

Lessons Learned and Neglected: Germany and the Viability of the Offensive Before World War I

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As the United States prepares for the future of large-scale conventional warfare, policymakers and military planners must heed the warnings of the past. Accordingly, the pre-World War I period deserves greater attention as a case of innovation failure. While the conflicts of the late 19th and early 20th centuries were revealing a shift toward defensive advantages, European armies maintained a strong bias toward offensive operations and decisive battles. Due to this incongruity, their offensive doctrines produced bloody stalemates on the battlefields of World War I. To prevent similar misinterpretations of contemporary conflicts (e.g., in Ukraine) before the next major war, this paper asks the following question: why did the European militaries—particularly Germany—fail to learn the right lessons prior to World War I?

By evaluating three antebellum conflicts (the Franco-Prussian, Spanish-American, and Russo-Japanese Wars), and through historical inspection of the prewar German General Staff and naval leadership, this paper finds that the primary culprit was not irrational officers, insufficient technological adoption, or institutional resistance to change. Rather, it was a failure of vision, caused by a learning environment in which the historical and contemporaneous case studies offered only inconsistent ‘lessons learned’ about the future of warfare. The pre-World War I conflicts had all demonstrated both the increasing potency of defensive firepower, on the one hand, and the continued viability and decisiveness of offensive doctrine, on the other. In this confusing context, preexisting institutional and cognitive biases toward the offensive became the only available means with which German officers could interpret evolving military trends with relative certainty, leading them to bet everything on the rapid decisiveness of offensive operations on land and major naval engagements at sea. To avoid such an outcome today and facilitate more prescient innovation, this paper recommends improvements to U.S. military training, education, and career trajectories.

Introduction

Military innovation in peacetime has long been a topic of great concern for scholars and policymakers alike. Rarely are the stakes so great, and the prospects of success so daunting. While technological, operational, and organizational trends in military affairs are constantly evolving—thereby complicating the ability to predict the future of warfare—the geopolitical actor that best envisions and prepares for that future can often seize a first-mover advantage in the next war.¹ Today, the complexity of adopting and integrating emerging technologies like artificial intelligence, quantum computing, and hypersonic weapons has raised concerns about the United States’ readiness for a

potential conventional war with great-power competitors China or Russia. Therefore, leading figures in academia and the U.S. Department of Defense (DoD) are actively mining military history for lessons about peacetime innovation that are applicable to contemporary security challenges.² The Interwar Period between World Wars I and II, for example, when Germany pioneered modern armored warfare and the United States transformed naval and amphibious combat, is one of the most popular Revolutions in Military Affairs to study because it was a resounding success.³ However, there are two problems with the existing literature on innovation: 1) it primarily focuses on technological innovation at the expense of the operational,

doctrinal, and organizational changes, as well as the historical learning, necessary to leverage such technology; and 2) it is overly biased toward success, even though the primary concern among policymakers is failure.

Therefore, this paper posits that the pre-World War I period deserves greater attention as a case of innovation failure. While this disastrous conflict is already essential to the academic literatures on both the offense-defense balance and the causes of war, it is often neglected in the literature on military modernization in peacetime.⁴ The primary failure among European armies prior to World War I was a strong bias toward offensive operations and decisive battles (i.e., the “cult of the offensive”), while the conflicts of the late 19th and early 20th centuries were increasingly revealing a shift toward defensive advantages.⁵ However, the most disturbing feature of this period was that many of the belligerents—especially Germany—had already anticipated these defensive trends based on close study of the wars at the time, and yet they *still* believed that their prewar offensive doctrines were not only possible, but preferable.⁶ Yet on the battlefields of World War I, these doctrines produced bloody stalemates, trench warfare, and attrition on the Western Front, as well as a lack of decisive strategic effects on the more maneuverable Eastern Front. Similarly, European navies expected to achieve decisive strategic victories in major battleship engagements at sea, rather than adequately preparing for the smaller-scale naval action necessary for maintaining or undermining long-term blockades.⁷ This inability to innovate novel operational and tactical approaches before World War I was not a failure of technological adoption, but rather *a failure of historical learning and a failure of vision*. And most importantly, it is a warning for policymakers and military

planners today. If the professional officer corps of those pre-World War I states—who were often astute students of military history—failed to grasp the ‘right’ lessons from conflicts like the American Civil War, the Franco-Prussian War, the Boer War, the Spanish-American War, the Russo-Japanese War, and the Balkan Wars, then it is entirely possible that current DoD officials can overlook or misinterpret the lessons of today’s conventional conflicts like the Second Nagorno-Karabakh War and the Russo-Ukrainian War, thereby laying the foundation for failure in the next great-power conflict. Therefore, this paper strives to answer the following question: why did the European militaries—particularly Germany—fail to learn the right lessons prior to World War I?

In addressing this question, many political scientists paint German military officials such as Generals Helmuth von Moltke, Alfred von Schlieffen, and Helmuth von Moltke the Younger—the architects of German offensive operations in the army—and Admiral Alfred von Tirpitz—one of the leaders of German naval modernization—as largely irrational or at least short-sighted. Indeed, academics attribute Germany’s failure to almost inevitable structural processes such as: the inability of these military officials to adapt to systemic technological trends that favored only defensive operations; institutional biases toward offensive operations despite their “operational infeasibility”; shattered civil-military relations that did not sufficiently constrain offensive-minded military leaders; or ambitious political objectives and binding alliance commitments that tied the hands of military leaders.⁸ These arguments are premised on the idea that defensive trends were so obvious that only structural processes could have prevented these men from recognizing and adapting to the technological circumstances of the time.

However, a closer historical inspection of the German General Staff and naval leadership reveals a more complicated story. Upon evaluating several of the wars prior to World War I—many of which served as case studies for German military planners—it is evident that there were not any uniform ‘lessons learned’ about the future of warfare. Rather, the problem was that wars ranging from the American Civil War and Franco-Prussian War to the Spanish-American War and Russo-Japanese War bore a variety of conflicting lessons—and the primary tension was between the increasing potency of defensive firepower on the one hand, and the continued viability and decisiveness of offensive doctrine on the other. Indeed, offensive operations had achieved major strategic victories in all those conflicts, albeit at great cost, despite the defensive advantages accrued by artillery, rifles, and field fortifications. And major naval engagements often decisively complemented these offensive ground operations. It is easy in hindsight to distinguish the ‘right’ lessons of those conflicts (e.g., the reign of artillery, the necessity for combined arms and decentralized command, and the difficulty in achieving decisive results on land or at sea) from the ‘wrong’ lessons (e.g., the ability of offensive initiative to prevail through superior morale, advanced preparations, and operational envelopment)—but only because ‘right’ and ‘wrong’ are judged in accordance with how appropriate those lessons were for the eventual World War I. In reality, however, all of those lessons were equally true at the time, and German military planners were faced with the unenviable task of using those cases as historical analogies to choose the right lessons and extrapolate the relevant trends for the next major continental war—without understanding in advance how those conflicts would be similar to, and different than, the Great War. Unfortunately, they were not confronted

with evidence that was clear and consistent enough to disabuse them of their prevailing offensive vision of war.⁹

It is only in this ambiguous historical context that scholars can appreciate the institutional and cognitive limitations which biased European armies toward offensive, decisive engagements. For the most part, German military planners were not irrational; rather, they were confused by a variety of conflicting lessons about the future of warfare. When confronted by this environment, they had little choice but to remain tied to their offensive vision due to preexisting institutional and cognitive biases that had conditioned them to prefer the offensive as the best available means for achieving decisive results. Among the ‘lessons learned’ from the conflicts of the era, these institutional and cognitive biases led them to prioritize and ‘cherry-pick’ the lessons that were most in accordance with their offensive vision of warfare (i.e., the ‘wrong’ lessons, in hindsight)—while making only minor adjustments to accommodate the more important lessons (i.e., the ‘right’ lessons) about defensive firepower.¹⁰ This led to flawed assumptions, insufficient preparations, and unrealistic expectations regarding the prospect of decisive victory both on land (through offensive operations) and at sea (through major naval engagements)—thereby confounding the offensive Schlieffen Plan which was to serve as their war plan for a two-front war with France and Russia. And poor civil-military relations did not pressure the military to change these outdated views.¹¹ Thus, a rational response to confusing ‘lessons learned’ produced irrational decisions.

Ultimately, through the thesis above, this paper makes a novel contribution to the innovation literature by: 1) analyzing World War I as a case of innovation failure, rather

than focusing on a successful case like the Interwar Period; 2) exploring innovation through the lens of historical ‘lessons learned,’ rather than solely through technological adoption; and 3) blending the political science focus on structural factors (i.e., systemic technological trends, institutional and cognitive biases, civil-military relations, etc.) with a historical focus on the state and context of military art and science prior to World War I, especially as individual decision-makers perceived them at the time (i.e., in the form of ‘lessons learned’).¹² Accordingly, this paper argues that the structural factors identified by political scientists are not a primary cause, nor a sufficient cause, of the offensive bias—rather, they are still necessary causes, but are secondary to the presence of conflicting ‘lessons learned’ from the wars of the time. Indeed, it was the difficulty of grappling with these lessons that led German military planners to revert to their preconceived offensive biases. From this perspective, institutional and cognitive biases are not so much a hindrance to rationality as much as they are the only recourse for decision-makers struggling to decipher key trends.

The paper is organized as follows. First, in order to explore this era of industrial-age warfare and establish the context in which German military planners evaluated history, this paper begins with an operational analysis of the major lessons from three influential wars before World War I: 1) the Franco-Prussian War, 1870-71; 2) the Spanish-American War, 1898; and 3) the Russo-Japanese War, 1904-05. It would be ideal to include other conflicts like the American Civil War, the Boer War, and the Balkan Wars, which also shaped perceptions of military trends in the 50 years preceding the Great War; however, limited space prohibits this. Accordingly, the three case studies above were chosen using John Stuart

Mill’s “Method of Agreement”—since they reflect wars in three different theaters (i.e., Europe, the Americas, and Asia, respectively) between three different dyads (i.e., France-Prussia, Spain-America, and Russia-Japan, respectively), any common ‘lessons learned’ among such different cases would be particularly strong and therefore apparent to pre-World War I military planners in Germany.¹³ Moreover, these three cases were studied by German military commanders to varying extents: 1) the Franco-Prussian War was examined extensively by both Moltke the Elder, who reflected on ‘lessons learned’ to continually adapt his war plans for a future great-power conflict, and Schlieffen, who used it as the basis for wargames, staff rides, and studies of tactical and strategic problems; 2) Schlieffen studied the Russo-Japanese War to explore the changing technological character of warfare and the consequences for Russian military readiness, but did not scrutinize the operational and tactical details to the same extent as the Franco-Prussian War; and 3) the Spanish-American War was largely neglected by senior leaders, but it was observed and reflected upon by more junior German naval officers in the Philippines.¹⁴ Second, the paper then analyzes why Germany failed to learn the ‘right’ lessons—first by comparing the ‘lessons learned’ (i.e., the ‘wrong’ lessons about the viability of the offensive) and the ‘lessons neglected’ (i.e., the ‘right’ lessons about defensive firepower); then by comparing the three case studies above to World War I in order to demonstrate why these lessons were so inconsistent; and finally by exploring the institutional, cognitive, and civil-military factors which biased German officers toward offensive doctrine within this context. While the paper seeks to provide insight into all of the European armies prior to World War I, it focuses on Germany specifically due to

limited space. Germany was chosen over France, Britain, Russia, and Austria-Hungary because Germany is often blamed for causing the war, and the political pressure to act exerted by the rigid mobilization timelines of the Schlieffen Plan is considered a contributing factor.¹⁵ But more importantly, it was Germany's decisive success in the Franco-Prussian War that served as a model of modern warfare in the late 19th and early 20th centuries, which was adopted by the other European states.¹⁶ Therefore, it will be instructive to track how Germany perceived the evolution of warfare from the Franco-Prussian War to World War I. Third and lastly, the paper concludes with policy implications for the United States today in order to improve historical learning, mitigate institutional and cognitive biases, and foster innovation in preparation for the next great-power war.

Case Study #1: The Franco-Prussian War

The Franco-Prussian War of 1870-71 was the third and final German War of Unification, as Prussia used external war with France to rally and consolidate disparate German states into a new nation. Chancellor Otto von Bismarck and Chief of the General Staff Helmuth von Moltke identified the French army as the enemy's Clausewitzian "center of gravity"—"the hub of all power and movement, on which everything depends"—and Moltke devised a relatively simple strategy to destroy it: converge with superior manpower against the French army, wherever it was.¹⁷ The sequence of military operations can be organized into three distinct phases. First, in July 1870, Moltke's superior prewar mobilization plans allowed Germany to rapidly field a massive army and prevent a French spoiling attack across the Rhine.¹⁸ Second, from July to September 1870, Prussia conducted offensive operations and

achieved decisive success against the French army. After a series of encounter battles at Spicheren, Froeschwiller, Colombey, and Vionville, the Prussians engaged one of the two French armies at the Battle of Gravelotte-St. Privat on August 18, 1870, and despite suffering heavy casualties, compelled the French to retreat to a fortress at Metz—to which the Prussian army laid siege until the French surrender in October.¹⁹ The second French army attempted to relieve the besieged forces at Metz but "was intercepted, driven against the Belgian frontier at Sedan, and forced to surrender on September 1"—representing the end of conventional combat operations.²⁰ The final phase was the Prussian siege of Paris from September 1870 to January 1871. Despite Prussia's overwhelming conventional victory, an insurgency emerged in the French provinces to resist the occupying Prussian forces, while the new Government of National Defense in Paris continued to hold out despite the siege.²¹ While Moltke sought to continue prosecuting a war of extermination and occupation, Bismarck wanted to end the war quickly due to deteriorating Prussian logistics and morale. Therefore, in order to compel surrender, Bismarck prevailed upon the army to execute a strategic bombardment of Paris—and while the bombardment itself did not secure victory, it motivated the Parisians to make one last desperate attack against their besiegers at Buzenval, which failed miserably and convinced the French populace of the need to surrender.²² Bismarck then negotiated a peace settlement with the new French government.

The first 'lesson learned' from this conflict was that superior preparation was essential to operational success on the modern battlefield. Moltke was able to execute a relatively simple strategy of concentration and envelopment because his prewar mobilization plans generated an army far

larger than that of France (740,000 vs. 350,000 troops) in a shorter period of time, thereby securing a first-mover advantage.²³ By drawing troops from local districts, maintaining a corps organization in peacetime that would match wartime units and maneuvers, and leveraging the relatively new technology of railroads, “the Prussian general staff proved that it had mastered the problems of mass organization and movement.”²⁴ This superior planning was only made possible by the revolutionary institution of the Prussian General Staff. As the “brains and nerve center of the army,” it sought to mitigate the Clausewitzian chance and uncertainty inherent in modern warfare by preparing mobilization timelines and initial concentration of forces far in advance of hostilities, since these elements could be calculated.²⁵ The French army, which had not yet completed its own military reforms, was woefully unprepared.²⁶

This superior preparation enabled novel operational concepts, thereby creating new possibilities for the offensive in spite of the era’s increasing defensive advantages. Railroads and improved roads allowed armies to maneuver separately and then concentrate on the field of battle, rather than being massed days in advance, as in the Napoleonic era.²⁷ Thus, concentric operations to converge upon the enemy using exterior lines of operation became just as advantageous as isolating separate enemy columns using interior lines, and the Prussian army could alternate between either of these operational approaches depending upon the circumstances—thereby enabling a flexible “strategy of expedients” rather than a strict ascription to Jominian principles.²⁸ Moltke observed that *time* was now more important than *position*—as long as a commander can seize the initiative, it would be possible to exploit either interior or exterior lines to close upon an enemy quickly, strategically and operationally

envelop their flanks at any distance, and nullify the advantages of their defensive position and technology.²⁹ But this was only made possible by improved communications, primarily through telegraph, which enabled a decentralized command structure of mission command, or “*Auftragstaktik*.”³⁰ Due to Clausewitzian chance, uncertainty, and probability on the battlefield, Moltke believed that “a dogmatic enforcement of the plan of operations was a deadly sin and great care was taken to encourage initiative on the part of all commanders, high or low.”³¹ Therefore, while the Prussian General Staff centralized control over the initial concentration and maneuver of forces in the Franco-Prussian War, they decentralized tactical control over individual army groups and formations. This decentralization yielded the initiative to Prussian field commanders, who were able to march to the sound of the guns and rapidly converge upon the enemy without waiting for orders.³² While this resulted in some friction—primarily through unnecessary encounter battles—it made a quick offensive envelopment of the enemy possible. The result was a conventional victory over French forces.

Of course, there were troubling ‘lessons learned’ as well. Defensive advantages were increasingly undeniable. Armed with the superior *Chassepot* rifle, the French inflicted severe casualties upon Prussian advances during the Battle of Gravelotte-St. Privat. One assault in particular produced 8,000 Prussian casualties within 20 minutes, and it was clear that dense Napoleonic waves of attacking infantry would no longer be possible—instead, dispersal into skirmish lines was necessary.³³ But these lessons were undermined by the fact that the offensive was still possible. Moltke’s doctrine of converging upon and enveloping the enemy’s flanks allowed Prussians to mostly avoid deadly frontal attacks—and

this approach succeeded in driving the French from their fortified positions at Gravelotte-St. Privat, and surrounding and annihilating them at Sedan.³⁴ And while some technological trends favored the defensive, others—like railroads, telegraph, and even artillery when used in advance of an attack—seemed to favor the offensive.³⁵ More concerning, however, was the inability to achieve militarily decisive results, despite offensive operational success. Even after French conventional forces were beaten, the French national spirit was not. In the face of a French insurgency that threatened to break Prussia's siege of Paris, it was clear that Prussia had reached its "culminating point of victory."³⁶ The fearsome Prussian army was suddenly demoralized, insufficiently supplied, and vulnerable—and if Moltke was allowed to continue prosecuting his war of extermination, ultimate victory may have eluded the Prussians. This situation on the ground was exacerbated by France's control of the sea, which allowed them to import supplies from abroad and sustain the insurgency.³⁷ Only Bismarck's compelling approach and adroit diplomacy produced a decisive political victory before the military situation became worse. Thus, it was clear that decisive victory necessitated connecting military success to political success.³⁸ In an era of rising nationalism and the foreboding prospect of absolute and existential war, it was increasingly apparent that enemy armies were not the true center of gravity—rather, it was the enemy's national will, which would be considerably harder to break. Unfortunately, however, the subsequent cases demonstrate that this lesson about the difficulty of decisive victory was neglected.

Case Study #2: The Spanish-American War

The Spanish-American War of 1898 was a major inflection point in the history of American empire, yielding colonies and great-power status to the rising United States. It was a global conflict, fought in two theaters: 1) the Atlantic Ocean, particularly in Cuba and Puerto Rico; and 2) the Pacific Ocean, particularly in the Philippines. U.S. planners identified the Spanish fleets in these respective oceans as the enemy centers of gravity since they were the primary means by which Spain effected its remaining imperial control and reinforced its colonial armies. Therefore, the United States sought to use its better-modernized and equipped navy as the primary power projection force to pin down or destroy the two Spanish fleets, thereby establishing command of the sea and enabling U.S. invasion forces to achieve victory in Cuba and the Philippines, in tandem with Cuban and Filipino rebels. The war proceeded in three phases. First, while the U.S. army struggled to mobilize, the U.S. navy blockaded the northern coast of Cuba in April 1898, and Commodore George Dewey's U.S. Asiatic Fleet decisively destroyed Spain's fleet at Manila Bay in the Philippines on May 1.³⁹ This early naval success accelerated the mobilization timeline for the army, and although it was unprepared, it entered the second phase: difficult joint operations in Cuba from May to July 1898.⁴⁰ With Spanish naval forces pinned down at Santiago de Cuba, the U.S. army landed at Daiquirí and attempted to lay siege to Santiago, but suffered significant casualties in the Battles of San Juan Hill and El Caney on July 1. However, victories in these battles laid the foundation for the third and final phase: strategic success from July to December 1898. The Spanish fleet was destroyed as it tried to break out from Santiago; Puerto Rico was invaded in "a

nearly bloodless campaign of rapid maneuver”; and the Spanish garrison in the Philippines was compelled to surrender.⁴¹

Despite American victory, there were some painful ‘lessons learned’ from this conflict. In contrast to Prussia’s ruthless efficiency and first-mover advantage in the previous case, the United States was unprepared for modern warfare. The army’s readiness was atrocious—upon declaration of war in April 1898, there were only 28,000 regular soldiers, and it required months to mobilize, train, and equip a volunteer force that would eventually number 290,000.⁴² The navy was better prepared due to recent modernization efforts by Assistant Secretary of the Navy Theodore Roosevelt and his predecessors, but it lacked the means to implement a full blockade of Cuba, thereby creating gaps.⁴³ More importantly, this case demonstrated the necessity of a general staff by its absence. The United States suffered from a poor chain of command, an inability to coordinate joint operations and combined arms, and a lack of an institutional basis for resolving disputes among military services and commanders.⁴⁴ Consequently, the army and navy often implemented their own respective war plans, failed to immediately exploit naval success in the Philippines, and lacked logistical preparations for Cuba.⁴⁵ Most egregiously, in the absence of a general staff, interservice and personal rivalry between General William Shafter and Rear Admiral William Sampson resulted in an inability to decide upon a military aim in Cuba (i.e., destruction of the Spanish fleet at Santiago, or the siege and occupation of Santiago itself).⁴⁶ Fortunately, the United States was so much stronger than Spain that these weaknesses did not produce defeat. However, they impeded success and even opened opportunities for potential Spanish counterattack, especially if Spain had tried to spoil the amphibious landings at Daiquirí.⁴⁷

At sea, the Spanish-American War demonstrated the viability of theorist Alfred Thayer Mahan’s views on naval warfare. As a result of extensive modernization, the United States fielded fleets of faster and better-armored battleships and steel-plated cruisers.⁴⁸ In accordance with Mahanian strategy, the United States prioritized destroying Spanish fleets in order to establish sea control and economically strangle the enemy, while leveraging concentration, interior lines of operation, and naval logistical preparations like coaling stations to achieve success.⁴⁹ The ability to outrange and outgun the Spanish fleets resulted in decisive victories at Manila Bay and Santiago.⁵⁰ Despite this success, the lack of amphibious doctrine and coordination between the army and navy nearly ruined a strategy that demanded joint operations.⁵¹

On land, the results indicated strong advantages for the defender, which had increased since the Franco-Prussian War.⁵² At the Battles of San Juan Hill and El Caney, artillery and rifle fire by entrenched Spanish positions inflicted severe casualties upon the advancing Americans—at El Caney, “American commanders were at a loss to explain how 520 Spaniards could resist 5,400 Americans for more than nine hours.”⁵³ While U.S. black powder ammunition made its cannons an easy target, Spanish smokeless powder heavily impeded U.S. counterbattery fire. And U.S. deficiencies in artillery preparation and combined arms coordination—especially at San Juan Hill, where advancing Americans were struck down by friendly artillery fire—served as an ominous warning for the campaigns of 1914.⁵⁴ These trends almost precipitated a failure to achieve decisive breakthrough at the San Juan Heights.

However, like the Franco-Prussian War, the Spanish-American War demonstrated that the offensive was still viable. The

Americans had been conditioned since the Union's 1864-1865 campaigns in the Civil War to believe that sheer numerical superiority and morale could prevail against defensive positions—and these factors helped them persist at the San Juan Heights.⁵⁵ Moreover, once artillery was prepared and firepower superiority was achieved, offensives in Cuba, Puerto Rico, and the Philippines were far more successful. Certain technologies were also viewed as equally offensive in nature as they were defensive—ironically, Gatling guns (a precursor to World War I-era machine guns that were entirely defensive) ensured success for the U.S. advance on San Juan Hill.⁵⁶ And lastly, for units that decentralized command authority, this war demonstrated the effectiveness of American “extended order” (based upon Prussian/German mission command, or *Auftragstaktik*) to seek tactical advantages and avoid frontal assaults.⁵⁷

Case Study #3: The Russo-Japanese War

The Russo-Japanese War of 1904-05 was a struggle for imperial supremacy in East Asia between a declining Russia and a rapidly modernizing Japan. Japanese forces had equivalent technology and better training due to their ties with Germany and Britain, but Russia was still a daunting power with superior resources and manpower reserves. Therefore, Japanese military planners like Marshal Oyama Iwao, General Kodama Gentaro, and Admiral Togo Hiroheichi decided to establish sea control early in the conflict and then land an invasion force to strike at the Russian army in Manchuria, based at Liaoyang. Given that Russian forces were operating far from their capital and from the majority of Russian forces in Europe, their Manchurian army was likely their center of gravity in the East, and its defeat would ideally compel Russian

policymakers to decide that sending a new army to the East would not be worth the cost.⁵⁸ The war proceeded in three phases. First, a surprise Japanese naval strike on Port Arthur in February 1904 divided Russia's Port Arthur and Vladivostok fleets, thereby establishing command of the sea—while unimpeded landings of Japanese troops at Inchon and a major land victory at the Battle of the Yalu in April 1904 helped seize the initiative and provided an early psychological advantage.⁵⁹ However, the next phase involved greater difficulty as Japanese forces sought to eliminate Port Arthur as a threat and simultaneously advance to Liaoyang. The loss of Japanese battleships in May and the failure to break through the Port Arthur defenses in August threatened to delay operations. Meanwhile, the Battles of the Mo-tien Pass, Makura Yama, and Liaoyang from July through September were *tactical* victories for Japan, but they incurred heavy casualties due to modern firepower and failed to achieve decisive *strategic* victory due to Russia's ability to replace losses.⁶⁰ Fortunately for Japan, the final phase demonstrated success. The eventual collapse of Port Arthur and the decisive victories on land at Mukden and at sea at Tsushima in early 1905 destroyed Russian morale, leading to revolt at home and an eventual peace agreement.⁶¹

During the Russo-Japanese War, defensive firepower demonstrated its fullest potential. Indeed, at the Nanshan, at the Mo-tien Pass, and especially during the ground assault on Port Arthur, the “shrapnel fire [of artillery] as well as infantry rifle-fire made any movement within sight and range of the enemy out of the question, and put an end to all idea of close formations maneuvering on the battlefield.”⁶² Indirect fire in particular was revolutionary. As a result, Japan's advance on land was costly, bloody, and time-consuming. However, consistent with the preceding case studies, Japanese

advances prevailed in almost every battle. Like Moltke and the Prussian army, Japan constantly seized the initiative through aggressive offensives, thereby setting the tempo of operations, fighting on ground of its own choosing, paralyzing Russian decision-making and morale, and preventing Russian commanders from leveraging their superior numbers.⁶³ Thus, despite having the same technology and inferior numbers, Japan made the offensive possible—primarily through a variety of tactical innovations and inherent advantages. First, artillery preparation allowed the Japanese to achieve firepower superiority prior to advancing. Second, during engagements like the initial naval strike on Port Arthur and the Battles of the Yalu, Nanshan, and Sha Ho, Japanese commanders relied on deception (e.g., through feints) and tactical surprise (e.g., through night attacks) to circumvent the defensive advantages of modern firepower.⁶⁴ Finally, superior Japanese morale—even “fanatical courage”—ensured perseverance in the face of heavy casualties.⁶⁵

However, despite the incredible extent of these tactical victories, decisive strategic victory remained elusive. After the Battle of Mukden, the Japanese had reached their culminating point of victory. The Russian army was badly beaten and in retreat, but not destroyed; it continued to replace its losses. Japan lacked the manpower and supplies to pursue it—and despite the fact that sea control was supposed to be an operational enabler for the ground offensive against the enemy center of gravity in Manchuria, command of the sea did little to ameliorate this poor logistical situation.⁶⁶ Mukden was not nearly as ‘decisive’ as is popularly believed—the prospect of a much longer war, which Japan could not sustain, reared its ugly head. In what amounted to be a prescient glimpse into the grim future of World War I, the tactical defeat and even

destruction of enemy armies did not produce victory as long as the enemy’s national will persisted. In such an era, no single army could be the center of gravity. Decisive political victory for Japan only came when Moscow started feeling the domestic pressure of the Revolution of 1905, and when the United States pressured both belligerents to cease hostilities.⁶⁷

Like the Spanish-American War, the Russo-Japanese War demonstrated the importance of Mahanian theories about sea control. Command of the sea ensured a continuous offensive campaign on land, without fear of counterattacks against the Japanese homeland. Additionally, Admiral Togo’s ability to both concentrate his fleet and leverage interior lines of operation against an overstretched opponent allowed him to divide and individually destroy Russia’s Port Arthur and Vladivostok fleets early in the war, and eventually the 2nd Squadron of the Russian Pacific Fleet, which had taken months to arrive from the Baltic Sea only to be destroyed at the Battle of Tsushima.⁶⁸ However, there were also troubling lessons. Battleships—the capital ships so prized by Mahan and other navalists—were exceedingly vulnerable to mines and torpedoes.⁶⁹ Moreover, despite the Japanese attempt to coordinate navy and army strategies, command of the sea was not sufficient to mitigate the aforementioned logistical difficulties on land.⁷⁰ And while the Battle of Tsushima was widely portrayed as a decisive naval engagement like the Battle of Trafalgar a century before it, it was not very ‘decisive’ after all—it was a victory over inferior Russian ships, and it was not as important in ensuring Russian capitulation as the domestic Revolution of 1905.⁷¹

Germany: Lessons Learned and Neglected Prior to World War I

'Right' and 'Wrong' Lessons

Why did the German General Staff learn the 'wrong' lessons from the wars of the late 19th and early 20th centuries? As demonstrated by the three cases above, there were no 'right' or 'wrong' lessons at the time. There were consistent lessons across all three cases, but ironically the lessons of each case were not logically consistent with each other—namely, while defensive firepower was increasingly destructive, the victors were all able to use offensive operations to achieve major victories. In every case, the trends that supported a narrative of defensive warfare were juxtaposed with the trends that supported a narrative of offensive warfare—and it was not clear whether warfare was truly *defensive*, while offensive operations remained an exception to the norm (i.e., the 'right' but neglected interpretation); or whether warfare was still truly *offensive*, while defensive firepower was a slight modification to traditional views (i.e., the 'wrong' but accepted interpretation at the time). 'Right' and 'wrong' lessons can only be determined according to how applicable they eventually would be to the attrition of World War I.

In hindsight, there are several significant lessons from the three case studies that were very applicable to World War I—these lessons were 'right,' but they were neglected at the time. First, modern artillery, rifles, and machine guns were rendering offensive advances, especially over relatively open terrain, increasingly untenable. And most importantly, these trends were becoming stronger with every successive case. Indeed, there were two waves of defensive technology in the 19th century. The first wave in the middle of the century yielded "mass-produced, rifled, breech-loading

firearms" and incrementally better artillery, resulting in increased use of defensive trenches and offensive skirmish lines in the American Civil War and the Franco-Prussian War.⁷² However, at the turn of the century, the advent of new technologies like indirect, recoiling, and quick-firing artillery, along with smokeless powder, high explosive rounds, and machine guns, resulted in a more decisive defensive advantage.⁷³ This was evident in the increasing volume, range, and accuracy of fire in the Spanish-American and Russo-Japanese Wars. These realities lead to a second neglected lesson: while operational and tactical offensives were not necessarily dead (as evident by the case studies), they necessitated far greater care. Indeed, European powers prior to World War I should have better emulated the Japanese by adopting certain tactical measures, such as: artillery preparations for firepower superiority, along with better-combined arms coordination between infantry and artillery; dispersal of infantry into skirmish lines; infiltration and siege tactics rather than frontal assaults; and decentralized mission command to allow individual commanders the opportunity to exploit potential breakthroughs.⁷⁴ But all of these potential adjustments point to a third, more pessimistic lesson: while the offensive might have remained possible, it was unlikely to be decisive in and of itself. Given nationalist sentiment and trends toward total war, even if a state's armies were destroyed, "a resolute government with untapped resources at its disposal normally could raise other forces and continue to fight."⁷⁵ Annihilation by offensive means was no longer possible—limited wars combining offensive and defensive tactics were likely a better approach to achieving political victory.⁷⁶

In the 50 years preceding World War I, the Chiefs of the German General Staff—

Moltke the Elder, Schlieffen, and Moltke the Younger—largely respected these trends. Indeed, Schlieffen believed that the Russo-Japanese War portended “more instances of trench warfare” in the future, where mass attacks and numerical superiority would be insufficient “to overcome the murderous fire of an entrenched enemy.”⁷⁷ Like their contemporaries in other European armies, German strategists “were neither blind to the likely consequences of their attacks nor ill-informed about the defensive powers of twentieth-century weapons.”⁷⁸ However, in evaluating these case studies, they consistently found proof “that an attack against an enemy’s front can, despite all difficulties, succeed very well.”⁷⁹ Therefore, their primary ‘lessons learned’ from the wars of the time were various mechanisms to keep the offensive not only viable, but *decisive* in the face of defensive advantages. They believed that offensive initiative could prevail under three conditions. First, it had to be fast enough at the strategic and operational levels to envelop enemies before they had time to build field fortifications and trenches, thereby corresponding to Moltke’s prioritization of time over position. This lesson would imply a preference for both rapid mobilization, as in the Franco-Prussian War, and control over time itself on the battlefield. For the latter, Moltke preferred a flexible “strategy of expedients,” by which decentralized mission command would allow officers to quickly strike at enemy weak points in a series of encounter battles; while Schlieffen rejected mission command and preferred set-piece battles, or “*manoeuvre a priori*,” to establish strict and rapid timelines for attacking the enemy.⁸⁰ The second condition—conceived by Schlieffen in response to the increasing army sizes, dispersal of attacking infantry, and the advent of multi-day battles evident in the Franco-Prussian and Russo-Japanese Wars—was the expansion of the battle front

into a ‘complete battle’ (*Gesamtschlacht*) across the entire theater, where frontal assaults could be avoided and the enemy could be enveloped at various weak points.⁸¹ And the third condition for decisive offensives was that they were well-coordinated and motivated at the tactical level. Given that the Prussians had defeated the better-equipped French, the Americans had defeated the better-equipped Spanish, and the Japanese had defeated the more numerous Russians, the German General Staff believed that the enemy’s defensive positions and weapons could be overcome by a variety of evolutionary (rather than revolutionary) measures and adjustments: continuous maneuver to envelop the enemy; artillery preparation to achieve firepower superiority; dispersal of advancing forces; and most importantly, vigorous morale.⁸² The final ‘lesson learned’—which was especially important for a new naval power like Germany—was that sea power could be decisive in itself, especially in the construction of empire.⁸³ Kaiser Wilhelm II strongly believed in Mahanian ideas about sea control, and his personal investment in naval modernization as a key tenet of Germany’s *Weltpolitik* imbued the navy with greater prestige than it otherwise would have enjoyed in a more conservative and aristocratic land power like Germany.⁸⁴

Therefore, Germany counted on the offensive Schlieffen Plan (subsequently modified by Moltke the Younger) to achieve success by envelopment, using many of the same concepts that Moltke the Elder had refined to win the Wars of German Unification—while simultaneously leveraging a modernized navy to prevail at sea. This vision of warfare was a failure, not so much because it relied upon viable offensives—indeed, as the Eastern Front of World War I would demonstrate, offensives and maneuvers were still possible—but rather because the vision bet everything

upon the probability of the offensive achieving decisive victory on land and sea, despite trends that were proving just the opposite.

Imperfect Cases and Conflicting Conclusions

Thus, the German General Staff had chosen the ‘wrong’ lessons learned. This outcome still seems surprising, as the General Staff was an institution that prided itself on historical learning.⁸⁵ This section will explore why the learning environment was so confusing by answering the following questions: why were the ‘lessons learned’ from previous cases so inconsistent in their applicability to World War I; and why did they leave room for misinterpretation? This section aims to disprove the accounts that blame German (and European) military officials for their lack of recognition of supposedly ‘obvious’ defensive trends.

While the three cases in this paper shared similarities with the eventual Great War, there were some key differences that explain why offensives were more viable in the discussed cases than in World War I. First, the three case studies all exhibited unequal distributions of power and skill. The Prussian, American, and Japanese victors were able to succeed against the defensive advantages of their enemies, in part, because they were stronger and more competent. Indeed, French military readiness was extremely poor and they relied on a warrior ethos rather than operational and logistical planning; Spain was not sufficiently powerful or predisposed to seize the initiative and spoil slowly developing U.S. operations; and Russian forces were so incompetent at every stage of the conflict that a full list of their operational and tactical mistakes would merit an extensive research project in its own right.⁸⁶ In World War I, by contrast, many of the belligerents were more equally matched—they had all

learned the importance of mobilization and readiness, and they had significant resources at their disposal.⁸⁷ Therefore, offensives could no longer prevail based on strength and competence alone.

Second, the three case studies were mostly limited wars. In the Spanish-American and Russo-Japanese Wars in particular, the vanquished belligerents did not give up because they could no longer fight, but rather because it was no longer worth the struggle. And even the Franco-Prussian War, which was relatively existential from the French perspective, was still limited by Bismarck’s desire to achieve rapid victory and moderate territorial and security concessions. Therefore, the *political* decisiveness of these limited wars masked a dearth of *military* decisiveness—battles like Sedan, Manila Bay, San Juan Hill, Mukden, and Tsushima were only militarily ‘decisive’ in hindsight. Like blitzkrieg in World War II, offensive operations in these wars were most “[e]ffective against poorly prepared and often poorly commanded adversaries and within a limited theater of operations... [and] could not be sustained over longer distances or bring final victory against an enemy who could trade space for time and disposed of ample reserves.”⁸⁸ The enemy’s military power was not yet broken—they just gave up. This surrender would not be the case in an existential, total war like World War I, where national will had supplanted enemy armies as the true center of gravity. Thus, even if the Schlieffen Plan had worked operationally, it was unlikely to achieve strategically and politically decisive effects.⁸⁹

Third, the terrain was different. For the Spanish-American and Russo-Japanese Wars, the theaters were spread out over greater distances, complicating the ability of a more distant country (Spain and Russia, respectively) to replace losses, thereby

allowing the United States and Japan to achieve more ‘decisive’ results in a short period of time. But on the Western Front of World War I, the terrain was so narrow and troop density was so high that frontal assaults could not be avoided, complicating Moltke’s and Schlieffen’s planned offensive envelopment strategy in the absence of vulnerable flanks to attack.⁹⁰ Additionally, because the Spanish-American and Russo-Japanese Wars were predominantly fought on islands and peninsulas in the Atlantic and Pacific Oceans, naval warfare was incredibly important—indeed, navies were essential for transporting and supplying troops, thereby serving as an operational enabler to ground forces fighting far away from their capitals and logistical bases. Sealift capabilities ensured that warfare was more mobile, and flanks on land were more vulnerable to amphibious landings. However, in a European land war like World War I, operational maneuvers and critical supply lines would not be as dependent on command of the sea. While economic strangulation through a naval blockade could be effective (and would eventually play a critical role in compelling Germany to surrender in 1918), it would require a significant amount of time—far more than that anticipated by Mahan and the other advocates of naval ‘decisiveness’—because essential supplies were already accumulated in the theater. Unlike the Spanish-American and Russo-Japanese Wars, a land war in Europe would not feature a rapid and decisive role for European navies—and while naval action could be helpful, it would need to be tied to ground operations through better joint coordination, which did not exist between the German army and navy prior to World War I.⁹¹

Lastly, while these cases portended technological trends that would feature heavily in World War I, these trends had not yet reached their zenith. The technology of

the time was continuously changing, and “[i]t was hotly contested, among military experts, whether these developments on the whole favored the attack or the defense.”⁹² For example, improvements in artillery armed the defender with devastating firepower, but effective artillery preparation by advancing forces like the Japanese allowed them to prevail against Russian defensive positions; while machine guns would eventually cut down troops crossing ‘No Man’s Land’ in World War I, their predecessor—the rapid-fire Gatling gun—enabled advancing U.S. forces to lay suppressive fire against the Spanish position at the San Juan Heights; and the same railroads and telegraphic communications that enabled the reinforcement of defensive, interior lines in the Great War were used to enable offensive operations by the Prussians and Japanese in their earlier conflicts. As explained by Robert Jervis’s concept of “offense-defense differentiation,” it was difficult to distinguish the inherently defensive or offensive character of these weapons.⁹³ Thus, offensives were still somewhat possible in those earlier case studies—and some technologies were viewed as equally viable for offensive or defensive purposes—because the defensive technologies would continue to grow stronger up until 1914, and their true defensive potential would only become ineluctably clear during the Great War.

All of these differences would eventually magnify the advantages of defensive warfare in World War I, but they are only apparent in hindsight. At the time, it would have been nearly impossible for German military commanders to foresee how the multiple cases available for study were different from the coming Great War—and therefore just as impossible to know which lessons would be most applicable to the future of warfare, and which should be neglected.

Institutional and Cognitive Biases and the Failures of Civil-Military Relations

The absence of clear ‘lessons learned’ meant that military commanders had no choice but to rely on their preconceptions and experiences to interpret the ambiguous world around them. Due to institutional and cognitive biases toward the offensive, these leaders prioritized and ‘cherry-picked’ the lessons that best supported their existing vision of warfare, resulting in both rational and irrational choices.

The literature on institutions reveals that organizations tend to routinize tasks, promote standard operating procedures, and cultivate a specific organizational culture in order to maximize efficiency in the approach to different challenges.⁹⁴ Military institutions in particular are often biased toward offensive doctrine because it allows them to preempt ‘inevitable’ threats, establish a structured environment by determining the time and place to fight, and secure greater organizational autonomy over the conduct of military affairs.⁹⁵ These insights certainly apply to the German General Staff prior to World War I. Indeed, Moltke the Elder ensured standardization so that junior officers could be trusted with decentralized mission command.⁹⁶ Moreover, German officers were strongly biased toward offensive doctrine, decisive victory, and wars of annihilation (*Vernichtungskrieg*, enabled by prostration strategies, or *Niederwerfungsstrategie*) because they had *worked*, and *worked well*, in the General Staff’s formative experiences of the Wars of Unification—particularly the Franco-Prussian War. This vision persisted as theorists and historians like Carl von Clausewitz and Hans Delbrück cautioned that limited wars (*Ermattungsstrategie*) and defensive operations bore certain advantages.⁹⁷ And, more importantly, it persisted even in the face of contradictory

evidence from the Russo-Japanese War, which demonstrated the difficulty of achieving decisive results. Due to the institutional bias toward wars of annihilation, Schlieffen justified this contradiction by arguing that the Japanese were successful in achieving minor breakthroughs due to their offensive approach, but they had failed to achieve decisive results because they did not go far enough (as Moltke had) in annihilating the enemy along all fronts.⁹⁸ Therefore, as offensives continued to succeed in the wars of the time, German military planners were not confronted with sufficient evidence to substantially alter their vision of future warfare. Instead, while Moltke the Elder and Schlieffen recognized the defensive trends that complicated offensive doctrine, they undertook minor, *evolutionary* changes—for example, by making “existing forces more effective”—to accommodate and overcome these defensive trends, rather than *revolutionary* changes to fight in an altogether different way.⁹⁹ Such changes in the name of efficiency are often embraced by organizations, while true reform that runs against the grain of institutional biases is significantly more difficult. Thus, Schlieffen and Moltke the Younger certainly improved the prewar army by integrating emerging technologies and concepts, including heavier and indirect artillery, machine guns, mortars, grenades, modern signal equipment, and motorized vehicles.¹⁰⁰ But they were only adopted in the name of continuing the viability of the offensive—they were ‘cherry-picked.’ Without a new vision for the revolution underway in warfare (which would have required a pairing of offensive and defensive warfare, and an acceptance of limited war rather than decisive battles of annihilation), the potential of these new technologies could never be fully realized.¹⁰¹ This myopia greatly impeded the modern development of combined arms. In 1914, for

example, advancing German soldiers often neglected to leverage machine guns, mortars, and grenades because they seemed cumbersome to their advance, and they were not well trained in their use.¹⁰² They were not at all prepared for the defensive warfare that would define World War I.

German naval doctrine was also shaped by institutional biases. As opposed to the longstanding tradition and ethos of the Prussian (and subsequently German) army, the German navy was young, nationalist, and politically supported by the Mahan-inclined Kaiser.¹⁰³ Given this institutional threat to the army, as well as the young navy's failure to achieve decisive victories in the Wars of Unification, the German General Staff did not establish a role for the navy in the Schlieffen Plan. In order to justify its existence and vie for resources (in accordance with Graham Allison and Philip Zelikow's model of bureaucratic politics), the navy was bureaucratically biased toward Mahanian ideas about the importance of sea control.¹⁰⁴ Thus, they cherry-picked historical lessons about the decisiveness of sea power and procured powerful battleships, even though navalists continually struggled to define what 'decisiveness' meant at sea; there had been only a handful of truly decisive naval battles like Trafalgar and (questionably) Tsushima over the preceding century of warfare; and, even if naval decisiveness was clearly defined and theoretically attainable, by 1914 Germany could not hope to decisively defeat the superior British navy.¹⁰⁵ This bias toward decisive naval victory led Admiral Alfred von Tirpitz and the navy to neglect a better (and more prescient) joint strategy, originally advocated by Chancellor Leo von Caprivi and Admiral Friedrich von Hollman, which would have complemented the Schlieffen Plan on land by protecting the German coastline from blockade—thereby employing the navy in a secondary,

economy-of-force role to prevent the kind of economic strangulation that eventually contributed to German collapse in 1918.¹⁰⁶ Instead, Germany built a warfighting navy that was ill-suited to the land-based terrain and relevant centers of gravity in the European theater, while joint planning remained essentially nonexistent. Thus, due to bureaucratic politics and organizational biases, the navy's conception of decisive victory was divorced from Germany's overall military strategy and operations.

Within this institutional context, there were also cognitive biases that predisposed individual army and navy officers toward the offensive and decisive victory, resulting in unrealistic war-planning assumptions. According to the literature on cognitive biases, "decision-makers are apt to err by being too wedded to the established view and too closed to new information"—especially when the available data offers ambiguous insights and when the individuals are very confident about their theories.¹⁰⁷ The literature on prospect theory also posits that individuals "tend to overweight losses with respect to comparable gains" and thus are "risk-averse with respect to gains and risk-acceptant with respect to losses."¹⁰⁸ Upon applying this literature to the German General Staff, it is evident that German commanders were in the 'worst of all worlds' in terms of their cognitive ability to see alternative futures and test their prevailing theories. Indeed, these officers were confounded by ambiguous and inconsistent 'lessons learned'; shared institutional confidence in the continued viability of decisive victory through offensive doctrine; and were confronted by a geopolitical environment that increasingly threatened the prospect of strategic encirclement by the Triple Entente, thereby rendering their plans for a two-front war less tenable while prompting fears of military and geopolitical loss. This troubling

situation was compounded by the professionalism of the German military, by which officers were trained to accept that they must make the best of a bad geopolitical situation—rather than exercise a recourse to diplomatic or other means which could have improved the threat environment without resorting to war.¹⁰⁹

Since German commanders were not presented with sufficient evidence to change their offensive views, they were compelled to double down on them in order to mitigate uncertainty and avoid potential defeat. Thus, the cognitive flexibility of very skilled German commanders deteriorated over time. For example, in extrapolating from the Franco-Prussian War to plan for a future great-power conflict, Moltke the Elder originally grappled with a more appropriate defensive-offensive war strategy that would begin with an advance into favorable French territory to spoil their mobilization plans, and then force the French to counterattack against newly established German defensive positions. This strategy combined the advantages of both offensive initiative and defensive firepower while seeking limited war aims rather than total victory.¹¹⁰ Moreover, Schlieffen's study of the Russo-Japanese War and the increasing likelihood of trench warfare led him to assume a strategically defensive approach during his last *Kriegsspiel* wargame in 1905.¹¹¹ However, the growing military power of, and entente diplomacy between, Germany's French and Russian adversaries created a more dire geostrategic situation, and the only hope for winning such a two-front war appeared to require the rapid defeat of one of the belligerents.¹¹² Consequently, in such an uncertain environment, the resulting Schlieffen Plan began to rest on increasingly unrealistic assumptions, expectations, and hopes in order to remain viable—no longer respecting the endogenous friction and exogenous chance, probability, and

uncertainty inherent in war.¹¹³ For example, Schlieffen expected that the British Expeditionary Force could be easily defeated, that Belgian and French railroads would be intact for the offensive, that an *ad hoc* logistical system could prevail, that France would not redeploy to counteract the envelopment, and that the racial 'superiority' of the German nation would ensure greater morale in the face of firepower.¹¹⁴ Perhaps most outlandishly, Moltke the Elder and Schlieffen assumed they could control time itself, either through rapid maneuver enabled by mission command or the set-piece battles of the *manoeuvre a priori*, respectively.¹¹⁵

This wishful thinking was perpetuated by a selection bias in the analysis of 'relevant' wars. Schlieffen studied the campaigns of Hannibal, Frederick the Great, Napoleon, and Moltke the Elder (e.g., the Franco-Prussian War) more than he studied the Spanish-American or Russo-Japanese Wars, likely for two reasons related to cognitive bias: 1) older campaigns demonstrated spectacular offensive victories, representing confirmation bias; and 2) Schlieffen preferred cases that he had studied or experienced in earlier stages of his life over more recent wars, representing the "availability heuristic."¹¹⁶ Thus, the criteria for case selection represented attempts to derive certainty from an uncertain learning environment, and avoided the more troubling and mutually reinforcing lessons of "bothersome" analogies like the Spanish-American and Russo-Japanese Wars.¹¹⁷ Schlieffen was so predisposed toward his certainty in the offensive that, even when he picked better cases to study, he failed to learn the most appropriate lessons. For example, rather than interpreting the increasing difficulty of offensive operations in the Franco-Prussian or Russo-Japanese Wars as a harbinger of future defensive warfare, he blamed such difficulties on

Moltke's decentralized mission command in the former (even though it had actually helped); and on Japan's failure to envelop in the latter (even though Japan constantly enveloped Russian forces).¹¹⁸ Thus, Schlieffen respected some of the key lessons from the modern case studies, but he saw them as either defensive modifications or aberrations to the truly offensive character of warfare.

Admiral Tirpitz and naval leaders were also hindered by cognitive biases. For example, navalists believed in the prospect of decisive victory at sea but failed to define what 'decisiveness' meant at the grand strategic, strategic, and tactical levels of war. As a result, the primary object of naval action was assumed to be the destruction of the enemy's fleet, often without detailed consideration of how that outcome would affect war on land.¹¹⁹ Consequently, despite the supposedly central role of sea power, naval doctrine, and war planning were primitive compared to such processes in the army. Moreover, like their army counterparts, naval strategists harbored unrealistic expectations about the true extent of their naval capabilities—indeed, they expected to achieve decisive victories against the British navy even though, in 1914, German naval forces were outnumbered and dispersed around the globe, complicating the concentration of naval forces necessary for Mahanian sea control (demonstrated by U.S. and Japanese naval operations in the Spanish-American and Russo-Japanese Wars, respectively). Additionally, the German naval officers strongly believed in the power of the battleship, but the Russo-Japanese War had demonstrated that mines and torpedoes could offset battleships at a far lower cost.¹²⁰

As argued by political scientist Jack Snyder, such offensive biases are often exacerbated by weak civil-military relations.¹²¹ In the

Franco-Prussian War, when the French insurgency stretched German forces to their culminating point, Bismarck was able to provide a check on Moltke's bias toward decisive victory, and he leveraged coercive diplomacy to secure a negotiated peace.¹²² However, there was no Bismarckian figure to constrain Schlieffen or Moltke the Younger. By 1914, the General Staff had become more powerful in its proximity to the Kaiser and its control over the military lever of statecraft, and Chancellor Theobald von Bethmann Hollweg—ascribing to what scholars would now term Huntingtonian norms of civil-military relations—refused to stand in the way of its rigid offensive doctrine.¹²³ Indeed, "[w]hat was special about the period before World War I was that the state of civil-military relations in each of the major powers tended to exacerbate that normal offensive bias" of the armed forces, and in the case of Germany in particular, it was "because the lack of civilian control allowed it to grow unchecked."¹²⁴ Thus, there were no impediments to the implementation of the Schlieffen Plan.

Conclusion

German military innovation prior to World War I did not fail because of irrational officers, insufficient technological adoption, or faceless structural processes that produced an inevitable result. Rather, it was a failure of vision, caused primarily by a learning environment in which historical case studies offered only inconsistent 'lessons learned.' Thus, institutional and cognitive biases toward the offensive became the only available means with which officers could interpret evolving military trends with relative certainty, leading them to bet everything on the rapid decisiveness of offensive military operations on land and major naval engagements at sea. In the face

of such an uncertain environment, and without sufficient evidence in any direction to discard their prevailing visions of warfare, these highly capable leaders doubled down on their offensive biases—while slightly accommodating what they regarded as evolutionary (rather than revolutionary) defensive trends through relatively marginal technological and doctrinal adjustments. Thus, rational decision-making broke down and yielded the irrational assumptions inherent in the Schlieffen Plan.

Based on the preceding analysis, this paper offers several policy recommendations for U.S. defense officials to prevent similar results in the future. First, contrary to popular expectations, peacetime innovation is not solely, or even mostly, about technological adoption—rather, it is about vision. New technologies like artificial intelligence will provide only incremental improvements unless DoD develops a new vision for employing these capabilities through greater innovation in operational concepts, tactics, and organizational reform. Second, since this vision is informed by the clarity or ambiguity of historical and modern ‘lessons learned,’ DoD needs to provide military officers with a stronger basis for evaluating such lessons. This training will require pairing the study of military history with other disciplines like technology forecasting and political science, which can offer insights into extrapolating future trends.¹²⁵ Such approaches could be

particularly insightful when applied to the Second Nagorno-Karabakh War and the Russo-Ukrainian War, which may be laboratories for the future of warfare.¹²⁶ Third, DoD must address the institutional and cognitive biases that inhibit the adaptability of officers’ visions by rotating these officers among new private and non-government institutions, thereby imbuing them with diverse experiences. Fourth and finally, the Joint Staff must empower younger officers to have a voice in major strategic debates in order to avoid the crystallization of views among a small cadre of senior officers. One potential solution is to establish new roles for junior officers that provide greater input into strategic and operational decision-making. Through these recommendations, the United States can chart a path toward more successful historical learning and therefore more transformative innovation prior to the next major conflict.

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⁶ Michael Howard, “Men against Fire: The Doctrine of the Offensive in 1914,” in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton: Princeton University Press, 1986), 510–26.

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⁹ This is consistent with one of Robert Jervis’s hypotheses in Robert Jervis, “Hypotheses on Misperception,” *World Politics* 20, no. 3 (April 1968): 459. It is also consistent with Benjamin M. Jensen’s et al.’s argument that a military’s *vision* of future warfare matters just as much as the bureaucratic ability to obtain new technologies. For more, see Jensen, Whyte, and Cuomo, *Information in War*; and CSIS Events, “Book Launch: Information in War - Military Innovation, Battle Networks, and the Future of Artificial Intelligence,” Center for Strategic & International Studies, February 22, 2023, <https://www.csis.org/events/book-launch-information-war-military-innovation-battle-networks-and-future-artificial>.

¹⁰ Snyder, 108-46; Jervis, “Hypotheses on Misperception,” 454-79.

¹¹ Snyder, 108-46.

¹² This third point builds upon the work of Jonathan Shimshoni, who focuses on the *agency* of the European policymakers in World War I and their failures to make their offensive strategies work, as opposed to *structural* factors. For more, see Jonathan Shimshoni, “Technology, Military Advantage, and World War I: A Case for Military Entrepreneurship,” in *Military Strategy and the Origins of the First World War*, ed. Steven E. Miller, Sean M. Lynn-Jones, and Stephen Van Evera, Revised and expanded ed., An International Security Reader (Princeton: Princeton University Press, 1991), 134–62.

¹³ For more on Mill’s “Method of Agreement,” see Stephen Van Evera, *Guide to Methods for Students of Political Science* (Ithaca, New York: Cornell University Press, 1997), 56-58; Andrew Bennett, “Case Study Methods: Design, Use, and Comparative Advantages,” in *Models, Numbers, and Cases: Methods for Studying International Relations*, ed. Detlef F. Sprinz and Yael Wolinsky-Nahmias (Ann Arbor, Michigan: The University of Michigan Press, 2011), 30-32.

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- ⁸³ Bremer, 2.
- ⁸⁴ Crowl, 473-474; Park, 132-33.
- ⁸⁵ Holborn, 289-90.
- ⁸⁶ Showalter, 221-225; Vagts, 455; Smith, 79-150; Jukes, 21-70.
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- ¹¹² Rothenberg, 306-310.
- ¹¹³ For more on friction, chance, probability, and uncertainty, see Clausewitz.
- ¹¹⁴ Rothenberg, 319; Snyder, 116-17.
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