defenses were prioritized. On 15\textsuperscript{th} March 1945, as the Allies planned to cross the Rhine in the West and the Weichsel in the East, Speer had now accepted ‘economic collapse’ was an inevitability; first though, he advocated for every last available German soldier to be massed along the riverbanks for one last slaughter. With this in mind, he now planned for the armaments economy to remain active for a final eight last weeks.\textsuperscript{286}

As the inner Reich was finally invaded, the war would see the bloodiest couple months of the war. The five months would see 1.8 million German soldiers killed.\textsuperscript{287} Speer would have his final official meeting with Hitler on the 29-30\textsuperscript{th} March 1945 – Hitler’s final order was the Nero Decree. Goebbels’s diary chronicles that he “gave in” to his Fuehrer’s order to scorch the earth of Germany. The Nero Decree imposed the burning of every last remnant of their Reich before further territory was lost to the enemy. Hitler would even instruct to destroy Berlin’s food supplies during the Battle of Berlin to stop the Soviets from obtaining the resources. “A quarter of Berlin’s metro stations were flooded despite the thousands of Berliners who sought shelter in them: tens of thousands of civilians drowned.”\textsuperscript{288} Speer would countermand Hitler’s order but not to his face.

Franklin Delano Roosevelt died on April 12\textsuperscript{th} 1945. Days later Russians would fight street by street in the Battle of Berlin/ Speer visited the \textit{Führerbunker} on 22 April for the last time; a week before Hitler’s suicide – the two men would make a final tour of the damaged but still standing

\textsuperscript{286} Tooze, Adam: \textit{The Wages of Destruction} (2006), c.19.
\textsuperscript{287} For the following, see R. Overmans, “Deutsche militärische Verluste im Zweiten Weltkrieg” – from Tooze (Munich, 1999).
\textsuperscript{288} Engelmann, Bernt: “Eine Stadt wie keine andere [Berlin – A City Like No Other]” (1986).
Reich Chancellery. Speer had hoped the Fuehrer would name him his successor, instead to his dismay, he dropped him from his will of a successor government; though not proven, it is assumed Speer was sidelined for not fulfilling the Nero Decree.\textsuperscript{289} As Berlin fell and Hitler’s corpse burned, Speer travelled north to offer his services to Hitler’s chosen successor: Grand Admiral Karl Doenitz, now President of the Flensburg Government. On 23 May 1945, two weeks after the surrender of German forces, British troops arrested the members of the trivial government and brought Nazi Germany to a formal end.

VIII

After six months and a further 380,000 tons of bombs dropped on Germany, Bill Knudsen formally resigned from the Army on June 1, 1945 – one month after VE Day. Knudsen was awarded the Distinguished Service Medal “for exceptionally meritorious and distinguished services in the performance of duties of great responsibility.” Undersecretary of War Bob Patterson told the press he calculated just by being there Knudsen had single-handedly “raised America’s war production totals by 10 percent.\textsuperscript{290}

Two months later, the war would finally cease when B-29 Enola Gay (serial number B-29-45MO 44-86292) would drop a single thirteen-kiloton uranium atomic bomb on Hiroshima, killing 50,000 people almost instantly. Two days later another Omaha-built B-29, Bock’s Car (serial number B-29-40MO 44-279297), dropped the Hiroshima bomb’s plutonium cousin on Nagasaki, killing another 36,000. Japan surrendered on August 15\textsuperscript{th} fearing a third bomb. For hundreds of

\textsuperscript{289} Kitchen, Martin: \textit{Speer: Hitler’s Architect} (2017), c.11.
\textsuperscript{290} Beasley, Norman: \textit{Knudsen: A Biography} (1947).
thousands of American soldiers, and almost certainly millions of Japanese, it meant being spared
dead in a prolonged invasion and land campaign to take the islands. All this was possible
because of the mass mobilization, the lessons learned, the engineering progress, of all American
output that had created a final magnus opus; the B29.

Meanwhile in Allied controlled Germany a new world order was established; though for as long
as he breathed, Speer had no intention of losing relevance the enjoyed in the old-world order. At
the Nuremberg tribunals, Speer’s strategy had him positioned as a fish out of water: a civilized
respectable young man surrounded by the ‘jackasses’ of the Nazi leadership. Speer was an
exemplarily likeable gentleman: presentable, charming, cooperative, and English-speaking. HE
played the role perfectly. The strategy worked, as described by Kitchen: “Speer had no feeling of
ever having done anything wrong. His self-righteousness was reinforced when it appeared as if
the Allies regarded him as being in a quite different category from the likes of Göring, Sauckel,
Streicher or Ribbentrop.” Speer would offer more direct and nuanced assessments of Hitler,
expertly polished as if he had spent ways awaiting this moment as a plan B; furthermore, he
thought little of placing blame that was his own on his fellow defendants. Speer had an answer to
everything: he did not remember 1938’s Kristallnacht; he had no knowledge of extermination
camps, this was hidden from him by Himmler; Saukel was responsible for brutal treatment of
forced labor, not him; he was involved in the July 1944 plot to assassinate Hitler; he publicly
undermined the Nero Decree. Speer’s strategy had worked: the chief United States prosecutor,
Robert H. Jackson, of the U.S. Supreme Court said, “Speer joined in planning and executing the
program to dragoon prisoners of war and foreign workers into German war industries, which

waxed in output while the workers waned in starvation.”292 He was found guilty of war crimes and crimes against humanity, principally for using slave labor. He was acquitted on the two other counts and saved his neck. On 18th July 1947, 41-year-old Speer was transferred to Spandau Prison to serve a 20-year sentence.

Back in the United States, Knudsen’s face dominated gigantic banners draped across buildings during post-victory parades. Thanked for his service, he visited GM’s shattered plants across Europe soon after the war and was invited to lunch with the King Christian X of Denmark. Returning home, Knudsen was rejected from returning to General Motors, respecting their policy of automatic inactivity once reaching the age of 65.293 Three years later, exhausted from war, Knudsen died of a cerebral hemorrhage in his Detroit home aged 68.

Albert Speer was a well-behaved prisoner who served his full sentence. His release on the night of the 1st of October 1966 was a worldwide media event. He reunited with his family and began voraciously writing his books to spread his now perfected myth. He published Inside the Third Reich in 1971, Spandau: The Secret Diaries in 1976, and Infiltration: How Heinrich Himmler Schemed to Build an SS Industrial Empire in 1981 – an attempt to distance himself from Himmler. The illusory publications would make Speer a sensation selling several million copies. Inside the Third Reich has become the most famous primary source text of the regime, his famous myth would be assumed by the world for decades to come. Speer made himself available to interviewers and other enquirers during his post-prison life; with age would come more lies. In October 1973, he made his first trip to Britain, flying to London to be interviewed on the BBC

292 Ibid.
Midweek program. In late 1979, Speer would begin an affair with a young German woman who lived in England; this affair would devastate Speer’s long-suffering wife Gretel. Speer would continue frequent trips to Britain to appear on the television program *The World at War*. Speer returned to London in 1981 to participate in the BBC Newsnight program and see his mistress. On September 1st, the “Good Nazi” suffered a stroke and died in St Mary’s Hospital in Paddington, London on 1 September 1981. Great irony would surround Speer’s death: first he died “while in the company of such a strikingly attractive young [mistress];” second, he died in a city that he had dedicated his life to destroy; third, he died in the same hospital I was born in 19 years earlier.294

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Legacy, Verdict, and Reflection

In his ‘Second Book’, written in 1928, Hitler posed central strategic questions with astonishing clarity: how was Germany, as a European state, to react to the “threatened global hegemony of North America?” “How could it forestall America’s seemingly inevitable economic and military dominance?” “How was Germany’s political leadership to respond to the material aspirations awakened in its population by the example of American affluence?” These were undeniably respectable questions for any interwar German-speaker. Hitler’s answers were explosive. The solution was not to ally Germany with the United States, or to adopt American modes of life and production. Any such attempt of “Americanization” would be dominated by the malevolent forces of world Jewry, shrouded in a garb of liberalism, capitalism, and democracy. The only adequate response to the American challenge was to create Lebensraum for the German people sufficient to match that provided by the continent of the United States. A war of conquest was not a policy option among others, “either the German race struggled for Lebensraum, or its racial enemies would condemn it to extinction,” as explained by Tooze.

The outcome of World War II should never have been assumed in hindsight; while capitalism won the war for the Western Allies, we should remember that it was also the effects of the 1929 failings of capitalism that would start the domino effect to cause the outbreak of war in 1939. A large proportion of the world believed the effects of the Great Depression were proof that a world capitalist order was unsustainable: “in the spurious blossoming of economic prosperity and

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296 Ibid
power politics, America, swept by the falsities of liberty and equality, has never since been
drawn deeper into the mire of self-destruction,“ as said in a Hitler speech in 1933.\textsuperscript{298} His analysis
and assumptions were not built on pure falsities, for four years earlier and one year after writing
his ‘Second Book’, the American economy had self-destructed, thrusting the world into bitter
hardship. Many believed these patterns of economic self-destruction would only return. Hitler
responded with ruthless politics, callously creative propaganda, a violent use of scapegoats, and
false flags, to take total control of a broken Germany and turn it into a militarily fascistic regime.
He would then quest to annihilate his enemies, conquer the world, and rebuilt it in his worldview.
This action would instigate an almighty reaction to which the darkest forces of the Bolshevik
dictatorship spilling unmatched quantities of blood and the unbounded potential of American
industry and willpower would finally break the Nazi machine.

To accept the Third Reich’s defeat was a result of a deficit of natural resources, a hubristic
approach to planning, and broken by unparalleled attacks of attrition from its enemies would be a
correct assumption. Though, it must be stressed that efforts of the German economy to operate
under its numerous constraints for as long as it did was a remarkable feat. Challenges for the
German economy were omnipresent while at war: first in September 1939, Germany declared
war with no substantial material or technical superiority over the better-established military
powers of the West; in the Spring of 1941, the economy would not just prepare for two wars, but
three: against the Red Army, the British and American forces, and the civilian populations of
Eastern Europe, beginning with the Jews; by January 1942, the economy would come into direct
conflict with the most overwhelming American economic potential. The German economy would

now come to terms with Bill Knudsen’s Fordist vision, readily enabling production triumphs that were surprise all, even the Americans themselves. The threat posed by Knudsen’s system would come to define the armaments minister Albert Speer would become.

I

The relationship between Knudsen and Speer are symbiotic. Knudsen was a product of the American dream: a fiercely hard-working immigrant, an ardent patriot, self-made titan of industry who was thrust into a unique role through merit alone. Knudsen needed no ego validation, he was satisfied with a $1 salary, and he had little to prove to the world. His early career achievements elevated him to become the prince of mass production, second only to the king Henry Ford. Carrying a picture of the whole manufacturing industry of the United States in his head, Knudsen was propelled by a desire to serve and repay the country that had given him so much.

Albert Speer’s recruitment as armaments minister would come in February 1942. Speer’s life in the Third Reich can be best described as a continuous crescendo of cunning power acquisition; though unlike his colleagues in the Nazi high command, Speer was no ideologue, and his levels of patriotism are frankly questionable. Speer was the opposite of Knudsen – he was driven by ego and a burning desire to please his Fuehrer and become saviour of Germany, not for the sake of the German people but to serve his violent inner hero complex. Speer was not hired for of any meritocratic achievement, but because he was a chameleon whose modus operandi lay in successfully providing the dictator with his exact wants – the validation fuelled him. Gitta
Sereny wrote: “a need for achievement and success rooted ever deeper for Speer over the years, he lived – almost addictively – in an increasingly vicious cycle of need and dependence from the Fuehrer.” Speer’s level of knowledge of his new nemesis Knudsen is mostly unknown, though, based on the level of spy infiltration in America and his sophisticated knowledge of American culture that he would be weaponised at Nuremberg, it’s safe to assume Speer was aware of Knudsen’s menace. Speer was an insecure thirty-six-year-old, an architect by training who had completed a quantity of buildings that could be counted on a single hand. Unlike his predecessor, he knew nothing of how to lay out a factory or run an assembly line; his competitor, in contrast, had practically invented modern mass production. On reflection of why Speer resorted to such extreme means of coercion in his tenure, it’s safe to assume that besides the Reich’s existential struggles in the East, the principal cause was his intimidation and insecurities of the United States. What must have eaten him up inside, was that no matter how many inputs Speer fed his engine, he could never outproduce Knudsen.

Knudsen’s firing as Director of War Production on January 16th, 1942, and subsequent restaffing was a great loss to Roosevelt. Fortunately for FDR, Knudsen had completed his most important task: he had designed and implemented a system that would see little change little as the war progressed. He had taken the greatest mass production economy in the world and converted it into the most powerful and flexible system of wartime production ever devised. As described by Herman, Knudsen had taken a system “dampened by a decade of depression, plagued by chaos and disorder to Washington in 1940 and 1941, and would convert it into an explosion of innovation, adaptation, and creativity—not to mention hard work—across the country.”

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Knudsen is the protagonist of this story because he designed and implemented an automated system that “exceeded the Nazi in fury, ruthlessness, and efficiency,” as described by Herman, no other individual in the US war economy would make such instrumental contributions. The brilliance of this system was that as it matured in 1942, it did not need a de facto leader, it was self-sufficient, powered by the market and regulated Washington and the armed forces.

Despite Germany’s five-year rearmament head start, it would be Germany playing catch-up from 1942 onwards; this game required a ruthless leader like Speer to oversee its performance and output. Speer is a complicated figure because he was so effective at his job. Historians Martin Kitchen and Adam Tooze credit the “armaments miracle” to Speer’s creatively cruel treatment of 7 million killed and 5 million surviving slave laborers; his bullying and ruthless manoeuvring through politics; his manipulation of raw material allocations to suit his personal agenda; his blissful use of SS intimidation and muscle; and his mastery in using the dark arts of propaganda. Speer’s methods were abhorrent and did justify execution at Nuremberg, though if we exclude the means and just judge the ends, his means did prove effective in keeping the sinking Reich afloat for longer than any rational spectators might predict was possible.

Germany had no prospect of winning World War II following the events of December 1941’s Moscow Crisis. Hitler’s ordered a Vernichtungskrieg “a war of annihilation” and again, Speer followed his orders. In assuming that nothing could be done to change the outcome of the war, the only metric to judge Speer’s performance is in the lengths to which he personally helped prolong the war. Naturally, this can only be done through an objective lens of analyzing his

output results without including the cost of his vast crimes against humanity. Withstanding the vast raw material shortage, the allied strategic bombings on his factories, and his inheritance of a proud industry promoting quality not quantity that resisted a transition to American-style mass production, it is hard to assume he could have prolonged the war by any longer than he did. Thus, we can conclude that Speer did complete his job effectively. Calling into question his war crimes and our assessment of Speer adds layers of complications quickly.

The evaluation of Knudsen and Speer as leaders of their respective war economies hinges on a pivotal question: “What would have been different if either or neither of these figures had been hired?” or “if Donald Nelson or Fritz Todt had served during their respective timelines?” In the case of Big Bill Knudsen, Undersecretary of War Bob Patterson announced to the press that Knudsen's presence alone had boosted America’s war production totals by 10 percent. In the case of Big Bill Knudsen, Undersecretary of War Bob Patterson announced to the press that Knudsen's presence alone had boosted America’s war production totals by 10 percent. Knudsen's successor, Donald Nelson, despite his capabilities, did not match Knudsen’s impact, highlighting Knudsen's unique skills in mass production and his forceful approach to overcoming bureaucratic obstacles. Nelson operated in a context of the post-declaration of war where the strategic goals of the economy were more aligned, unlike Knudsen, who navigated through an environment of pre-Pearl Harbor pacifism and isolationism. Knudsen not only increased production totals but also transformed a chaotic system of unpreparedness and bureaucracy into an efficient war machine, potentially accelerating America’s wartime economic mobilization by six months to a year.

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Albert Speer’s dark yet adept personality made him uniquely suited for a role that demanded ruthless creativity, analytical prowess, bold risk-taking, and extreme cruelty. If Todt hadn’t died, it’s safe to assume that the rationalization of the economy would have continued or perhaps exceeded in performance given the mishaps caused by Speer’s arrogance. As seen through the disaster example of the Mark XXI U-boat project, the inexperienced Speer believed he knew better than the titan of German shipbuilding Rudolf Blohm. Both Todt and Speer used forced labor, despite being Alter Kämpfer Nazi, it’s assumed that Todt lacked Speer’s fanaticism. It was Todt who pushed Hitler to negotiate a peace with Stalin the night before his death. This raises the question of whether Todt’s relationship with Heinrich Himmler would have been as mutually beneficial as Speer’s – this relationship with critical to the authority of Speer’s ministry. Their relationship involved significant quid pro quos, indicating a strong, albeit pragmatic, partnership that might not have been as effective under Todt. Furthermore, the extreme measures such as the use of underground caves for V2 rocket production and the exploitation involved suggest a level of barbarism that might not have been pursued under Todt. While difficult to quantify the exact impact of Speer's propaganda, it is clear that his influence and proximity to Hitler, along with his ability to centralize and enhance his ministerial power, made him such an exceptionally effective minister.

II

After the war, Germany had ceased to exist as a political entity, as a military force or an economic unit. The infrastructure was liquidated, its young male population decimated, the currency worthless, the economy bankrupt, flanked by a generation of hatred by neighboring
countries that would sustain for a generation. The country was now occupied by the Western Allied armies in the West and the Red Army in the East. Eastern Europe would be the foremost victim of Nazism with control of their state transferred from the vicious grip of the Nazis to the vicious grip of Stalin for 45 years. Germany was denazified but it would take an entirely new generation of German youth to truly expel Nazi cancer. Control of Germany would return to the bureaucrats offering the most responsible leadership in generations, as described by Tooze:

“First West Germany and then East Germany were resurrected as independent states. Their subsequent economic recovery along with that of the rest of Europe was one of the true miracles of the twentieth century. The success in creating a democratic polity in West Germany was also remarkable. So free, in fact, did West Germany seem of the tensions that had plagued the Weimar Republic, that some were even tempted to suppose that the curative fire of National Socialism had been necessary to drive out the German demons.”

Never again would German militarism return but some remnants would remain: the companies who provided for the needs of the Third Reich would remain. Restructured and soon to evolve into major global corporations. Names such as Daimler, BMW, and Volkswagen, which was originally tasked with producing the “People's Car” under Nazi auspices, are household names today. Siemens, which played a significant role in manufacturing electrical components and communications equipment for the war, successfully shifted its focus to peacetime technology and infrastructure projects. Perhaps the most notorious example, Bayer, a piece of the larger IG

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304 Tooze, Adam: *The Wages of Destruction* (2006), c. 20
Farben conglomerate, the operators of Auschwitz-Monowitz during the war resumed as a chemical giant.

The outcome of Knudsen’s efforts in World War II propelled the United States to becoming the undisputed economic titan of the world. The war ended the depression and allowed for a spending boom but now with the war over, postwar America was filled with gloom. Professor Paul Samuelson warned that unless the government took immediate action, “there would be ushered in the greatest period of unemployment and industrial dislocation which any economy has faced”—one that would equal the Great Depression. What would follow was a brief period of 20 percent inflation and a 3.9 percent rise in unemployment from Q4 of 1945 to Q2 of 1946. This proved a blessing to quickly repay the $156.4 billion in war debt. Shortly thereafter in 1947, private capital investment, which had gone flat and even turned down during the war, tripled from $10.6 billion in 1945 to $30.6 billion in 1946 and never looked back. Companies began to turn to the capital and bond markets to raise funds for their postwar ventures. Stock prices surged, and by 1947 shares had gained value by 92 percent. As Robert Higgs put it, “As the war ended, real prosperity returned almost overnight.”

Tax receipts grew from $5 billion in 1940 to $49 billion in 1945 instigating tax cuts the following year. The gross domestic product of the United States in 1947 stood at $231 billion—roughly what it was in 1945. It rose to $258 billion in 1948, paused there for 1949, and then went from $285 billion in 1950 to $398 billion in 1955. In the two decades after 1948, GNP grew at an

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average annual rate of 4 percent. This period would be remembered as the largest scale economic growth ever seen in human history.  

III

In his “Second Book” of 1928, Hitler would ask: “How was Germany, as a European state, to react to the “threatened global hegemony of North America?” “How could it forestall America’s seemingly inevitable economic and military dominance?” “How was Germany’s political leadership to respond to the material aspirations awakened in its population by the example of American affluence?”

By the late 1940s, he would have his answers: Germany’s political leadership would not respond to the material aspirations of its population following the example of American affluence, it would not impose its authority on its people. As outlined in its new constitution, Germans would be entitled to self-determination. By 1950, through the significant financial aid through the Marshall Plan, the establishment of American military bases, and strong diplomatic ties, West Germany would align itself fiercely to American capitalism. It would not be threatened, or seek to forestall its global hegemony, it would partner to it and channel its success. As a geopolitical asset like no other, American interests, influence, and protection of West Germany and West Berlin would only grow to protect American hegemony in the Cold War.

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