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OPERATIONAL IMPACT OF DOCTRINE DEVELOPMENT BEFORE AND DURING THE
SECOND WORLD WAR: NAVAL GUNFIRE SUPPORT AND AMPHIBIOUS LANDINGS

An Essay

Submitted to

The Faculty of the

United States Naval War College

In Partial Fulfillment

of the Requirements for the

Graduate Certificate in Maritime History

by

MAJ Brian Mawyer, USA

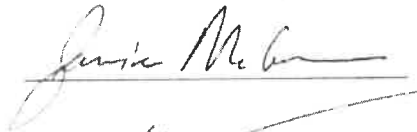
May 27, 2022

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SECOND WORLD WAR: NAVAL GUNFIRE SUPPORT AND AMPHIBIOUS LANDINGS

by
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The human elements of strength, courage, initiative, or a combination thereof receive overwhelming credit for the success or failure of combatants at war. Rightly, these characteristics have their place in the outcome of armed conflict. Unfortunately, this has led to an underrepresentation of the importance of less glamorous reasons for victory and defeat.

The Second World War and the period preceding this conflict provide ample opportunity to analyze the operational impact of one of these less glamorous reasons: the development of doctrine before the Second World War and the implementation of doctrine using engagements in the Aleutian and Solomon Islands, Gilbert Islands, Normandy, and Iwo Jima. The focal point of this endeavor is the development of doctrine related to naval gunfire support and amphibious operations.¹ The ability to track qualitative and quantitative changes in these areas makes it an ideal focus for measuring the evolution and impact of doctrine.

Donald K. Mitchener's work, *U.S. Naval Gunfire Support in the Pacific War: A Study of the Development and Application of Doctrine*, provides an intricate look at the evolution of doctrine in the U.S. Navy and Marine Corps as it relates to naval gunfire support and amphibious landings, but it does not give adequate credit to the exhaustive effort taken before the war by both services in their respective developmental efforts. Further, he places immense importance on the Sampson-Schley controversy relating to the conduct of the Battle of Santiago. The public controversy culminated with a board of inquiry in 1901 and required intervention from President Theodore Roosevelt to bring it to a conclusion. By Mitchener's account, the result was a navy divided in terms of doctrine, a reluctance to talk about it and the near eradication of the term from U.S. navy parlance.¹ This paper aims to correct the shortfalls related to the work before American involvement in the Second World War and to showcase a willingness of U.S. Navy and Marine

¹ Donald Mitchener. *U.S. Naval Gunfire Support in the Pacific War: A Study of the Development and Application of Doctrine*. (Newport: 2021), 1-7.

Corps officers to fully explore the realm of doctrine without hesitation or fear of scrutiny in contrast to Mitchener's depiction.

Several works have addressed the development of doctrine as it relates to amphibious landings but have left some gap for exploration related to naval gunfire support. Additionally, none serve as a direct counter to Mitchener's assertions regarding the aversion to doctrine development. *On Contested Shores: The Evolving Role of Amphibious Operations in the History of Warfare* provides an exhaustive analysis of the development starting with the attack on Porto Ercoletto on June 2, 1555. While it details the application of naval gunfire support at Tarawa, it fails to show the continued evolution of naval gunfire support from the American perspective.² Additionally, by Brigadier General Jason Q. Bohm's account, the work intentionally excluded the conduct of operations in the Pacific to allow focus on other aspects of the Second World War.³

Jeter Isely and Philip Crowl in *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* provide tremendous insight into the evolution of doctrine and a comprehensive view of amphibious landings and naval gunfire support in the Pacific. Alan R. Millet in *Semper Fidelis: The History of the United States Marine Corps* offers an even greater view of the development of the U.S. Marine Corps including a thorough analysis of the changes that occurred for the force from 1900-45.⁴ Still, there exists ample opportunity for the discussion of real-time changes during combat operations in the Pacific.⁵

Significant primary source material was utilized in this study as it relates to the conduct of combat operations in the Aleutian, Solomon and Gilbert Island campaigns, Normandy, and Iwo

² James P. McGrath, "Missing the Mark: Lessons in Naval Gunfire Support at Tarawa," in *On Contested Shores: The Evolving Role of Amphibious Operations in the History of Warfare*. (Quantico: 2020), 218-40..

³ Brigadier General Jason Q. Bohm, "Foreword," in *On Contested Shores: The Evolving Role of Amphibious Operations in the History of Warfare*. (Quantico: 2020), ix-xii.

⁴ Alan R. Millet, *Semper Fidelis: The History of the United States Marine Corps*, (New York: 1982): 1-820.

⁵ Jeter A. Isely and Philip A. Crowl, *U.S. Marines and Amphibious Warfare: Its Theory, and Its Practice in the Pacific* (London: 1951): 1-1107.

Jima from U.S. Navy communications in the immediate aftermath. Secondary source material augmented these firsthand accounts and provided essential context where gaps existed in the available primary sources. The secondary source material attempted to rely heavily on perspective from the U.S. Navy and U.S. Marines with the notable exception of George Patton's "The Defense of Gallipoli." While this work was written with the perspective of an U.S. Army officer, the intricate manner in which the conduct of the battle was outlined made it critical to that portion of the study. In this case, several other secondary source materials were utilized to ensure balance in the presentation of findings as Patton undoubtedly brought an army perspective to the writing.

Leading Development

In sharp contrast to the notion of the death of doctrine, several seminal figures emerge when analyzing the development of doctrine from these periods: one from the U.S. Navy and two from the U.S. Marine Corps. U.S. Navy Lieutenant Commander Dudley Knox's "The Role of Doctrine in Naval Warfare," published in the *U.S. Naval Institute Proceedings* in 1915, reinvigorated the professional debate amongst naval officers regarding doctrine.⁶ It gained subsequent publication in tactical publications, making it more accessible to U.S. Navy officers. Additionally, it created a powerful movement centered on sharing experiences from the service at sea, ultimately assisting in establishing fleet training exercises between 1923 and 1941. These exercises ensured the entire chain of command would be evaluated for their tactical skill and incorporated thorough after-action evaluations of the exercises to ensure absorption of the lessons. These exercises, coupled with a glimpse into the conditions of a future war with Japan, made his work integral to the operational impact of doctrine on the Second World War.⁷

⁶ Dudley Knox, "The Role of Doctrine in Naval Warfare," *U.S. Naval Institute Proceedings*, Vol. 41 No. 2 (1915): 323-365.

⁷ James J. Tritten, "Developing Naval Doctrine...From the Sea," *Joint Force Quarterly*, No. 9 (Autumn 1995): 110-13.

When U.S. Marine Corps Lieutenant General John A. Lejeune became the Marine Commandant in 1920, he set the force on an aggressive path for the successful conduct of amphibious operations. Lejeune's efforts were parallel to the U.S. Navy's focus on limiting Japanese expansion. He recognized the importance of the ability of the U.S. to conduct offensive landing operations throughout the Pacific. He was not alone in his belief that a war with Japan would require successive amphibious assaults throughout the Pacific to gain victory, as American planning for War Plan Orange envisioned the defense of the Philippines and the capture of Japanese bases throughout the Pacific.⁸

Lejeune was adamant in his assertion that the U.S. Marine Corps could be positioned to accomplish the requisite tasks in the Pacific. Additionally, Lejeune recognized that the repositioning of the U.S. Marine Corps in this manner could act as a counter to growing concerns about the necessity of the force. U.S. Army leaders had grown convinced that there was no need for an independent marine force, as army units were capable of conducting amphibious landings without the same degree of specialization.⁹ Lejeune tapped Major Earl H. Ellis, the second prominent figure from the U.S. Marine Corps, to study the Pacific problem. Ellis' studies confirmed the belief that a force would need to conduct a series of amphibious assaults against a well-organized Japanese defensive force in hardened positions.¹⁰ As a result, Ellis detailed his findings in "Naval Bases: Location, Resources, Denial of Bases, Security of Bases" in 1921.¹¹ This work would evolve into "Operations Plan 712: Advanced Base Operations in Micronesia," which

⁸ Chris K. Hemler, "Getting the Shells to Fall Where You Want Them," *Marine Corps History*, Vol. 6 No. 1 (Summer 2020): 5-17.

⁹ Terry Terriff, "'Innovate or Die': Organizational Culture and the Origins of Maneuver in the United States Marine Corps," *Journal of Strategic Studies*, Vol. 29 Iss. 3 (2006).

¹⁰ Hemler, "Getting the Shells," 9.

¹¹ Major Earl H. Ellis, "Naval Bases: Location, Resources, Denial of Bases, Security of Advanced Bases," *U.S. Marine Corps Division of Operations and Training*, (1921): 1-57.

would provide guiding amphibious strategy and doctrine as America prepared for a potential war with Japan.¹²

Albion and Gallipoli

The U.S. Marine Corps reinforced the ideas presented in Ellis' writings in subsequent years. For the U.S. Marine Corps Field Officers' Course graduates in June 1929, this meant extensive study devoted to overseas operations, including two defining moments in amphibious landing operations and naval gunfire support: Gallipoli and Operation Albion.¹³

Thoughts on the success of naval gunfire and amphibious landing operations at Gallipoli were varied. John Masefield summarized the feelings by stating the campaign should be seen "not as a tragedy, nor as a mistake, but as a great human effort, which came, more than once, very near to triumph."¹⁴ Conversely, Lieutenant Colonel Ormsby Burge of the Royal Naval Division remarked that "of course we know that we didn't achieve anything like what we wanted to – but my idea was the objective was far too ambitious."¹⁵

Despite this array of opinion on the outcome, Gallipoli provided the U.S. Marine Corps with evidence for the need to develop doctrine related to amphibious landing operations and naval gunfire support to achieve success. The high human and material costs of the operation also offered detractors ample opportunity to disparage the continued use of amphibious landings. These types of operations are considered some of the most complicated military undertakings. Their nature requires close coordination and cooperation from multiple entities from various service components. Naval gunfire support is an area in which this close coordination is most vulnerable

¹² Hemler, "Getting the Shells," 9.

¹³ Bruce Gudmundson, "Amphibious Application," in *On Contested Shores: The Evolving Role of Amphibious Operations in the History of Warfare*. (Quantico: 2020), 175-6.

¹⁴ John Masefield, *Gallipoli*, 3.

¹⁵ Donald F. Bittner, "'Good Men Wasted...Dreadful!!'" Two Royal Marine Officers' Commentaries on Gallipoli, March-August 1915," *Journal of the Society for Army Historical Research* Vol. 83 No. 336 (Winter 2005): 325.

to failure, as the delivery of fires is critical to the successful landing and the continued advance of the maneuver unit once it has gained a foothold.

In the early 20th century, naval gunfire control equipment was not developed for specific use against land-based targets. The heavier guns on the ship were designed for optimized fire against other ships. In addition to these challenges, the angle of fire was too shallow to engage targets in reverse slope or behind fortifications, and the armor-piercing fuses employed were largely ineffective against such targets.¹⁶

These technical challenges, along with a lack of understanding of the impact of naval gunfire against land-based targets, presented a formidable problem for the British attackers. The planning of the operation may have been influenced by the preliminary success of naval bombardment, as a short duration bombardment resulted in the striking of a magazine on November 3, 1914. Lord Herbert Kitchener's remarks proceeding the attack indicated this confidence in the feasibility of, but limited need for landing operations by stating on February 9, 1915 that "if the Navy required the assistance of the land forces at a later stage, that assistance would be forthcoming."¹⁷ From the American perspective, the Royal Navy wrongly believed that its array of naval gunfire would accrue the same level of success against similar land-based targets with a similar duration of fire.¹⁸ Although not necessarily an improper conclusion at the time, the planners of the Gallipoli operation estimated that the importance of maintaining an element of surprise was more critical than a long-duration bombardment conducted with naval gunfire support.¹⁹ The defenders of Gallipoli used black powder charges to deceive the Royal Navy by

¹⁶ James Smith, "Naval Gunfire Support from Gallipoli to Tarawa," *Academia*, (2014): 2-40.

¹⁷ Henry W. Nevinson, *The Dardanelles Campaign*, (London: 1919), 42.

¹⁸ George Patton, "The Defense of Gallipoli," *Headquarters, Hawaiian Department*, (1936): 1-69.

¹⁹ Smith, "Naval Gunfire," 5-8.

exaggerating the impact of the bombardment by exploding the charges at various intervals within the trench network.

The planners also demonstrated a lack of understanding of the terrain the forces would face at Gallipoli. Information concerning terrain makeup was purchased from shops and consisted of guidebooks about the area. The area's terrain comprised low-profile approaches, which further complicated the issue. Naval gunfire could not deliver high-angle fire, allowing defenders to remain unmolested behind low hills.²⁰ These advantages in terrain prevented the bombardment from achieving significant tactical success during the operation.

Unlike the sufficient quantities of targeted, naval-gunfire support that the U.S. Marine Corps could observe in its study of Operation Albion, Gallipoli offered the inverse. The Gallipoli operation was to consist of assaults against five named beaches. Although the forces assigned to each of the assault beaches were conducting similar operations, only four would receive preparatory naval gunfire support. British forces were to deliver preliminary gunfire support for "S," "V," "W," and "X" beaches. "Z" beach would receive no preliminary bombardment due to the need to maintain an element of surprise. At 5:30 a.m., the British began their preliminary bombardment. The results were that "the whole plain of the peninsula in the vicinity of Helles was churned into a frothing cauldron of flying earth, rocks, and pieces of steel."²¹ The results of this bombardment were negligible as the defenders suffered minimal casualties. Admiral Sackfield Carden noted this in his report that showed "the effect of direct fire on modern earthwork forts is slight."²² Additionally, the moral impact of the bombardment, which was considered a significant side-effect of naval gunfire support, was minimized after a short experience for the defenders. The

²⁰ Patton, "Defense," 10.

²¹ Patton, "Defense," 21-25.

²² Nevinson, *The Dardanelles Campaign*, 51.

inability to achieve effects against the fortifications of the defenders limited the psychological impact of the bombardment.²³

A limiting factor on the impact of naval gunfire support may have been the duration for which the bombardment was planned. Operating with assumptions that may have been flawed in hindsight, the bombardment of the assault beaches was incredibly short, with 30-minute durations that were thought to be sufficient to achieve the desired effects against the defenders. The gunfire was scheduled to lift as the troops approached the beaches and would concentrate on the Turkish artillery located miles away from the landing beach. The plan was heavily concerned with the conservation of ammunition for follow-on operations and ship-to-ship engagements, so the heaviest calibers of the naval guns were limited to 20 rounds per gun for the bombardment.²⁴ This issue would remain a concern through doctrine development for the U.S. military in preparing and executing operations in the Second World War.

The results of these plans were predictably disastrous. "V" beach landings received the weakest naval gunfire support as part of the operation. The bombardment was only 40 minutes in duration and was not continuous as prescribed by the plan. The bombardment was conducted at long range and provided close support for advancing troops. "V" beach was a complete disaster as the bombardment registered no impact and resulted in the defenders maintaining supreme fire discipline against the attack. In fact, attackers were almost immediately overwhelmed by rifle and machine-gun fire. The effectiveness of the defense was amplified by the Turks use of range stakes, which they utilized from trenches that went unmolested by naval gunfire.²⁵ "W" beach received a longer duration than planned, as the gunfire continued for 90 minutes. However, visibility issues

²³ Patton, "Defense," 25.

²⁴ Smith, "Naval Gunfire," 6.

²⁵ Nevinson, *The Dardanelles Campaign*, (London: 1919), 94-96.

limited the ability to select appropriate targets. Although the bombardment lasted longer than planned, it ended ten minutes before the assault forces reached the beach.²⁶

The use of preparatory fires at the Gallipoli landing sites provided insight into the potential impacts of successful naval bombardments, focusing on the effects achieved at “S” and “X” beaches for the U.S. Navy and Marine Corps. However, other lessons were available once the landing forces were ashore. The issue of the angle of fire was exacerbated by the difficulty in correctly identifying land-based targets. Utilizing ship-based observation increased the chances of friendly fire, and poor communications from ship-to-shore made the responsiveness of fires too slow. In this instance, aviation assets like balloon ships could not overcome the problem despite favorable weather conditions. The Royal Navy relied heavily on destroyers to provide naval gunfire support for the army ashore. Still, inadequate quantities of these ships and appropriate ammunition limited their ability to achieve effects.²⁷

While the effects of naval gunfire support at Gallipoli were varied, the U.S. Navy and Marine Corps were able to glean lessons from each of the assault beaches. The U.S. Marine Corps’ overall assessment of Gallipoli left them with a feeling of confidence that beach landings like Gallipoli “could be seized and secured.”²⁸ The Marines considered naval gunfire of increasing importance and identified it as one of six functional areas that were critical for amphibious landings.²⁹ The realization that adequately supported naval bombardments and intervention of close fire support could achieve a significant, positive impact on the success of the assault force would serve as a foundation of future defense development.³⁰

²⁶ Smith, “Naval Gunfire,” 8-15.

²⁷ D.M. Stevens, “Naval Support at Gallipoli,” *Australian Defence Journal*, No. 117 (March/April 1996): 58-59..

²⁸ Paul J. Cook, “Peninsular Lessons for Atoll Warfare: The U.S. Marine Corps and the Development of Naval Gunfire Doctrine,” *Athens Journal of History*, Vol. 6 Iss. 4. (October 2020): 318.

²⁹ Cook, “Peninsular Lessons,” 318.

³⁰ Cook, “Peninsular Lessons,” 318.

Further, the U.S. Marine Corps found an undisputed success in Operation Albion, although it provided an unlikely analysis of amphibious warfare as it involved the German Army in the Gulf of Riga in 1917. The Germans hoped to force the Russians out of the war to achieve victory against the west. The German high command envisioned accomplishing this goal through the seizure of the Russian capital of Petrograd, with conditions set by the seizure of the Port of Riga. This port would provide a logistical base for any further advances on the capital. Additionally, the operation would require taking the islands of Oesel, Moon, and Dago, which the U.S. Marine Corps undoubtedly found applicable to their plans for the Pacific.³¹

The landings required close cooperation by the army and navy. A delay caused by weather allowed the German military adequate time to train for the landing element to gain familiarity with the operation of the torpedo boats that would deliver them to shore, as well as the actual task of disembarking and advancing on the landing sites quickly. These exercises were intended to gain speed, but they reinforced the notion that full-force training would be required to succeed in an amphibious landing.³²

The operation was initially planned for the first week of October, but the delay caused the operation to commence on October 12. The landing began at 4:30 a.m. with the advance guard receiving fire from Russian field batteries. Vice Admiral Erhard Schmidt ordered the use of heavy navy ships to neutralize the shore batteries, allowing the landing force to secure the beach and begin inland movement quickly. This same level of coordination for naval gunfire support was replicated at a secondary landing site near Pamerort. German battleships, dreadnoughts, and cruisers engaged the shore batteries. Although Russian mines hampered some ships, the

³¹ Richard L. DiNardo, "Huns with Web-Feet: Operation Albion, 1917," *War in History*, Vol. 12 No. 4 (November 2005): 396-417.

³² DiNardo, "Huns with Web-Feet,:" 406-7.

coordination of naval gunfire support allowed ground force elements to secure a foothold on the beach at this landing site.³³

The U.S. Marine Corps gained tremendous insight into the potential for closely coordinated amphibious landing operations. The successful use of naval gunfire support allowed the landing force to have immense success, although there were moments in which the infantry conducted successful maneuvers without indirect fires. Additionally, it demonstrated the ability to reduce the risk of landing by utilizing a larger force, which Holger Herwig described as overkill in his study of the German navy. Although the most significant threat posed by the Russians was mining, the size of the force allowed it to overcome any impacts resulting from the loss of craft. Finally, the U.S. Marines could visualize the importance of redundancy in communications for the conduct of joint operations in amphibious landings, particularly applicable to an operation against an island. The initial plan called for General Hugo von Kathen to coordinate the landing using wireless communication aboard the *Moltke*. The demands of the operation quickly overwhelmed the communications capability. Kathen attempted to utilize aircraft as a secondary measure, but weather conditions hampered this. The Germans noted that the landing force would require a separate, dedicated communications system for ship-to-shore communications once a foothold was secured.³⁴ Although this operation provided a blueprint for successful amphibious landings and naval gunfire support, the U.S. Navy and Marine Corps would have to rely on real-time doctrinal changes during the Second World War to realize the implications fully.

Fleet Problems, The Tentative Manual for Landing Operations and Fleet Training Publication
167

³³ DiNardo, "Huns with Web-Feet," 407.

³⁴ DiNardo, "Huns with Web-Feet," 407-14.

The study of historical examples of successful amphibious landings provided a solid foundation upon which to build. Still, the use of practical applications created necessary augmentation for these efforts. In 1922, the U.S. Marine Corps deployed a provisional battalion to Guantanamo Bay, Cuba, to conduct a series of landing exercises. The next year, they conducted similar exercises at Cape Cod, Massachusetts, and by 1924 they incorporated the Navy's Atlantic Fleet for training at Culebra.³⁵

These amphibious training exercises challenged the Marines to overcome the shortfalls noted in their historical examples. Culebra demonstrated inadequacies in embarkation procedures, timeline considerations, and inadequate transports as the force identified insufficient landing craft in the U.S. Navy. One final exercise was conducted in Oahu, Hawaii, before operational requirements in China and Nicaragua interrupted the efforts until the mid-1930s.³⁶

Despite the suspension of training exercises, the Marine Corps did not lose its focus on amphibious landings. In 1931, Commandant Ben H. Fuller and Assistant Commandant John H. Russell utilized the faculty and students at the Marine Corps Schools in Quantico, Virginia, to study amphibious landing operations. In 1933, Fuller suspended all classes at Quantico to form groups to explore different portions of the individual tasks required for successful amphibious landings and create a manual.³⁷

As a result, the U.S. Marine Corps published the *Tentative Manual for Landing Operations* in 1934. The publication provided guidance for command, transportation, logistics, and training. Perhaps more importantly, the manual highlighted the essential nature of naval gunfire support during landing operations. The absence of artillery, or insufficient quantity, in the early moments

³⁵ Hemler, "Getting the Shells," 9.

³⁶ Hemler, "Getting the Shells," 10.

³⁷ Hemler, "Getting the Shells," 10.

of the assault, would cause the landing force to rely solely on naval support. The manual took great care to provide intricate instructions on the ammunition required to neutralize 50 percent, as a minimum prerequisite for landings, a nod to the lessons learned from Gallipoli.³⁸ It highlighted the need for distinction between concentration against shore targets and ship engagements in an attempt to ensure common understanding by the supported and supporting command.³⁹ Additionally, it provided guidance for naval gunfire to be coordinated closely with the attacking troops from the start of the operation to the final objective.⁴⁰

The publication was not without its shortcomings. It offered no solution to the issue of the angle of fire from naval gunfire, despite naming the angle of fire as problematic for engaging reverse slope defensive positions.⁴¹ The low angle increased the risk of friendly fire against the landing force as minor gunnery errors could result in significant deviations onshore. Naval ships were outfitted with armor-piercing shells ideal for use against other ships but were incapable of achieving similar effects on land. Similarly, the manual notes that these shells would likely not function on first impact, but did not make recommendations in the firing tables for the desire for point-detonating ammunition.⁴² Ships continued to rely on remote observers and unpredictable communications systems to coordinate gunfire against enemy targets. As a mitigating measure, the manual gave supreme confidence for using aviation assets to offset these difficulties but lacked the adequate language to coordinate these efforts against an enemy.⁴³ Finally, the manual failed to emphasize the importance of flexibility in fires as it prescribed a planned, rigid schedule of fires as adequate for amphibious landings for landings that outlined the time and place of all landing

³⁸ Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, (Washington, D.C.: 1934), 2-320-322.

³⁹ Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, 2-324.

⁴⁰ Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, 2-325.

⁴¹ Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, 2-322.

⁴² Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, 2-320.

⁴³ Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, 2-417.

units. It did offer some level of flexibility for a landing that is utilized for rapid exploitation, as these operations would be near impossible to develop a detailed schedule of fires.⁴⁴

These shortcomings would have to be identified and rectified under combat conditions once the Second World War commenced.

Fleet Training Exercises, Fleet Landing Exercises, and Fleet Training Publication 167

While the U.S. Marine Corps was conducting its historical analysis, the U.S. Navy utilized hands-on experience to further its doctrine development efforts. In 1922, the U.S. Navy began a series of training exercises known as fleet problems. In all, it would conduct twenty-one fleet problems from 1922-41. The fleet training problems were consistent in their purpose. They were executed to train the fleet in large-scale maneuvers, train commanders to make estimates of the situations and plans and study war plans, operational instructions, and tactical doctrine. The fleet problems provided the most realistic environment for the naval officers to exercise command and staff. Nearly all naval resources were dedicated to the conduct of these fleet problems, which maximized the effectiveness of the exercises. Moreover, their conduct was reported to Congress on an annual basis, demonstrating its willingness to submit to an external review.⁴⁵

The fleet problems were the culmination of the training year for the U.S. Navy. The problems were not theoretical exercises that could be left unsolved. The conduct of the exercises was to provide a solution to the problem. Commanders were given strategic or operational missions within the fleet problems to execute. They were to be conducted under conditions mimicking actual war and contained dedicated iterations to exercise new techniques, tactics, and procedures and implement new equipment.⁴⁶

⁴⁴ Headquarters, U.S. Marine Corps, *Tentative Manual of Landing Operations*, 2-214.

⁴⁵ Albert Nofi, *To Train the Fleet for War: The U.S. Navy Fleet Problems, 1923-1940*, (Newport: 2010): 2-3.

⁴⁶ Nofi, *Train*, 20-21.

Fleet Problem I was executed on February 18-22, 1923, and was focused almost entirely on battle line maneuvers restricted to ship-to-ship operations. Fleet Problem IV included Fleet Problems II and III and incorporated jointness with the U.S. Army. The particular exercise concentrated on transoceanic offensive operations by the U.S. fleet from an advanced base, much like the operations detailed by Ellis in 1921. The exercise was conducted at Culebra and incorporated the Marines testing a new landing craft, which highlighted the need for an adequate landing craft for success in advance base operations.⁴⁷

Fleet Problem V demonstrated the commitment of the U.S. Marine Corps to the execution of amphibious landings as part of its core competencies. As mentioned previously, all Marine Corps Schools were suspended to support the execution of the exercise in Hawaii. From the Marines' perspective, the landings were successful and boasted improvements from the previous year in their internal critiques. The result was a Marine Corps postured to continue its improvements and support advanced base operations and amphibious landings.

Subsequent Fleet Problems were executed without the U.S. Marine Corps until Fleet Problem XX in 1938. This exercise focused on the fleet's ability to conduct advanced base operations and major battle operations in the Atlantic. The exercise was declared a reminder to "Europe's fascists that the U.S. is still a major power in the Atlantic." However, it was widely viewed as a signal of capabilities to Japan.⁴⁸

While expeditionary operations hampered participation in the Fleet Problems, the U.S. Marine Corps was able to gain valuable experience in the Fleet Landing Exercises (FLEX) from 1935-41. FLEX I concentrated on the effective use of existing ammunition in naval gunfire support. The exercise featured the coordinated use of aerial observers and radio communications

⁴⁷ Nofi, *Train*, 51-55.

⁴⁸ Nofi, *Train*, 79.

between the sea and air. Pilots were able to determine the effective altitude and distance from the ship for adequate spotting. The insufficient quantity of landing craft was again exposed, as standard navy boats proved inadequate for landing operations, as well as the inadequacy of armor-piercing shells. Ultimately, this exercise reinforced the existence of issues rather than alleviating any problems.⁴⁹

FLEX II was longer in duration and more elaborate in design than the previous year's effort. As a result, a more comprehensive approach to landing operations was implemented. Eight landing exercises were conducted and implemented using cargo nets to expedite the disembarkation of troops. A daylight landing, a daylight landing aided by smoke, and a nighttime assault were executed as part of the exercise. Although the daylight landing was effective, smoke was of no value, and the nighttime landing demonstrated the difficulty of navigating to a landing site under darkness. The culminating exercise implemented the first use of a shore party, although it was bypassed routinely for more familiar coordination of ship-to-shore activities.

Naval gunfire support was able to build upon the lessons learned from FLEX I. Different shell/fuse combinations were utilized to evaluate effects against land-based targets. Aerial observers continued to be used with the use of gridded maps to call for fire. Finally, long-duration naval bombardment was exercised as the ships delivered continuous shelling for two hours and ten minutes. While mostly successful, there were still concerns regarding gunnery and target location error that increased the risk of fratricide.⁵⁰

FLEX III saw vast improvements in doctrine by introducing an army-type high-frequency radio. The radio was such a success that the Marine Corps advocated for its permanent use. Communications figured heavily in FLEX III as it highlighted the impact of inadequacy in this

⁴⁹ Isely and Crowl, *U.S. Marines*, 46-48.

⁵⁰ Isley and Crowl, *U.S. Marines*, 48-50

regard. Last-minute order changes were not transmitted in full, resulting in massive failures as army boats approached the beach. The entire operation could have quickly turned to disaster in a real-world scenario.

Little effort was taken to replicate combat landing conditions due to a lack of naval transportation, and ship-to-shore resupply was not fully exercised. In a rebuke of the efficacy of FLEX III, Brigadier General James J. Meade noted that despite the impact of technical training on landing operations, insufficient detail was given to overcoming the problems of terrain and identifying well-concealed defensive positions. He highlighted that historical context was not given to naval gunfire support, as it would likely produce similar results as seen in the First World War at Gallipoli.⁵¹

In 1938, the U.S. Navy incorporated the *Tentative Manual for Landing Operations* into *Fleet Training Publication 167 (FTP 167)*.² The publication incorporated all of the areas from the Marine Corps publication, including specific guidance on the use of naval gunfire. *FTP 167* continued to define the naval gunfire mission for execution with the landing force, replacing the field artillery in certain situations. This definition officially changed the focus of naval gunfire from being a secondary mission for the fleet to a primary consideration. The publication outlined the character of the defense, which may be engaged by naval gunfire in terms of terrain, size, composition, and morale of the enemy and a specific focus on the tactical doctrine of the enemy. This focus on doctrine was meant to ensure that the defensive fortifications of the enemy were not underestimated, a clear linkage between the results of Gallipoli and Albion to doctrine. The publication retained the division of naval gunfire support into seven separate entities: destruction

⁵¹ Isley and Cowl, *U.S. Marines*, 52-56.

fires, neutralization fires, prearranged fires, on-call fires, targets of opportunity, close support, deep support, and special mission.⁵²

FTP 167 retained prescribed ammunition recommendations for amphibious landing operations and other considerations for shore fires. The publication indicated that shore fires were no different from land-based artillery. However, special considerations were given to the amount of ammunition and duration of fires necessary to succeed in amphibious landings. The publication indicated that naval gunfire support might be needed in preparation for D-day operations and fires executed as part of D-day. As another consideration that drew linkage from historical examples, the publication emphasized that the requirement for fires may extend for a length of time following D-day and that plans needed to be made for the adequate resupply of ammunition in support of these operations.⁵³

The publication mirrored the *Tentative Manual* in its outline of the types of ships, guns, and ammunition needed for specific operations. It directed that 50 percent of the total magazine for a ship needed to be dedicated to fire support missions in support of amphibious landings. It coupled this with an outline for the use of particular ships and guns to execute a specific mission and viable alternatives, which assisted naval planners.⁵⁴

With some reflection on previous FLEX iterations, *FTP 167* outlined requirements for shore control parties and observers as part of naval gunfire operations. The publication called for a dedicated communications channel for fire control. Moreover, this communications channel had to be linked to the ship to which the observer was assigned to maintain continuity of communications. The publication also required a liaison officer to be assigned from the ship to the

⁵² Office of Naval Operations Division of Fleet Training, *United States Navy Fleet Training Publication 167: Landing Operations Doctrine*. (1938), 111-15

⁵³ *FTP 167*, 116-18,

⁵⁴ *FTP 167*, 117-21.

supported infantry unit and vice versa. In closing, the publication provided an illustrative example to assist with understanding the content of the manual.⁵⁵

FLEX V was executed on January 13-March 19, 1939. It marked the first exercise performed with *FTP 167* as a guiding document. The exercise was conducted with only the U.S. Navy and Marine Corps and consisted of several iterations over two months. The tactical scenario required the landing force to secure an advance base in Puerto Rico. This exercise featured similar problems to the past with confusion in nighttime landing operations and the experimentation with various landing craft. These issues would continue to be exposed in FLEX VI-VII, along with problems with naval gunfire support. Due to the size of Culebra, naval gunfire was restricted to minimal practice environments. However, an artillery officer was introduced from the First Marine Brigade in FLEX VI to train navy officers on the tactical application of fires in support of maneuver elements.⁵⁶

Despite the shortfalls of these exercises, they demonstrated the commitment to the development of doctrine by the U.S. Navy and Marine Corps before American involvement in the Second World War. They provided a sound framework for exercising combat operations related to naval gunfire support and amphibious landing operations.

Aleutian and Solomon Islands

The naval doctrine that was developed as part of the Fleet Problems and FLEX would face its first test during the naval bombardment of Kiska as part of the Aleutian Islands Campaign on August 7, 1942. It would continue doctrinal development under combat conditions through real-time communications of lessons learned.

⁵⁵ *FTP 167*, 134-43.

⁵⁶ Isley and Crowl, *U.S. Marines*, 54-58.

Although lightly defended, the operation was intended to eject defenders from the island for a potential follow-on landing operation. The first fires were delivered from destroyers, followed two minutes later by the light cruisers, and finally from the heavy cruisers. The original plan called for the simultaneous engagement of targets and the use of aerial spotters to assess battle damage and adjustments to the engagement. Unfortunately, the weather would expose the high confidence level in the use of aerial spotters. It caused a significant reduction in the ability to spot targets on the island, especially considering the amount of smoke and debris generated by the incoming fires.⁵⁷

Although the bombardment was deemed relatively effective against the lightly defended island, significant issues were subsequently reported. There was little to no reconnaissance conducted before the naval bombardment, which prevented the attack from achieving maximum results due to a lack of current information on target sets. The navy realized it had insufficient radar systems that could be utilized for spotting, which created a single point of failure when utilizing aircraft spotting. Additionally, it realized that light cruisers were more effective than heavy cruisers in areas of reduced visibility due to the amount of smoke generated from the bombardment. Perhaps most importantly, the initial bombardment proved that the amount of naval gunfire planned for this bombardment was insufficient to reduce enemy defenses before a landing.⁵⁸

A subsequent bombardment commenced on January 3-6, 1943, at Munda Airfield, with Task Force 67 covering Task Group 67.6. This operation demonstrated the commitment of the navy to learn from its mistakes in a relatively timely manner.

⁵⁷ Information Bulletin No. 2, "Battle Experience, Solomon Islands Actions, August and September 1942 Including Bombing of Kiska, 7 August 1942," United States Fleet, Headquarters of the Commander in Chief, 1 March 1943, 15-6-15-15.

⁵⁸ Information Bulletin No. 2, 15-14-15

In order to make adequate adjustments based on feedback from the initial bombardment, the plan for Munda Airfield called for slow fire with 2-6" ranging salvos. Rapid-fire would begin once hits in the area were established. 5-inch fire would be separated to avoid confusing the observer, allowing for adequate assessment and adjustment. To further reduce confusion, each cruiser would wait for the ship ahead to fire, allowing for corrections to be quickly disseminated to the bombarding ship.⁵⁹

In addition to the delivery of fires, the navy shared recommendations between ships for improvements in more technical areas to support the landings. A communications adjustment recommended aerial observers for them to have direct lines to shore control parties to indicate where rounds were landing from the bombardment. The USS *Nashville* (CL-43) identified a low-tech solution to problems with projectile loading specific to the MK-29 – adhesive tape and a screwdriver – which limited malfunctions during fire support. This was followed by a report upwards for an immediate request to the Bureau of Ordnance to develop a new nose cone to prevent further malfunction rapidly.⁶⁰

The rapid delivery of radar from the August 1942 recommendations was most impressive in terms of doctrine development. The USS *Helena* reported that the operations would not have had success without newly fielded radar systems, which prevented delays in reporting spotting for fire support. The open discussion between ship commanders allowed rapid improvements under combat conditions, resulting in the ability to execute a more intricate bombardment plan with better results.⁶¹

⁵⁹ Information Bulletin No. 5, "Battle Experience, Solomon Islands Actions, December 1942 – January 1943," United States Fleet, Headquarters of the Commander in Chief, 15 April 1943, 33-1-3.

⁶⁰ Information Bulletin No. 5, 33-4-6.

⁶¹ Information Bulletin No. 5, 33-19.

As bombardment operations continued into February 1943, Task Group 8.6 would encounter issues at Attu Island. The bombardment of Chicaghoff Harbor would not yield tremendous damage to the enemy during the bombardment. Historically, this lack of success would have provided an excellent forum for accusations and blame, deviating from the chance to further doctrinal development. Instead, the navy at Attu Island in 1943 viewed the lack of success as a training opportunity.

For the first time in an official report on a bombardment, the observer's perspective on the ground was incorporated. As reported by the USS *Barcroft* (DD-598), voice communication activities with aircraft were deficient and needed to be continually drilled in order to be effective on the battlefield. The range to target would prove too far for accurate observation and amounted to a guess on battle damage. These factors contributed to wasteful ammunition expenditure and inadequate results.⁶²

When the fleet began bombardment activities in March 1943 on Kolombangara Island, Task Force 68 was in an improved position. The fleet employed a range and deflection ladder to assist with the separation and staggering of target engagements. This resulted in proper hits on targets in a more expedient fashion. Unfortunately, rapid-fire was begun in some cases before these types of hits could be properly established, resulting in some confusion for the observer on the ground. Exacerbating this issue was the continued nose cone issue existing for the MK-29, as the field expedient manner of using tape and screwdriver did not provide a lasting solution.⁶³

Again, the duration would prove too short for effective bombardment activities. The USS *Taylor* specifically called for an increase in the duration of fires in the after-action report for this

⁶² Information Bulletin No. 6, "Battle Experience, Solomon Islands and Alaska Actions, January-February 1943," United States Fleet, Headquarters of the Commander in Chief, 1 May 1943, 40-3-4.

⁶³ Information Bulletin No. 7, "Battle Experience, Solomon Islands and Alaskan Areas, March 1943," United States Fleet, Headquarters of the Commander in Chief, 15 June 1943, 41-1-29.

engagement. Additionally, ship placement required adjustments to effectively engage stationary targets, which would need to be incorporated in future operations.⁶⁴

The final naval gunfire activities in the Solomon Islands ahead of amphibious landings occurred at the Munda-Vila-Kula Gulf Areas on May 12-13, 1943. The fleet utilized specific ammunition allowances against the target set, learning from previous engagements. 5" batteries delivered the most effective fires against targets in this engagement. Along with these changes, a more permanent solution was implemented for the MK-29 nose cone issue was fixed on this ship by utilizing the MK-1 fuse.⁶⁵

While some adjustments provided for more effective engagements onshore, the bombardments on Kiska in July 1943 would prove problematic. Targets were not designated for specific ships, which created issues in reporting effects assessment. Shore control parties assigned to *Santa Fe* had difficulty concentrating fire from multiple ships. The concentrated fire created confusion on the ground. The confusion was alleviated in some sectors by using an innovative firing plan incorporated by the USS *Lansdowne*. The firing plan was plotted on a special chart, which allowed for tracking targets as the bombardment progressed.⁶⁶

Gilbert Islands

The naval gunfire actions in the Solomon Islands were relatively effective, although the light defenses may have skewed this assessment. Despite this relative success, there still existed some disconnect from ship to shore regarding amphibious landing operations. The Gilbert Islands would serve as the proving ground for the culmination of doctrinal changes from the interwar period and the opening salvos of World War II.

⁶⁴ Information Bulletin No. 7, 42-9.

⁶⁵ Information Bulletin No. 8, "Battle Experience, Solomon Islands and Alaskan Area Bombardments, May & July 1943," United States Fleet, Headquarters of the Commander in Chief, 1 October 1943, 46-7-23.

⁶⁶ Information Bulletin No. 8, 47-10-24.

The low-lying nature of the Gilbert Islands created a firing solution problem for the fleet, exacerbated by the lack of focus on terrain during FLEX. Additionally, the dense foliage on the islands created some level of difficulty in spotting bombardment fires. Heavy installations were incorporated into enemy defenses, making even more significant challenges for the bombardment operation.⁶⁷

Despite these challenges, the bombardment was an improvement from the previous iterations. Many ships participated in the initial engagements resulting in overwhelming firepower onshore ahead of the landing. By the end of the engagement, this operation would receive more naval gunfire than any other landing operation to that point in the war.⁶⁸

The quantity of fire would prove necessary to impact the operation's outcome positively. Reports indicate that 40 percent of the enemy's casualties in the Gilbert Islands resulted from the bombardment. That number could have been higher, but the enemy was evolving along with the navy. Enemy defensive measures changed to mitigate the impact of initial bombardment operations from the fleet. Heavier installations were incorporated into defenses, reverse slope entrenchment, and other structural improvements. The result was the need for a tremendous amount of firepower delivered from the ships to determine the outcome.⁶⁹

Enemy defensive structures and effective use of terrain would limit the effect of naval gunfire operations during the bombardment. The shallow nature of the terrain of the atolls in the Gilbert Islands created prime opportunities for ricocheting rounds, which had almost no impact against an embedded enemy. The low-angle fire generated by naval gunfire proved ineffective

⁶⁷ Information Bulletin No. 15, "Battle Experience, Supporting Operations Before and During the Occupation of the Gilbert Islands, November 1943," United States Fleet, Headquarters of the Commander in Chief, 15 July 1944, 67-143.

⁶⁸ Information Bulletin No. 15, 67-155.

⁶⁹ Information Bulletin No. 15, 67-165-179.

against some shallow terrain. The issue was exacerbated by the shallow angle of fire inherent in naval gunfire. Commander Fifth Amphibious Force found this issue important enough to send a recommendation to the Bureau of Ordnance for immediate remedy.⁷⁰ Additionally, traditional target acquisition procedures were inadequate for targets in the low-lying portions of the islands.

Along with these issues, *Santa Fe* reported an inability to reduce heavy installations through naval gunfire. These targets often required a direct impact, which did not guarantee success in every instance. This issue created a desire to reduce the volume of fire on onshore targets, with an increase in determining target selection. However, the research did not indicate a specific change generated in naval doctrine. The volume of shells fired would not change the effect on defenses, but it could reduce the power of the enemy's resistance due to the psychological impact.⁷¹

Not everyone advocated to the reduction in firepower in the Gilbert Islands campaign. The USS *Pensacola* remarked on the value of the combined effect of more intense bombardment by air and naval assets. The combined effect was tremendous damage on the island of Tarawa, potentially contributing to the lack of defensive resistance. In addition, the landing operation revealed solutions to the previous issues with observation and communication. Smoke and dust had previously rendered observation difficult, and the massing of fires created confusion amongst observers. Effective observation techniques and timely reporting reduced some of the previous limitations for indirect fire observation during the Tarawa operation.⁷²

The operation was not without its drawbacks and learning points. The Fire Support Group reported incredible difficulty in spotting targets in flat areas. While the terrain impacted these

⁷⁰ Information Bulletin No. 15, 67-149.

⁷¹ Information Bulletin No. 15, 67-147.

⁷² Information Bulletin No. 15, 67-151.

impact observations, rapid-fire was a more significant contributor. The group advocated for slow, deliberate fire from the ships as part of the landing operation. This type of fire allowed the observer to communicate to the correct ship for the correct target. Also, a disconnect existed between shore control parties and ships on the specifics needed for the location. The shore control party required precise details regarding the ship's position and the target's desired location, which the ship was incapable or unwilling to provide. The solution presented for doctrinal change was an arrangement of salvos from the fleet that walked impacts slowly toward the target area.⁷³

The Commander of Task Force 53 recognized the significance of the success of the Gilbert Island campaign on amphibious landings in the future. The use of naval gunfire in bombardment activities in support of the amphibious landings could be applied to similar island engagements and other amphibious landings. The proposed bombardment changes following the Gilbert Islands were centered around a five-phase bombardment. The opening salvos would be oriented against enemy strong points to reduction or elimination. This would be followed by area bombardment and fire oriented on heavy defenses. The first three phases of the bombardment would provide an opening for a foothold for the landing operations, at which time naval gunfire would shift focus to the landing beach. Finally, the fleet would stand ready to provide on-call operations after the successful landing.⁷⁴

Normandy

Although previous operations in the Atlantic and the Mediterranean greatly influenced the operation at Normandy, the doctrinal changes occurring from the Pacific contributed to some degree. The island-hopping campaign proved incredibly useful for refining and distributing effective tactics, techniques, and procedures to further the war effort. The Gilbert Islands campaign

⁷³ Information Bulletin No. 15, 67-153-154.

⁷⁴ Information Bulletin No. 15, 67-159.

provided an assessment of the efficacy of current naval doctrine related to naval gunfire in support of amphibious landings. However, these engagements were against an enemy almost incapable of reinforcement after the beginning of bombardment. The amphibious landings at Normandy proved the effectiveness of naval gunfire in some areas, especially compared to aerial bombardment, against an enemy capable of reinforcing its positions with men and equipment. However, the mixed results present at independent landing sites indicated the need for subsequent development and implementation of doctrinal changes.

The Pacific Theater reinforced the notion that successful amphibious landings must incorporate extensive training as part of preparation. Ideally, this training would include the entirety of the landing force and the ships responsible for delivering bombardment and supporting fires for the beach forces. This technique was partly developed due to the lack of training opportunities to complement forces in amphibious landings during the Fleet Problems fully.

The Normandy operations would serve as a correction for this deficiency in the execution of naval doctrine. Before the invasion, training occurred at Kintyre, Scotland, and Slapton Sands, Devon. All of the ships involved in the operation were involved in the training exercises. As a result of these training exercises, it was determined that all houses and structures that could conceal guns onshore would need to be knocked down as part of the invasion, which would not have been discovered absent the preliminary training and rehearsals.⁷⁵

The Normandy invasion incorporated the successful doctrinal changes generated in the Gilbert Islands and utilized them from the outset of operations. The fleet utilized point-blank fire in close proximity to visible targets onshore instead of trying to use indirect fire delivered from a

⁷⁵ Information Bulletin No. 19, "Battle Experience, Supporting Operations for the Invasion of Northern France, June 1944," United States Fleet, Headquarters of the Commander in Chief, 20 December 1944, 73-5.

distance. Some of the beach terrain was flat and similar to the terrain encountered in the Gilbert Islands. Due to this, point-blank fire was restricted to areas that were not flat. For flat areas, 5" shells were to be utilized from a range of 6-12 thousand yards.⁷⁶

Battle damage assessment, adjustments, and on-call targets were still coordinated with voice communication over the radio. However, this operation heavily incorporated the Naval Gunfire Liaison Officer.⁷⁷ This position bolstered the ability of maneuver forces to coordinate naval gunfire by having a dedicated person familiar with the asset. This position, coupled with increases in the effectiveness of accurate spotting, significantly contributed to the outcome of the operation. Commander Task Force 122 indicated that the entire operation's success was due to the effective use of naval gunfire. The operation assumed some level of air support, and it was believed that there would be a similar result from airpower. However, that turned out to be an incorrect assumption, which increased the need for effective naval gunfire.⁷⁸

Despite the operation's success, some issues were identified for rectification. The efficient communication of these recommendations continued to demonstrate the commitment of the navy to doctrine development.

Utah Beach received an effective, overwhelming volume of naval gunfire during the Normandy operation, contributing greatly to the success. On Omaha Beach, the effectiveness was limited. Some of the same issues from previous operations continued to plague naval gunfire. Only direct hits on reinforced structures caused sufficient damage, and in the case of properly constructed shore batteries, destruction remained unlikely under any circumstance.⁷⁹

⁷⁶ Information Bulletin No. 19, 73-29.

⁷⁷ COMINCH P-012, "Amphibious Operations, Capture of Iwo Jima, 16 February to 16 March 1945," United States Fleet, Headquarters of the Commander in Chief, 17 July 1945, 2-2.

⁷⁸ Information Bulletin No. 19, 73-30.

⁷⁹ Information Bulletin No. 19, 73-30.

Communications continued to be an issue during Normandy, but several innovations appeared to address the situation. Shore control parties were sent from Joint Assault Signal Companies instead of organic units, which ensured familiarity with the execution of joint operations. Individual ships were designated for each landing force reducing the chances of delayed or mistaken communication regarding target identification and damage assessment. The introduction of frequency-modulated radios increased security related to communications from ship to shore and reduced the possibility of interference. Dedicated communications frequencies for fire support also contributed to streamlining communication.⁸⁰

Despite these innovations, the ability to designate targets and provide adequate fire support needed improvement. The lack of a consistent method for the infantry to designate targets outside of voice communications proved elusive. A recommendation for the allotment of smoke or flares for the infantry was made, but not in time to impact the Normandy operation. The same applied to the forward line of troops (FLOT) during amphibious landings. Additionally, the pre-landing bombardment was deemed insufficient and needed to be scheduled for longer. A preliminary phase for the long-range bombardment was recommended for future operations due to Normandy. Intensive bombardment needed to be continued to the last possible moment, emphasizing the accuracy of fires over the speed of delivery.⁸¹

Iwo Jima

Normandy, though in different circumstances, confirmed the effectiveness of naval doctrinal development from a friendly perspective. Iwo Jima provided definitive evidence that doctrinal changes had a significant impact on the enemy.

⁸⁰ Information Bulletin No. 19, 73-44.

⁸¹ COMINCH P-012, 2-3-25.

As the Japanese prepared to defend Iwo Jima from an amphibious attack, they made concessions directly related to the evolution and effectiveness of amphibious doctrinal changes. In the past, defensive forces were dedicated to preventing the invading force from establishing a foothold on the beach. This area provided ample opportunity for the enemy to inflict damage on an invading force. Due to the advancements made over the previous four years, the Japanese decided to concede the beach to the attackers. Additionally, the Japanese defensive posture was oriented around substantially reinforced defenses, limiting the impact of low-angle naval gunfire. This caused the navy to make an abrupt shift to short-range fires ahead of the landing force.⁸²

The navy finally learned its lesson about the duration of naval gunfire needed for successful amphibious landings. However, the changes to enemy defenses reinforced the need for continual review and update to doctrine. The initial proposal for naval gunfire bombardment was for three days to be allocated, with an additional day added at the request of the V Amphibious Corps. The 4th Marine Division requested ten days of naval bombardment, as three days would prove insufficient. Ultimately, three days of the bombardment were granted because some defenses could never be reduced through the extensive use of naval gunfire.⁸³

The operational plan for naval gunfire would include long and medium-range engagements on D-3. Heavy close-range engagements would commence on D-2. Finally, D-1 would be a recurrence of the same type of fires evident in D-2. In addition to the increase in bombardment activities, the fleet would utilize a single point of command to coordinate naval gunfire as part of this operation. The Amphibious Group Commander would coordinate all naval gunfire operations for the first time in combat during Iwo Jima.⁸⁴

⁸² COMINCH P-006, "Amphibious Operations, Invasion of Northern France Western Task Force, June 1944," Navy Department, 21 October 1944, 2-1.

⁸³ COMINCH P-006, 2-1.

⁸⁴ COMINCH P-006, 2-2.

As a result, the effects achieved on D-1 were excellent. Instead of employing a rigid schedule of fires, the navy employed flexibility in executing targets for naval gunfire. This allowed the reallocation of assets when sufficient effects were achieved and reduced redundancy in engagements. Targets were given a numerical listing, and target info was updated on D-day to include achieved effects.⁸⁵

In recognition of the lessons learned from earlier Pacific engagements, the pre-landing bombardment would be continued until the last possible moment. At that time, the navy would switch to a rolling bombardment after H-hour. Communication improvements would assist in coordinating these fires with the introduction of the Naval Gunfire Control Net. This net was to be dedicated to the use of inland forces to coordinate naval gunfire. Additionally, the existence of this net streamlined the process of requesting on-call fires once the amphibious landing was adequately ashore. The Naval Gunfire Overload Circuit was also introduced during this operation, which provided the ability of any ship or shore control party to clear the net for emergency reasons.⁸⁶ The introduction of these innovations was incorporated into the schedule of fires. Dedicated frequencies were assigned at the publication of the schedule of fires. To ensure close coordination, the naval gunfire liaison officer was assigned to the headquarters of the landing force. This would allow the officer to assist in requesting on-call fires and continue to coordinate the effort from shore.⁸⁷

The effectiveness of these innovations caused Japanese defenses to be built with attention paid to the impact of naval gunfire. There were few positions utilized by the Japanese that were built with vulnerabilities for naval gunfire from a distance or close range. Although the defenses

⁸⁵ COMINCH P-006, 2-3.

⁸⁶ COMINCH P-006, 2-4.

⁸⁷ COMINCH P-006, 2-4.

were essentially impervious to naval gunfire, they were not built to deal with land attacks. These changes to defensive posture indicate that Japan felt the greater threat to its defenses existed at sea by this time of the war. Long and medium-range gunfire was not effective against these defenses, as the reinforced earthworks prevented effects. Direct hits were required to achieve results against these types of defenses.⁸⁸

Iwo Jima was a testament to the development of naval doctrine and its efficacy in combat implementation. Commander, Task Force 54 made an immediate recommendation that future naval gunfire operations should be focused on neutralization fires to combat the enemy during amphibious landings. Striving to achieve neutralization instead of destruction would provide appropriate expectations for the landing force and force the operation to focus on the correct area. Finally, even though incredible strides were made throughout the war in terms of observation and spotting, the USS *Tuscaloosa* recommended changes to naval training in this regard. Engaging this new type of defense with close-range fires required a different type of observation. Ultimately, a recommendation to change observation training to focus on this type of fire was made as a result of Iwo Jima.

Conclusion

The human element cannot be ignored for its influence on the outcome of combat operations, the operational impact of doctrine development and implementation cannot be understated. The substantial effort undertaken by the U.S. Navy and U.S. Marine Corps before the Second World War undoubtedly contributed in a significant manner to the operational readiness of the force and fleet to conduct combat operations.

⁸⁸ COMINCH P-006, 2-8.

The evidence supports this assertion through the real-world application of this doctrine in the conduct of operations in the Aleutian and Solomon Islands, the Gilbert Islands, Normandy, and Iwo Jima. Perhaps more importantly, this foundation allowed for rapid, real-time changes to occur in the face of an ever-changing enemy. Without these publications, the forces entering the Second World War would have been devoid of a codified vision for the training, manning, procurement, and operational direction required for success in combat.

Therein lies the true operational impact of doctrine development. Through historical analysis, the U.S. military was able to glean valuable lessons from mistakes and shortcomings in previous engagements. Historical analysis alone is not sufficient to provide a meaningful impact on the outcome of combat. It requires a partner in the form of dogged pursuit of a practical application of these lessons to contribute to defeating the projected enemy of the future.

Further, doctrinal development must be continuous to provide an operational impact. As seen in the cases in this paper, doctrinal development cannot cease upon the publication of a document. The nature of war necessitates consistent, open communication of successes and failures regardless of the separation caused by time, space, and force. The U.S. Navy's communication of after-action-reports through classified dispatches to the fleet proved integral to the continued adaptation of naval doctrine throughout the conflict. Without these, it is difficult to imagine the U.S. Navy learning as quickly while underway, especially with the continued technological evolution of warfighting capabilities.

Although this study was limited in scope to naval gunfire support and amphibious landings, the premise should hold in all areas of military operations. Subsequent generations of military leaders should heed the efforts required in doctrinal development to realize operational success in

the Second World War. The framework provided by the previous generations should be replicated to combat whatever adversary should arise.

¹ As Bradley Martin et al detail in their 2020 RAND report “Naval Surface Fire Support” naval gunfire support is defined as the use of naval artillery in preparatory fires to neutralize enemy littoral defenses and then to provide fire support for landing forces. In the context of this paper, preparatory fires against potential enemies within range of impacting amphibious landings is couched under naval gunfire support. Specifically, the early engagements of the Aleutian Islands campaign were not in direct support of landings during the dates analyzed, but were integral in setting conditions for subsequent landing operations.

² Upon publication, *FTP 167* superseded the *Tentative Manual of Landing Operations*. The close proximity of the language and content within *FTP 167* render a further distinction after publication unnecessary.