

**COORDINATING DESTRUCTION:  
JOINT ASSAULT SIGNAL COMPANIES IN THE PACIFIC WAR**

A Thesis

by

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## ABSTRACT

On 19 February 1945, U.S. Marines of the Fifth Amphibious Corps waded through the sand and surf of the Japanese-held island of Iwo Jima. As the determined Marines fought their way across the battlefield, American Joint Assault Signal Companies (JASCOS) coordinated air, sea, and land firepower to aid the Marines in their formidable task. Marine Corps historians Jeter Isely and Philip Crowl later acknowledged the key role played by JASCOS when they proclaimed that “coordination among the three supporting arms was superb throughout the operation.”

This thesis explores the evolution of supporting arms coordination in the Pacific War and the manifestation of that evolution, the Joint Assault Signal Company. Non-existent at the outbreak of the Pacific War, the JASCOS that directed such overwhelming firepower at Iwo Jima were the result of nearly two years of wartime adaptation. Based on lessons learned in the war’s early campaigns, the Marines acknowledged—among other concerns—a need for improved coordination of supporting fires. Created in direct response to these early combat lessons, Joint Assault Signal Companies were an example of war-induced military adaptation in doctrine, training, organization, and operational tactics. By studying this process of innovation and adaptation during war, the project reveals how a small, specialized service applied lessons learned in combat to produce a hybrid solution that spanned the wartime realms of organization, training, and tactics. So often in war, victory belongs to the unit that can successfully adjust to its environment and enemy before the opponent. In their crucial role coordinating

American amphibious combat power during the Second World War, the Joint Assault Signal Companies did just that.

In loving memory of Joseph Hemler, Sr.,  
who taught his family to choose joy over self-pity.

## ACKNOWLEDGMENTS

A successful thesis is as much a journey as it is a product. Only through the selfless and persistent aid of peers, mentors, family, and friends can a student hope to survive the process intact and offer a valuable contribution at the finish line.

Unqualified thanks is due to my primary advisor, Professor Brian Linn. Upon my arrival to College Station, Dr. Linn took hold of a young and impressionable Marine hoping to figure out what in the world he would study and pursue. Without his constant and complete attention, this project never would have taken off, much less landed at its destination. Over the past two years, he has invested countless hours in this thesis and my broader development as a historian. He is truly an unrivaled graduate advisor: professional, approachable, and generous with his time and effort. Put simply, the project could not have developed without his devoted and skilled supervision.

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Dr. Jasen Castillo also played a formative role in the task. He helped me to link the project to important debates in the study of wartime innovation and adaptation.

From his accomplished background, he allowed me to envision my work in a larger context and consider the broader implications and possibilities of my focused topic.

Many peers at Texas A&M lent an eye or ear to the study. I enjoyed their company and must offer heartfelt thanks for their assistance in developing my concepts, reviewing chapter drafts, and entertaining discussions about the topics I covered.

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I reserve my deepest gratitude for the unfailing support and encouragement of my wife, Paige. In nearly five years of marriage, her commitment has never wavered. Through continual sacrifice, she has supported both my military and academic careers. Her confidence has often sustained me, and she has been the cornerstone through countless moves, transitions, and the simple ups and downs of life. Words will never do, but perhaps they are a modest start. With eager anticipation, I look forward to our future together.

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At Texas A&M University, a truly top-notch committee supervised the development and refinement of the thesis. Professors Brian Linn and Brian Rouleau of the Department of History and Professor Jasen Castillo of the Department of International Affairs (Bush School) all played formative roles. They provided continual guidance and course corrections that ensured the project's successful completion. All other work was completed independently by the student.

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## CHAPTER I

### INTRODUCTION

At 0645 on 19 February 1945, Admiral Richmond Kelly Turner, commander of Task Force 51, gave the order to land the Marines of the Fifth Amphibious Corps on the Japanese-held island of Iwo Jima. In just over two hours, the initial wave of troops advanced on “Red 1” and became the first Americans to set foot on the black sands of the now-famous island. As the determined Marines fought their way across the island, Joint Assault Signal Companies (JASCOS) coordinated air, sea, and land firepower with devastating effect.<sup>1</sup> The renowned naval historian Samuel Morison later declared: “In no previous operation in the Pacific had naval gunfire support been so effective as at Iwo Jima.”<sup>2</sup> Marine Corps historians Jeter A. Isely and Philip A. Crowl also acknowledged, if indirectly, the key role played by JASCOS when they proclaimed, “coordination among the three supporting arms was superb throughout the operation.”<sup>3</sup>

The JASCOS that directed such overwhelming firepower at Iwo Jima were the result of some two decades of peacetime planning and two years of wartime adaptation. In the early Pacific campaigns for Guadalcanal and Tarawa, Marine forces encountered several challenges as they put their interwar concepts into practice. Amphibious landing

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<sup>1</sup> The author recognizes existing debate over the use of “marine” and “Marine.” This study follows the precedent of Allan R. Millett in *Semper Fidelis: The History of the United States Marine Corps* by using the term “Marine” to refer to members of the U.S. Marine Corps. Richard F. Newcomb, *Iwo Jima* (New York: Holt, Rinehart, and Winston, 1965), 85-108, 164-166.

<sup>2</sup> Samuel Eliot Morison, *History of United States Naval Operations in World War II*, vol. 14, *Victory in the Pacific: 1945* (Boston: Little, Brown and Company, 1964), 40.

<sup>3</sup> Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious Warfare: Its Theory, and Its Practice in the Pacific* (Princeton, NJ: Princeton University Press, 1951), 501.

craft, naval gunfire methods, and command relationships between Navy and Marine officers all required modification. As these opening battles attested, the Corps's theory needed an equal dose of battlefield innovation and adaptation if it was to prove triumphant against a determined Japanese enemy. Namely, the Marines acknowledged a need for improved coordination of supporting fires and stronger command and control across the amphibious force. Aided by the strong doctrinal foundation it had built between the world wars, the Marine Corps committed itself to transforming untested theory into battlefield success.

This thesis explores the evolution of supporting arms coordination in the Pacific War and the manifestation of that evolution, the Joint Assault Signal Company. Created in direct response to the early combat lessons of the war, Joint Assault Signal Companies were an example of war-induced military adaptation in doctrine, training, organization, and operational tactics. By studying this process of innovation and adaptation during war, the project reveals how a small, specialized service applied lessons learned in combat to produce a hybrid solution that spanned the organizational, training, and operational realms of the American wartime forces.

A study of the Joint Assault Signal Company spans three meaningful academic fields. First, these unique military units represent an unstudied yet crucial aspect of World War II historiography. Much of the war's standing scholarship centers on grand strategy, definitive battles, and political leaders. Here, Gerhard Weinberg's *A World At Arms* and Ronald Spector's *Eagle Against the Sun* represent the preeminent works. Other accounts, like Williamson Murray and Allan R. Millett's *A War to Be Won*, focus

on operational considerations and the key military leaders of the conflict.<sup>4</sup> While these various monographs discuss the Marines' island-hopping operations of the war, they do not address *how* American amphibious units innovated and adapted their way to victory in the Pacific. Although JASCOs played a decisive role in the victory over Japan, their contributions remain understudied and unappreciated in the existing scholarship.

Second, an examination of the Joint Assault Signal Company sheds light on an important element of Marine Corps history. Notable service histories of the Corps—Allan Millett's *Semper Fidelis* and Robert Heintz's *Soldiers of the Sea*—treat the Marines' development of amphibious war as a phase in the branch's greater pursuit of identity and expertise.<sup>5</sup> These studies stress the Corps's impressive interwar foresight and combat exploits of World War II, but each of these monographs treat the Marines' movement to amphibious war as a gradual chapter in the larger service history of the Corps. Consequently, this perspective does not effectively consider *how* America's amphibious tacticians addressed the challenges of attacking and securing a hostile shore. Only by studying the Marines' discrete intrawar innovation and adaptation can historians fully understand the Corps's contribution to victory in the Second World War.

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<sup>4</sup> Gerhard L. Weinberg, *A World At Arms: A Global History of World War II* (New York: Cambridge University Press, 1994); Ronald H. Spector, *Eagle Against the Sun: The American War with Japan* (New York: Vintage Books, 1985); Williamson Murray and Allan R. Millett, *A War To Be Won: Fighting the Second World War* (Cambridge, MA: Belknap Press, 2000). For a detailed study on the American political constraints in the war against Japan, see Waldo Heinrichs and Marlo Gallicchio, *Implacable Foes: War in the Pacific, 1944-1945* (New York: Oxford University Press, 2017).

<sup>5</sup> Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps*, rev. ed. (New York: The Free Press, 1991); Robert Debs Heintz, Jr., *Soldiers of the Sea: The United States Marine Corps, 1775-1962*, 2nd ed. (Baltimore: Nautical & Aviation Publishing Co. of America, 1991). For a look at the service's innovative spirit and efficient focus across its life-span, as well as a look into the cultural history of the Marine Corps, see Victor H. Krulak, *First to Fight: An Inside View of the U.S. Marine Corps* (Annapolis, MD: Naval Institute Press, 1985).

With a much tighter focus, Isely and Crowl argued that the Marine Corps developed the foundational doctrine of the amphibious assault in the interwar period and then gradually evolved its approach throughout the war.<sup>6</sup> By presciently navigating the peace between the world wars, and then proving itself an adept learning organization in the early Pacific campaigns, the Marines overcame the extraordinary challenges of the amphibious assault. While this study of JASCO fits within Isely and Crowl's argument on the Marines' evolution of amphibious warfare, the two historians do not closely examine the tactical changes of supporting firepower nor detail its adaptation within the Marines' doctrine, training, organization, and operations.

Third, and in a larger context, this project fits into the study of military innovation and adaptation. In his 2006 article, Adam Grissom outlined four contemporary schools of military innovation: the civil-military model, the interservice model, the intraservice model, and the cultural model. Respectively, these schools assert that military innovation and adaptation is fueled by one of four catalysts: civilian initiative, competition between military services, competition amongst communities within a military service, or an armed force's unique organizational culture. Grissom concluded that the field needed redirection. Instead of fixating on top-down innovation—as he charged the four conventional schools with doing—Grissom petitioned thinkers to break with the popular theories and consider studies in bottom-up military innovation. Rather than continue to study the transformation impacts of senior

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<sup>6</sup> Isely and Crowl, *The U.S. Marines and Amphibious Warfare*; Additional studies on the Marines' application of amphibious war in the Pacific include John A. Lorelli, *To Foreign Shores: U.S. Amphibious Operations in World War II* (Annapolis, MD: Naval Institute Press, 1995) and Richard Wheeler, *A Special Valor: The U.S. Marines and the Pacific War* (1983; repr. Annapolis, MD: Bluejacket Books, 2006).

military leaders, civilian actors, and the highest throes of the service hierarchies, he implored researchers to consider how junior officers and troops, many of them serving on the frontlines, learned to adjust on the battlefield. By responding to Grissom's plea and unveiling new avenues of change, scholars can better recognize bottom-up innovation and investigate the conditions that allow for such grassroots transformation.<sup>7</sup>

Responding to Grissom's invocation, this thesis joins previous authors in uncovering case studies of bottom-up innovation and adaptation in combat. During the Second World War, JASCOs responded to the unique challenges of coordinating supporting fires in amphibious warfare and applied tactical solutions across the training, organizational, and operational realms of the wartime forces. The project serves as a further example that armed forces can in fact innovate and adapt on the battlefield at the grassroots level. Those scholars who have recorded tactical, wartime innovation and adaptation will need no reminder of such evidence.<sup>8</sup> Nonetheless, contemporary theories of military innovation continue to neglect this brand of bottom-up, tactical improvisation.<sup>9</sup> By uncovering the JASCO story, this study assists scholars in considering the conditions and forces required for intrawar, bottom-up change.

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<sup>7</sup> Adam Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (October 2006): 905-934.

<sup>8</sup> Grissom, "Future of Military Innovation Studies," 920-924; James A. Russell, *Innovation, Transformation, and War: Counterinsurgency Operations in Anbar and Ninewa, Iraq, 2005-2007* (Stanford, CA: Stanford Security Studies, 2011). Important studies in bottom-up military innovation include Bruce I. Gudmundsson, *Stormtroop Tactics: Innovation in the German Army, 1914-1918* (1989; repr., Westport, CT: Praeger Publishers, 1995); John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam* (Chicago: University of Chicago Press, 2005); and Keith B. Bickel, *Mars Learning: The Marine Corps' Development of Small Wars Doctrine, 1915-1940* (Boulder, CO: Westview Press, 2001).

<sup>9</sup> Grissom, "Future of Military Innovation Studies," 920-922; Russell, *Innovation, Transformation, and War*, 30.

Of the existing research on military innovation and adaptation in World War II, the U.S. Army and the European theater dominate scholars' attention. Works like Michael Doubler's *Closing with the Enemy*, James Powell's *Learning Under Fire*, and James Carafano's *GI Ingenuity* all consider the American soldier's ability to learn and adapt in the combat of the Second World War. Studies that do consider the Pacific theater and the Marines' role in amphibious warfare often echo the Isely and Crowl thesis by positing that the Marine Corps—as a service branch—adapted its way to victory. But these studies remain fixated at the strategic and operational levels, concerned with the Corps's gradual and committed improvement of the amphibious assault.<sup>10</sup> A look at the Joint Assault Signal Company, however, provides insight on tactical, battlefield-centric change. When confronted with the incredible challenges of attacking a fortified shore, how did American units learn, innovate, and adapt? In the aftermath of their battlefield lessons, how did these troops catalyze change amongst their fellow amphibious forces? By studying the evolution of the Joint Assault Signal Company, this thesis seeks to help answer those inquiries.

Following the introduction, the second chapter of this thesis tells the story of supporting arms at the climactic Battle of Tarawa. In their first major amphibious assault against a hostile shore, American officers proved they had much to learn in the coordination of supporting fires. Many of the November 1943 mistakes exacted a heavy

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<sup>10</sup> Allan R. Millett, "Assault from the Sea: The Development of Amphibious Warfare Between the Wars," in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millett (New York: Cambridge University Press, 1996), 50-95; Paul Kennedy, *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War* (New York: Random House Trade Paperbacks, 2013), 303-313.

toll from the Marines' Fifth Amphibious Corps and sparked a serious reappraisal of supporting arms coordination. Chapter three reveals how Navy and Marine leaders reflected on the deficiencies displayed at Tarawa and pursued corrective steps across the Pacific theater. Hoping to solve their firepower troubles with a creative new unit, these leaders unveiled the Joint Assault Signal Company in late 1943. The chapter follows the evolution of the JASCO closely, from theoretical construct to crucial member of the triphibious team.<sup>11</sup> The fourth chapter looks at firepower coordination during the Marines' remarkable attack on Iwo Jima. This operation reveals the JASCOs' impact on amphibious operations by the final months of the war and provides an index by which to judge their wartime progress. The final chapter considers how Marine and naval officers reflected on the Joint Assault Signal Company at the close of the war and offers some concluding thoughts on this work's significance in the study of military innovation and adaptation.

This project is based largely on primary source documents. The preponderance of training guidance, wartime reports, and service correspondence used to build the thesis came from the Marine Corps History Division's "Historical Amphibious Files," held at the Corps's Archives Branch in Quantico, Virginia. These files provide insight into the inner workings of the U.S. Navy and Marine Corps's wartime structure, from training guidance and operational plans to post-battle analyses.

Amphibious doctrine and training manuals developed during the 1930s provide a foundation for the discussion. In particular, the Marine Corps's 1934 *Tentative Manual*

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<sup>11</sup> This study considers the combination of land, sea, and air forces as a triphibious force.

*for Landing Operations* reveals how officers approached supporting arms coordination at the outbreak of the conflagration. Training correspondence and operational documents from the 1940s show quite clearly how the amphibious task forces planned, trained for, and executed their supporting fires coordination throughout the war. Post-combat reports uncover additional details: specifically, how military leaders evaluated firepower coordination in the immediate aftermath of amphibious battles. The final portion of primary sources—articles collected from the Marine Corps’s professional journal—reveal how the branch’s own members discussed and analyzed supporting arms coordination at the time. These documents, reports, and articles—drafted almost entirely by junior and mid-level officers for a senior audience of commanders, generals, and civilian strategists—provide a valuable perspective into bottom-up innovation and adaptation. In addition to these primary sources, several important secondary works help to appreciate the larger operational and strategic context of the war.

Recognizing the World War II Joint Assault Signal Company as a unique representation of wartime adaptation underscores larger trends of institutional learning and problem-solving. The unique conditions, actors, and organizational culture that fueled the JASCOS’ development can help scholars better understand bottom-up innovation and further refine contemporary theories on wartime adaptation. Often in war, victory belongs to the unit that can successfully adjust to its environment and enemy before the opponent. In their crucial role coordinating American amphibious warfare during the Second World War, the Joint Assault Signal Companies did just that.

## CHAPTER II

### TESTING DOCTRINE: SUPPORTING ARMS COORDINATION AT TARAWA

In the early hours of 20 November 1943, Marines of the Fifth Amphibious Corps loaded their equipment and prepared to assault the Japanese-held Tarawa atoll in the Central Pacific. As the Marines carefully traversed down the cargo nets and settled into their landing craft, naval guns of Task Force 53 began the pre-landing bombardment. In just four hours, the task force delivered more than 2,500 tons of naval shells on the Japanese defenders. As the landing craft turned their bows toward the beaches of Tarawa, many Marines found comfort in the preparatory shelling. Without question, the barrage had shattered Japanese will and smashed the atoll's defenses. As *Time* correspondent Robert Sherrod recalled, "surely, we all thought, no mortal men could live through such destroying power."<sup>12</sup>

Despite their confidence, the Marines encountered stiff resistance at the water's edge. To their dismay, the enemy defenses were largely intact and Tarawa's protectors seemed untouched by the overwhelming American firepower. Instead, the Japanese garrison met the American assault on the beach and resolved to throw the Fifth Amphibious Corps back into the sea. Fighting from fortified bunkers, Japanese troops caught the attacking Marines in deadly kill zones of pre-sighted machine gun and mortar fire. By battle's end, the landing force took more than 3,400 casualties in less than four

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<sup>12</sup> Robert Sherrod, *Tarawa: The Incredible Story of One of World War II's Bloodiest Battles* (1944; repr., New York: Skyhorse Publishing, 2013), 62.

days of fighting. News traveled fast to the American home front, and many found Tarawa's cost appalling. At Guadalcanal, and reinforced by the Army's Americal Division, the Marines had lost 3,900 casualties over a six-month campaign that secured 200 square miles. How had the two square miles of Tarawa and just 76 hours of combat cost the Marines such a horrific price?<sup>13</sup>

### *The Path to Tarawa*

When the Marines initiated their assault on Tarawa in 1943, they capped an organizational journey that had defined the service for nearly a quarter-century. Since the conclusion of the First World War, the Corps's interest in amphibious warfare had grown substantially and gained support at the highest levels of service leadership. This path was far from accidental. By the early 1920s, the Navy Department's War Plan ORANGE focused American military attention on an assumed war with Japan in the Central Pacific. Before long, Navy and Marine Corps officers recognized that this war would demand the seizure and defense of advanced bases throughout the region. However, after Britain's embarrassing failure at Gallipoli in 1915, conventional military wisdom determined that amphibious assaults were insensible operations, wasteful in both human life and military resources. Recent technological developments—according to some strategists—had raised the stakes of the amphibious attack. Instead of just daunting, the job was now nearly impossible.

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<sup>13</sup> Joseph H. Alexander, *Across the Reef: The Marine Assault of Tarawa* (Washington, D.C.: Marine Corps Historical Center, 1993), 8-13.

In the face of this resistance, the interwar Marine Corps resolved to develop the doctrine and capability to launch a successful attack from the sea. The movement gained institutional energy when Major General John A. Lejeune became the Corps's Commandant in 1920 and set the service on a gradual but committed path toward amphibious warfare. Lejeune appointed a brilliant staff officer, Major Earl "Pete" Ellis to further study and plan the Marine Corps's budding mission. With little delay, Ellis recognized the disturbing but unavoidable task that awaited the Marines—an advance across the Pacific would require a long chain of amphibious assaults. While existing doctrine assumed uncontested landings, Japan's seizure and suspected fortification of Pacific islands heightened the challenge from amphibious landings to amphibious assaults. Undoubtedly, these operations would be met with aggressive Japanese resistance at each island checkpoint.

Before Ellis's tragic and mysterious death on Palau island in 1923, he presented his research capstone, "Advanced Base Operations in Micronesia," to Major General Lejeune. The enthusiastic Commandant wasted no time approving Ellis's plan in July of 1921. The Navy Department added its bureaucratic support in a 1927 directive which gave the Marine Corps specific responsibility for amphibious landing operations. Six years later, the Navy's General Order Number 241 directed the establishment of the Fleet Marine Force—a unit designated explicitly for amphibious service and the seizure of advanced bases.

While the Navy Department's Pacific planning fueled the Marines' evolution, the Corps's leadership focused on developing a doctrinal foundation for amphibious

warfare. These visionaries took advantage of the faculty, staff, and students assigned to Marine education programs and tasked them to study and synthesize the service's approach to amphibious operations. These efforts culminated in the 1934 *Tentative Manual for Landing Operations*, a publication later re-branded as the Navy's *Fleet Training Publication 167* in 1938. The *Tentative Manual* focused largely on command relationships between the services, the movement of troops from ship to shore, and the logistics required to support amphibious landings.<sup>14</sup>

The Marines' handbook also dedicated substantial attention to the role of naval gunfire and aerial support during landing operations. As past amphibious endeavors had shown, an attacking force was weak and vulnerable during its approach from the sea. Indeed, this reality largely explained the contemporary aversion to sea-based assaults. Since the landing force could not employ artillery in the early moments of the offensive—the planners reasoned—it must rely on other forms of supporting firepower. As the authors wrote in the *Tentative Manual's* opening chapter, amphibious operations must be “modified by substituting initially ships' gunfire for that of light, medium, and heavy field artillery, and frequently, carrier based aviation for land based air units until the latter can be operated from shore.”<sup>15</sup>

Although the manual recognized the importance of naval and aerial fires, it failed to address the coordination of these crucial supporting arms. Throughout the manual,

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<sup>14</sup> Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* (Princeton, NJ: Princeton University Press, 1951), 34-44; Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps* (New York: The Free Press, 1991), 322-43.

<sup>15</sup> United States Marine Corps, *Tentative Manual for Landing Operations* (Quantico, VA: U.S. Marine Corps Schools, 1934), paragraph 1-34.

the writers focused on the individual execution of naval gunfire and aviation operations, dedicating scant attention to the crucial *coordination* of the efforts. Instead of recognizing that fire support must remain flexible and responsive on the battlefield, the manual instead emphasized centralization, stating that naval gunfire must be “carefully regulated by a firing schedule.”<sup>16</sup> In addition to its heavy-handed control, the handbook failed to emphasize the crucial need for continuous fire coverage as the landing troops approached the shore. Instead, the writers conceded to a substantial break in fire support, declaring that “the time gap between the lift of beach fire of offshore supporting ships and the landing of the first assault wave is inherently large.”<sup>17</sup> By these admissions, the pre-war doctrine took a complacent position on the coordination of its naval fires in support of amphibious assaults. As the Marines would later learn, even minutes of lull from their supporting arms could spell disaster for a landing force.

The manual addressed aerial support with similar certainty, and with similar mistakes. Instead of highlighting aviation coordination within the larger operation, the doctrine writers focused on tactical tasks like reconnaissance and protection of the naval task force. While the *Tentative Manual* directed aircraft to attack surviving targets after the ships’ gunfire had lifted, the guide ignored the challenge of managing this intricate transition between sea and aerial fires. Even in their guidance on air-ground communications, the authors overlooked the importance of supporting arms coordination and instead emphasized reconnaissance and spotting tasks between the pilots and the

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<sup>16</sup> United States Marine Corps, *Tentative Manual for Landing Operations*, paragraph 2-318.

<sup>17</sup> United States Marine Corps, *Tentative Manual for Landing Operations*, paragraph 2-318.

ground troops.<sup>18</sup> Absorbed by the individual roles of naval gunfire and aviation support, the manual's creators failed to recognize the challenges of *integrating* the combat power of the land, sea, and air components. Based largely on their confidence in American capabilities—a defensible error—the writers assumed that American firepower would prove overwhelming in and of itself.

Built upon the doctrinal foundation of the *Tentative Manual*, the Marine Corps's interwar training also failed to focus sufficiently on supporting arms coordination. Beginning in March of 1935, the Navy and Marine Corps initiated a continuum of annual Fleet Landing Exercises designed to test the services' novel methods. Alternating between the coasts of Culebra, Puerto Rico and Southern California, the drills focused on developing suitable landing craft, experimenting with logistics at-sea, handling casualty evacuations, and improving naval gunfire support in landing operations. By the conclusion of Fleet Landing Exercise (FLEX) 5 in 1939, the two services had made substantial improvements in many of their priorities, including landing craft, casualty management, and ship-to-shore movement.<sup>19</sup> However, supporting arms coordination remained stagnant throughout the fleet exercises. The drills were continually hampered by low prioritization from Navy leadership, who demonstrated a clear preference for naval base defense and large fleet operations over the annual amphibious training. Encouraged by this culture, naval aviation squadrons often found reasons to avoid the annual exercises entirely. In the absence of aircraft,

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<sup>18</sup> United States Marine Corps, *Tentative Manual for Landing Operations*, paragraph 2-415 through 2-428.

<sup>19</sup> Millett, *Semper Fidelis*, 337-43; B. W. Gally, "A History of U.S. Fleet Landing Exercises," Historical Amphibious Files, USMC Historical Division, Quantico, VA, 1939.

FLEX units avoided the messy but crucial task of coordinating a triphibious force. Similarly, naval gunfire ships were guilty of training shortcuts. To conserve ammunition, the ships omitted proper coordination procedures and fired at clearly marked shore targets. When they did participate, naval leaders were far more concerned with testing shell and fuze combinations than evaluating the ships' integration with the ground troops. Based on safety concerns for friendly personnel, the ships often fired on separate islands from the landing force training sites. By evading the need for integration entirely, the FLEXs failed to test the coordination skills of the land, sea, and air components.<sup>20</sup>

Despite the many sound components of the *Tentative Manual*, Navy and Marine Corps leadership failed to establish complete doctrine and rigorous training for the coordination of supporting arms during the interwar period. Complacent training habits compounded the interwar shortfalls in doctrine and created a misplaced overconfidence in the coordination of supporting arms. Such confidence is surprising. For attentive military thinkers, the bloodletting of the First World War should have reinforced the importance of supporting arms. The disastrous amphibious landing at Gallipoli alerted strategists of the need for effective naval gunfire support when attacking a defended beach. Despite the precedent, amphibious planners devoted scarce attention to the coordination of their land, sea, and air components. Only the test of combat would convince Navy and Marine Corps officers that their long-anticipated war with the

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<sup>20</sup> Gally, "A History of U.S. Fleet Landing Exercises"; David L. Nutter, "Gunfire Support in Fleet Landing Exercises," (Atlantic Squadron, 1939); Millett, *Semper Fidelis*, 337-9.

Japanese required a deliberate synchronization of the triphibious force. Unfortunately, the conviction would come at a horrifying price when American coordination was truly tested in late 1943.

*Tarawa: Evaluation Under Fire*

The Japanese attack on Pearl Harbor in December of 1941 changed everything for the United States Marine Corps. Although the service had already staked its claim to the amphibious assault mission within the Navy's War Plan ORANGE, its interwar capability was notional and untested. The war's early months brought disappointment and alarm to American civilians and military leaders alike. Japanese forces seemed to advance at will as the Philippines, the Dutch East Indies, and western New Guinea fell to the flag of the Rising Sun. Finally, in June of 1942, the Allies landed a crushing blow when they sank four Japanese aircraft carriers in a critical victory at Midway. Eager to build on the naval triumph and move closer to Japan's key anchorage site on Rabaul, the Joint Chiefs of Staff ordered American forces to seize Tulagi and Guadalcanal in the Solomon Islands. On 7 August 1942, Major General Alexander Archer Vandegrift's First Marine Division charged ashore on Guadalcanal and—to the relief of the landing force—encountered only light Japanese resistance. The Marines quickly secured the strategic airfield on Guadalcanal and prepared to defend the renamed "Henderson Field" at all costs.

In short time, Japanese leaders funneled reinforcements to the island and initiated a fierce, drawn-out struggle. Under the crucial air support coverage of Brigadier General

Roy Geiger's "Cactus Air Force," the Marines turned back attack after attack, defending the crucial air strip at all costs. Not until early February did the Army's XIV Corps—having relieved the beleaguered Marines in November—declare Guadalcanal secure.<sup>21</sup> While the struggle in the Solomons gave the Americans their first victory against the Imperial Japanese Army—no insignificant feat—the energizing triumph still left the Marines inexperienced and untested in the art of amphibious assaults. By meeting no resistance on the beaches of Guadalcanal and initially securing the air field at little cost, the Marines' true experience on the island was dominated by defensive jungle fighting. Although Guadalcanal would prove beneficial as an introduction to combat in the Pacific, the campaign did little to test the Marines' prewar doctrine and amphibious assault capabilities.

By the summer of 1943, Allied war leaders settled their plans on a dual-axis amphibious drive through the Pacific. General Douglas MacArthur would lead predominantly Army outfits through the Southwest Pacific while Admiral Chester Nimitz would direct his troops through the Central Pacific—the very route that the Marines had predicted, planned, and emphasized for more than two decades. The strategists quickly set their sights on seizing the Gilbert Islands in late 1943, hoping to mount a subsequent offensive on the valuable Marshalls in the following year. After detailed study in a sequence of Allied conferences, planners chose three objectives for the Gilberts drive: the Tarawa, Makin, and Apamama atolls. Assigned to the Fifth

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<sup>21</sup> Millett, *Semper Fidelis*, 353-71; Richard Frank, *Guadalcanal: The Definitive Account of the Landmark Battle* (New York: Penguin Books, 1990), 59-72, 596-98.

Amphibious Corps, a simultaneous assault on Tarawa and Makin would mark the opening moves of the offensive.

Marching orders in-hand, the planners of the Fifth Corps initiated a swift analysis of the assigned atolls. Their prognosis was bleak. The Tarawa chain in particular presented several physical challenges. The islands were characterized by level terrain that gave the defending force extended fields of fire. Further, Tarawa was surrounded by an alarming coral reef that, during periods of low tide, threatened to ground any attacking landing craft. But most concerning to the intelligence analysts were the sustained defensive efforts of the Japanese garrison. Having captured Tarawa just days after the strike on Pearl Harbor, Japanese forces reinforced the atoll's crucial island of Betio with 2,600 men from an elite naval landing force, bringing the defensive manpower to nearly 5,000 troops. Before long, the Betio stronghold comprised a menacing web of barbed wire, minefields, and log barriers. Eight-inch naval guns, coastal defense artillery, and a wealth of heavy and light machine guns saturated the island with firepower. Covering less than six-tenths of one square mile, the island boasted nearly 500 concrete bunkers. The Japanese commander, Admiral Meichi Shibasaki, gloated to his troops that "a million Americans couldn't take Tarawa in 100 years."<sup>22</sup>

As they developed the operational orders for Tarawa, American planners weighed the benefits of a lengthy preparatory bombardment against the need for

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<sup>22</sup> Isely and Crowl, *The U.S. Marines and Amphibious War*, 192-98; Millett, *Semper Fidelis*, 393-99; Alexander, *Across the Reef*, 4.

strategic surprise in the forthcoming assault on the hardened atoll. Instinctively, Marine leaders petitioned for a prolonged naval bombardment that would ease the task of the landing force. Navy officers, however, proved reluctant to subject their ships and aircraft to the risks of an extended preliminary bombardment. Reminded of the recent campaign at Guadalcanal—a six-month battle of attrition that traded aircraft and ships like baseball cards—naval leaders were content to restrict Tarawa’s pre-landing bombardment. Surprise won priority over suppression and the preliminary shelling was limited to less than four hours.<sup>23</sup> In reality, the risk avoided by the Navy’s ships and aviation squadrons in a shortened barrage was transferred onto the shoulders of the landing force. The Marines of the Fifth Amphibious Corps would pay a heavy price for the increased safety of American ships and aircraft.

Shortly after 0500 on 20 November 1943, the American task force opened fire with its naval bombardment against Betio. The barrage delivered some 2,500 tons of naval shells on the dug-in Japanese forces, hoping to neutralize the island’s formidable defenses. Few military plans, however, survive the initial moments of battle. Soon, the American plan fell to pieces. Transport ships anchored in the wrong locations, updates from the landing craft failed to reach fellow units of the task force, and the operational timeline collapsed.<sup>24</sup> Plagued by shallow water over Tarawa’s infamous reef, the amphibian tractors were delayed thirty minutes or more in delivering their Marines ashore. Instead of the first assault wave arriving as dictated by the original timeline, the

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<sup>23</sup> Millett, *Semper Fidelis*, 395-96; Alexander, *Across the Reef*, 4-8.

<sup>24</sup> Alexander, *Across the Reef*, 8-12.

vanguard troops failed to land until 0930, throwing the coordination of the task force into disarray. Without knowledge of the delay, naval gunfire ships ceased their supporting fires at 0855, in strict accordance with the pre-established timeline. The breakdown in coordination left the landing force in a dangerous lapse of fires and allowed Japanese forces some thirty minutes to recover and prepare for the ensuing assault. As the Corps Naval Gunfire Officer acknowledged, “the fire stopped on schedule, although the boats and troops were yet far from the beach and subjected to murderous fire of unneutralized batteries.”<sup>25</sup>

American aircraft supporting the invasion also suffered from coordination problems in the early hours of the battle. On more than one occasion, naval ships off the coast of Tarawa executed a pause in their firing sequence to allow sufficient time for an aerial attack ashore. But the aircraft failed to arrive.<sup>26</sup> In addition, the carrier aircraft ended their supporting fires long before the infantry units reached the beach, leaving lethal gaps in the aerial coverage of the assault. As they arrived overhead to neutralize specific targets for the beleaguered landing force, the air sections failed again to provide continuous coverage for the ground troops, leaving them dangerously vulnerable in between strafing runs. Without close coordination between the infantry units and their supporting arms, the two components failed to achieve their combined potential in the battle. As with the naval gunfire lapses, the lack of continuous air coverage exposed the maneuver units to additional risk as they struggled to move forward on the treacherous

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<sup>25</sup> Corps Naval Gunfire Officer, “Report on Naval Gunfire during GALVANIC,” in *Report by Special Staff Officers on Gilbert Islands* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 13; Roger M. Emmons, “Tarawa Bombardment,” *Marine Corps Gazette* 32, no. 3 (March 1948): 43.

<sup>26</sup> I. E. McMillian, “Naval Gunfire at Roi-Namur,” *Marine Corps Gazette* 32, no. 7 (July 1948): 51.

beaches.<sup>27</sup> Failing to properly orchestrate their fires, American supporting arms left the landing force vulnerable on its way ashore.

When the Marines finally waded onto Betio, they continued to suffer from coordination issues with their counterparts at sea and in the air. Many pilots failed to update the respective ground units of their attack status (commencement, completion, and results) and the Air Liaison Parties—those tasked specifically with integrating ground and aviation forces—failed to extract such information. Consequently, the land units often struggled to coordinate their tactical movements with the airplanes above. When the landing force was able to establish coordination and begin directing the aircrafts' ordnance, they found it difficult to translate enemy target locations and details to the pilots in the air. Equipped with different maps and target charts, the air and ground forces struggled to communicate clearly and apply their combined strength against the Japanese positions. As ground spotters spoke directly to the supporting aircraft, they wrestled to find common reference points and precise grid locations to share with the pilots. Hoping that something was better than nothing, the pilots usually fired on general, imprecise locations, thereby weakening the effectiveness of their munitions. Indeed, the process proved vexing and onerous for the ground troops that so desperately needed targets destroyed ashore.<sup>28</sup>

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<sup>27</sup> Corps Air Officer, "Air Officer Report of GALVANIC Operations," in *Report by Special Staff Officers on Gilbert Islands* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 1-4.

<sup>28</sup> Corps Signal Officer, "Analysis of Communication Reports, Galvanic Operation," in *Report by Special Staff Officers on Gilbert Islands* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944); Corps Air Officer, "Air Officer Report," 4.

As the Fifth Corps struggled on Betio's beaches, the force quickly found its coordination problems compounded by communication failures across the battlefield. As they advanced into the pre-sighted machine gun and mortar fire, the Marines again found themselves in a deadly lull of supporting arms at a vulnerable moment. Most of the Corps's Jeep-mounted radios—the primary means to talk back to the firing ships and aircraft—were lost or destroyed during the contested landing. Communication teams were forced to cannibalize various radio sets and rig impromptu combinations in an attempt to establish contact with the ships and carrier aircraft. Until they could succeed at such informal methods, the ground units were cut off from their support and unable to apply the full power of the task force.<sup>29</sup>

Other units were successful at establishing communications with the ships offshore, but struggled nonetheless to coordinate ground, air, and naval activity across the battlefield. After setting up radio nets with their firing ships, many regimental and battalion naval gunfire liaison officers were unable to communicate with their adjacent units ashore. This reality thwarted efficient naval gunfire planning as the ground units were unable to combine and prioritize their targets. Units repeated requests for fire unnecessarily and confused the operational picture throughout the landing force.<sup>30</sup> Equally problematic, the direct air support net—a doctrinal net used solely for aviation requests—was consistently crowded by dissociated units passing extraneous

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<sup>29</sup> Corps Naval Gunfire Officer, "Report on Naval Gunfire," 5; Reber, "Evolution of Amphibious Communications," 39; Corps Air Officer, "Air Officer Report," 3-4.

<sup>30</sup> Corps Signal Officer, "Analysis of Communication Reports," 5-8; Corps Naval Gunfire Officer, "Report on Naval Gunfire," 4-7.

information.<sup>31</sup> Although these units were attempting to overcome their own communication challenges, they unknowingly placed additional hurdles between the infantry troops ashore and the aviation support they desperately needed. Along with the equipment damaged or lost during the landing, these troublesome practices compounded the coordination challenges of the Fifth Amphibious Corp.

By midday on 20 November, the American situation at Tarawa looked bleak. Colonel David M. Shoup, commanding a combat team of the 2d Marine Division and involved in some of the most savage fighting on the island, committed his regimental reserve as he sent worrisome reports to the division and corps commanders at sea. By late afternoon that same day, Major General Julian C. Smith, in command of the 2d Division, ordered the Sixth Marine Regiment to load their landing craft and head ashore. In doing so, Smith committed his final reserves to the fight. Nightfall on 20 November found the Marines in a precarious state. Late in the day, Smith transmitted one of the battle's historic messages to the Corps commander: "situation in doubt."<sup>32</sup>

Despite the concerning situation on D-Day, the battle slowly shifted in the Marines' favor on 21 November. As the task force built its combat power ashore, landed artillery and tanks helped the Marines advance. In addition to the material boost, the reinforcements raised the Marines' spirits and assured them of more support to come. Yard-by-yard, the American troops cleared Japanese positions and slowly made their way across the island under the cover of 75mm howitzers and 37mm light tank guns.

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<sup>31</sup> Corps Air Officer, "Air Officer Report," 2-3.

<sup>32</sup> Alexander, *Across the Reef*, 23.

Engulfing Betio in dust, debris, and shrapnel, American firepower rained disorder on the Japanese defenders. With their communications severed, the Japanese commanders were unable to combine and orient their defensive efforts. A concentrated counterattack never developed.

By the 22nd, the Fifth Amphibious Corps had 7,000 men ashore, compared to an estimated 1,000 defenders remaining. The American's manpower advantage helped turn back a final Japanese attack later that night. Shortly after 1300 on 23 November, the Marines secured the island. Of nearly 5,000 Japanese troops and Korean laborers on Betio, the Fifth Amphibious Corps took only 146 prisoners. Armed with flamethrowers and rifles, the Marines had cleared the island bunker by bunker. Despite their costly mistakes early in the battle, the American troops proved courageous and aggressive in the succeeding days. Julian Smith attributed his Corps's victory solely to the courage and determination of the attacking Marines. The few Japanese prisoners reported that despite the Americans' intimidating firepower, what truly broke the defenders' spirits was the dogged, relentless flow of Marines over Betio's beaches.<sup>33</sup>

#### *Assessing the Failures at Tarawa*

Tarawa proved a watershed moment both on the American home front and in the Pacific Theater. As the Marines recovered from the gory battle, U.S. President Franklin Roosevelt personally approved the release of stunning video footage in the 1944 documentary *With the Marines at Tarawa*. Embedded correspondents like Robert

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<sup>33</sup> Alexander, *Across the Reef*, 27-35, 50-52; Sherrod, *Tarawa*, 136.

Sherrod returned home and told the American public that “words are inadequate to describe what I saw on this island.”<sup>34</sup> The combination of films, pictures, and written word brought the bloody combat of the Pacific to a shocked American public.

The battle’s aftermath initiated a passionate debate over Tarawa’s value in the Pacific fight. The American citizenry, and even some politicians, began to question the atoll’s worth and the staggering price it had demanded from America’s sons.<sup>35</sup> An article published in *Life* in early December of 1944 framed the debate: “Was such a fight not too costly for a patch of sand two and a half miles long and 800 yards wide? What could be worth suffering such anguish for?” The author answered the rhetorical question with a fervent defense. Tarawa demonstrated the determination of the American Marines and “brought home, as it needs to be brought home again and again, the fact that there is no cheap short cut to win wars.”<sup>36</sup>

While American citizens wrestled with the human costs of the offensive in the Gilberts, the military also reflected on the battle. Marine and Navy officers learned many valuable lessons at Tarawa, and their post-battle analysis brought significant changes in future Pacific operations.<sup>37</sup> During the fight for Betio, ground, aviation, and naval forces learned that unity of effort did not come easily in triphibious war. Leaders were reminded that the strength of combined arms lies in their coordination—a deficient characteristic of the Americans’ fight for Tarawa. Post-battle reports recommended

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<sup>34</sup> Sherrod, *Tarawa*, 123.

<sup>35</sup> “Some Will Be Killed,” *Time* 42, no. 26 (27 December 1943): 26.

<sup>36</sup> “Tarawa: The Marines Win New Glory in the Gilberts and Prove There Is No Cheap Way to Victory,” *Life* 15 (6 December 1943), 36.

<sup>37</sup> Alexander, *Across the Reef*, 50-2.

changes nearly across the spectrum of the task force. Naval gunfire, aviation support, and communications all faced examination in the weeks and months following the bloody battle.

Following the combat on Betio, officers up to and including Major General Holland Smith, commander of the Fifth Amphibious Corps, directed an intense post-battle study of Tarawa. Various sections of the American task force gathered reports, analyzed the Americans' performance, and passed recommendations through to their higher headquarters. Many of the discussions took place while the Fifth Corps was still embarked at sea in the weeks following the assault. Passing ever-higher through the chain of command, the reports reached their culmination on Admiral Richmond "Kelly" Turner's Task Force 54 flagship. At this point, the investigations culminated expressly in a compiled, Corps-level report that totaled nearly 300 pages: the *Report by Special Staff Officers on Gilbert Islands*.

Based on their post-action analysis, officers of the Fifth Amphibious Corps were quick to provide recommendations on the conduct of the battle. The ineffective pre-landing bombardment led naval gunfire officers to measure future barrages in days, not hours. In addition to extending the preparatory fires, gunnery officers learned to position their ships closer to shore in order to achieve better effects against the hardened Japanese defenses. Admiral Chester Nimitz, Commander-in-Chief of the Pacific Fleet, directed an extensive study of Japanese fortifications on Tarawa, in order to adapt naval and

aviation training to the stubborn defenses encountered by the American task force.<sup>38</sup> Most notably, the battle's examination centered on the integration and execution of supporting arms before and during the assault. In attempting to accommodate unsuccessful aerial bombardments and in blind adherence to the predetermined timeline, leaders at Tarawa failed to synchronize the efforts of their land, sea, and air forces.

Recognizing the disjointed timeline, supporting arms officers contended that future firepower needed to remain flexible throughout the battle, and must continue until the first landing waves hit the beach. Aviation liaison officers criticized the support aircraft for their extended gaps in air coverage, arguing that the pilots needed to remain flexible and minimize the lulls in their strafing runs.<sup>39</sup> The Corps Naval Gunfire Officer suggested that fire "be lifted with reference to the progress of the landing craft rather than on a time schedule." Going further, he recommended incorporating land-based artillery methods into naval gunfire: "It is my belief that it [naval gunfire] can be fired as an artillery rolling barrage to a certain degree."<sup>40</sup> In each facet of supporting arms, Tarawa taught American officers to focus on the crucial moment when the bows of the landing craft touched the hostile beach.

Central to the very nature of command and control, communications at Tarawa also garnered significant attention in the ensuing investigation. For the diverse force to synchronize its efforts, the components needed to be able to communicate with each other amidst adverse sea conditions as well as the bullets and bombs of combat. From

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<sup>38</sup>Emmons, "Tarawa Bombardment," 43; McMillian, "Naval Gunfire at Roi-Namur," 51; Alexander, *Across the Reef*, 49.

<sup>39</sup>Corps Air Officer, "Air Officer Report," 1-2.

<sup>40</sup>Corps Naval Gunfire Officer, "Report on Naval Gunfire," 7, 13.

the moment the Fifth Amphibious Corps loaded its landing craft, communication capabilities failed to hold the amphibious force together at Tarawa. The tactical radio sets were ill-suited for amphibious operations and proved particularly bulky as the Marines waded ashore. With many radios either damaged or lost during the landing, the infantry units found themselves cut off from their support and unable to leverage the full firepower of the naval task force. In response, officers recommended two significant changes for future operations: first, that amphibious forces acquire waterproof communications equipment that could withstand the conditions of an opposed landing. Second, that the landing force have adequate radios not only in the landing force's jeeps, but also in the amphibian tractors that carried the Marines ashore. As the Signal Officer declared, the landing force "must be prepared to request and control fire support while still embarked in landing craft."<sup>41</sup>

In their post-battle analysis, leaders also reflected on battlefield awareness at Tarawa, or the ability of American units to observe and react to the changing conditions of the fight. The various components of the task force—particularly those at sea—suffered from an inaccurate picture of the battle ashore. Inherently separated from the battlefield by distance and altitude, ships and aircraft depended upon the ground Marines to act as the "eyes and ears" of the triphibious force. By failing to transmit regular updates on friendly positions, unit objectives, and enemy strongpoints, the landing force

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<sup>41</sup> Corps Signal Officer, "Analysis of Communication Reports", 4; Corps Naval Gunfire Officer, "Report on Naval Gunfire," 7-8, 10.

restricted the effectiveness of its supporting arms.<sup>42</sup> Without accurate and timely information, the ships could not provide immediate support when the ground units requested naval fires—the process was necessarily delayed by additional questions and clarifications. At times, the lack of common awareness amongst the forces even threatened the units ashore with friendly fire.<sup>43</sup> Common battlefield awareness at Tarawa required improvement, and unit leaders critiqued these failed attempts with fervor in their post-battle reports.

Taken in sum, supporting arms coordination in the Tarawa assault suffered from three distinct failures. As the landing force moved ashore, the disjointed timeline of naval gunfire and aviation support imposed a deadly hiatus of supporting firepower on the vulnerable Marines. Compounding the challenge of their incredible mission, the Fifth Corps found its communications gear inadequate for amphibious operations. Even when radio equipment was available and operational, however, the units were plagued by dissimilar maps, unrehearsed techniques, and uncommon lexicon. Put simply, the task force failed to fight as a cohesive unit. Despite the laborious efforts of American military planners—deliberate training exercises, sound amphibious doctrine, and decades of war gaming—some lessons were learned the hard way in 1943.

In Tarawa's aftermath, officers made numerous adjustments across the amphibious force. Future Allied operations were aided by more capable amphibious command ships and robust communications equipment. The experience on Betio taught

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<sup>42</sup> Corps Naval Gunfire Officer, "Report on Naval Gunfire," 15; Corps Signal Officer, "Analysis of Communication Reports," 2-4; Thomas N. Greene, "Greater Coordination of Supporting Fires," *Marine Corps Gazette* 31, no. 4 (Apr 1947), 40.

<sup>43</sup> Corps Naval Gunfire Officer, "Report on Naval Gunfire," 7-10, 15.

Americans the utility of the flamethrower in clearing Japanese bunkers and the need for more armored amphibian tractors. Leaders further refined the ship-to-shore supply procedures, ensuring that the landing force had the best equipment and supplies at the time it needed them most.<sup>44</sup> In the midst of their varied refinements, leaders resolved to address the coordination of supporting arms. From fires synchronization to communications and battlefield awareness, American units at Tarawa failed to achieve their combined potential. If the Marines were to avoid the gruesome costs suffered on Tarawa, the three arms of the triphibious force needed to learn to fight as one coordinated team. How American officers responded to that lesson proved crucial in the succeeding campaigns of the Pacific War.

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<sup>44</sup> Isely and Crowl, *The U.S. Marines and Amphibious War*, 251-52.

## CHAPTER III

### JASCO ON THE SCENE:

#### SUPPORTING ARMS COORDINATION IN THEORY AND IN PRACTICE

In a 1973 lecture, military historian Michael Howard argued that peacetime military forces operate in a hazy void where they cannot verify their developing theories and tactics. Much like a sailor who relies on dead reckoning during periods of heavy fog, these forces must prepare for war with no way to confirm their methods and weapons.<sup>45</sup> In November of 1943, the Marines' assault on Tarawa embodied Howard's argument. After spending more than two peacetime decades preparing for war with Japan, the Marines took more than 3,400 casualties in a battle that lasted just 76 hours.<sup>46</sup> Having finally emerged from the fog of the interwar peace, the Corps had a fixed and visible gauge by which to adjust their methods. In the hopes of avoiding the alarming casualties sustained on Betio Island in future campaigns, Navy and Marine officers labored to correct the failures of firepower coordination at Tarawa.

In their immediate analysis of the Tarawa campaign, American officers identified three crucial areas for improvement: the operational control of the coordination agencies, the equipment afforded to such teams, and the coordination agencies' integration within

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<sup>45</sup> Michael Howard, "Military Science in an Age of Peace," *Periodicals Archive Online* 119, no. 1 (March 1974): 4.

<sup>46</sup> Joseph H. Alexander, *Across the Reef: The Marine Assault of Tarawa* (Washington, D.C.: Marine Corps Historical Center, 1993), 50.

the amphibious landing force.<sup>47</sup> In each of these aspects, supporting arms coordination had struggled in the early battles of the Pacific War. In the months that followed, Navy and Marine officers set their sights on these crucial components of amphibious warfare.

Throughout 1942 and 1943, American coordination teams suffered from a transitory existence that precluded them from developing solidarity with the divisions they supported. While combat units did have Shore Fire Control Parties and Air Liaison Parties to respectively coordinate naval and aviation fires during an amphibious campaign, the coordination agencies were not a standing component of the force structure. Rather, these sections were formed impromptu as approaching operations dictated and were immediately recalled to higher headquarters when their specialized mission was complete.<sup>48</sup> Accordingly, the units suffered from a reactive lifecycle that continuously reassigned them to various divisions throughout the Pacific. Unable to develop any worthwhile relationships with the infantry troops and firing platforms that they supported, these early coordination teams were debilitated by their nomadic existence.

Further complicating their mission, the Shore Fire Control Parties and Air Liaison Parties lacked organic equipment for their specialized assignments. Considering the Marine Corps's acknowledgement of the significance of communications in firepower coordination, the error was all the more inexcusable. As a 1943 Corps

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<sup>47</sup> J. J. Reber, "The Evolution of Amphibious Communications," *Marine Corps Gazette* 40, no. 11 (November 1956): 43.

<sup>48</sup> Commander, Fifth Amphibious Corps, *Corps General Order Number 14-43: Standard Operating Procedure for Employment of Direct Support Aircraft* (San Francisco: Headquarters, Fifth Amphibious Corps, 1943), 2-6; Reber, "Evolution of Amphibious Communications," 43.

General Order emphasized, “It must be noted that the effectiveness of a Shore Fire Control Party is entirely dependent upon COMMUNICATIONS!”<sup>49</sup> Nonetheless, when they deployed into combat the teams lacked their own radios and were forced to borrow radios and communications gear from the infantry divisions and artillery battalions they fought alongside.<sup>50</sup> Thus, the supporting arms coordination agencies scavenged for the very equipment that allowed them to synchronize American firepower and support the advance ashore.

The final weakness displayed at Tarawa, particularly during the landing on the atoll’s key island of Betio, was the lack of integration between the agencies coordinating firepower and the landing forces. Too many landing force commanders were unfamiliar with how to employ naval gunfire and aerial bombing. Similarly, the Shore Fire Control Parties—having spent the better part of their military service at sea—were unversed in the structure, techniques, and missions of the landing force.<sup>51</sup> Separated by an intellectual chasm, the sea and land branches struggled to communicate effectively, recognize the capabilities of their counterpart, and combine their efforts in a harmonized fashion.

Reflecting on the flaws displayed at Tarawa, and in response to the pressures for reform from operational units, Marine leaders drafted a novel solution for the troubles of

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<sup>49</sup> Commander, Fifth Amphibious Corps, *Corps General Order Number 6-43: Naval Gunfire Support in Landing Operations* (San Francisco: Headquarters, Fifth Amphibious Corps, 1943), 53. Emphasis in original.

<sup>50</sup> *Ibid.*, 1, 9.

<sup>51</sup> I. E. McMillian, “Naval Gunfire at Roi-Namur,” *Marine Corps Gazette* 32, no. 7 (July 1948): 52; Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook* (Quantico, VA: Marine Corps Schools, 1948-1950), 4-6.

supporting arms coordination in late 1943. Hoping to escape the challenges that plagued the transitory, under-resourced, and under-trained coordination teams, service leaders unveiled the Joint Assault Signal Company. This nascent unit would serve as an administrative and coordination headquarters for the subordinate Shore Fire Control Parties, Air Liaison Parties, and Shore Party Communications Sections. Despite its designation as such, the construct was significantly larger than a regular line company, containing 412 men in its prescribed Table of Organization & Equipment.<sup>52</sup> The JASCO ranks contained a headquarters section with appropriate support personnel that would attach to the division headquarters of the landing force, along with a repertoire of Beach Communication Teams, Shore Fire Control Parties, and Air Liaison Parties that would correspondingly attach to each regiment and battalion within the supported division.<sup>53</sup>

The combination of these teams into the new Joint Assault Signal Company was a wholly adaptive and untried concept. Through their new framework, the JASCOs intended to improve the efficiency, responsiveness, and integration of both aerial and naval fire support during amphibious landings. In an even grander sense, the companies were meant to provide “the essential links between the land, sea, and air elements in operations against the enemy.”<sup>54</sup>

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<sup>52</sup> A Table of Organization & Equipment dictates a military unit’s staffing, organization, and gear.

<sup>53</sup> George Raynor Thompson and Dixie R. Harris, *The Signal Corps: The Outcome (Mid-1943 Through 1945)* (Washington, D.C.: Center of Military History, United States Army, 1991), 231; Gordon L. Rottman, *US World War II Amphibious Tactics: Army and Marine Corps, Pacific Theater* (Long Island City, NY: Osprey Publishing, 2004), 22; Gordon L. Rottman, *U.S. Marine Corps World War II Order of Battle: Ground and Air Units in the Pacific War, 1939-1945* (Westport, CT: Greenwood Press, 2002), 233.

<sup>54</sup> Thompson and Harris, *The Signal Corps*, 231.

While the JASCO initiative spurred changes in manning levels, allocated more appropriate resources, and increased the efficiency of the coordination teams, their fundamental purposes stood largely intact. Aided by communication specialists, the Shore Fire Control Parties would disembark with the landing force in order to request, observe, adjust, and coordinate naval gunfire from supporting vessels. Utilizing mobile radio sets, the battalion control teams passed their requests through senior control parties at the regimental and division level. As the requests made their way up the command structure, Naval Gunfire Liaison Officers—the naval gunfire experts on shore—prioritized and resolved any competing demands and radioed the requests to the offshore ships. The procedures of the Air Liaison Parties were nearly identical, with a corresponding Air Liaison Officer to oversee the request and integration process. The teams collected target information, relayed requests back to the supporting squadrons (usually embarked aboard naval aircraft carriers), and made adjustments based on their battlefield observations.<sup>55</sup>

Although the process appeared simple in concept, the inherent friction of amphibious operations could transform a routine procedure into an onerous task. Since each subordinate agency was made up of various Navy and Marine personnel from the assorted specialties, service leaders hoped that the JASCOs would unite and streamline

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<sup>55</sup> R. D. Heinl, Jr. "Naval Gunfire Support in Landings," *Marine Corps Gazette* 29, no. 9 (September 1945): 40-1; Robert D. Heinl, Jr., "Naval Gunfire Support: A New Staff Function," *Military Review* 26, no. 9 (December 1946): 19-22; Robert Sherrrod, *History of Marine Corps Aviation in World War II* (San Rafael, CA: Presidio Press, 1952), 292-3.

the multi-branch efforts of the triphibious team.<sup>56</sup> The move was a creative and directed response to the early difficulties of task force synchronization. Finally, American forces had a unit specifically tasked with enabling coordination across the battlefield. Although the mere administrative formation of the young companies did not solve the Americans' difficulties, it did give amphibious forces in the Pacific a tangible pressure point responsible for addressing their mounting concerns.

### *The Advent of the Joint Assault Signal Company*

Through their bold administrative breakthrough, the JASCOs enjoyed several immediate benefits. As a stand-alone unit, the companies were able to train cohesively as one team before, during, and after a given campaign. This allowed the JASCOs to build on their collective experiences and improve tactics from operation to operation. Unit camaraderie—previously unachievable under the erratic creation and dissolution cycle of the various teams—began to build within the signal companies. On top of the permanent personnel structure, the JASCOs received their own equipment to use and maintain throughout training and combat. This dedicated gear was suited specifically for the units' unique communications demands across the land, sea, and air forces and proved superior to earlier allocations.<sup>57</sup>

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<sup>56</sup> Robert D. Heintz, Jr., "Naval Gunfire Training in the Pacific," *Marine Corps Gazette* 32, no. 6 (June 1948): 12; Robert D. Heintz, Jr., "Minority Report on (J)ASCO," *Marine Corps Gazette* 31, no. 7 (July 1947): 28.

<sup>57</sup> Reber, "Evolution of Amphibious Communications," 39, 43; William B. Oldfield, "Shore Fire Control Parties," *Marine Corps Gazette* 29, no. 11 (November 1945): 54.

But a simple administrative realignment was far from a complete solution to the challenges of firepower coordination during an amphibious assault. While senior military leaders dealt with the administrative details of the JASCOs, the operational forces focused on the tactical application of the nascent units. Although the companies were joint by nature, responsibility for training the young JASCOs fell largely onto the shoulders of the Marine Corps.<sup>58</sup> By this point in the war, the decision was almost natural: after providing the preponderance of direction and expertise in the 1930s' development of amphibious warfare, the Corps had agreeably branded itself the nation's amphibious expert.

One of the service's most pressing hurdles—and directly related to the young JASCOs—was how to integrate the disparate firepower of the American forces. As post-war doctrine reflected, “periods between wars tend to break down integration of fire power with the [ground forces'] scheme of maneuver due to: safety regulations, shortage of training ammunition, and lack of suitable firing areas. The natural result of this condition is an uncertainty as to what fire support can do, and a failure to take advantage of available firepower in initial operations.”<sup>59</sup> Hoping to address such challenges and incorporate the newly-formed Joint Assault Signal Companies, the Marine Corps partnered with Navy leadership to open an amphibious training center on the Hawaiian island of Kahoolawe in late 1943. There, American units deployed to the Pacific

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<sup>58</sup> The *Department of Defense's Dictionary of Military and Associated Terms* defines joint in the following manner: “connotes activities, operations, organizations, etc., in which elements of two or more Military Departments participate”; Heinl, Jr. “Naval Gunfire Support in Landings,” 43.

<sup>59</sup> Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook*, 2.

Theater could enjoy a proximate and robust training facility for their wartime development.

Service leaders gave control of the emerging training center to Fleet Marine Force Pacific (FMF Pacific), which wasted no time in establishing its Naval Gunfire Training Section at Kahoolawe: the command's first concerted attempt to train personnel in the new structure of supporting arms coordination. The Naval Gunfire Training Section focused primarily on improving the use of naval gunfire in amphibious landings, incorporating the Joint Assault Signal Companies, and refining the subordinate Shore Fire Control Parties of the JASCOs. Under the leadership of experienced naval gunfire liaison officers—many with combat time in the early battles of the war—the FMF Pacific's training center soon instituted joint training exercises, naval gunfire shoots, and extensive tactical instruction for its students. Energized by the demands of American troops, the Kahoolawe school resolved to provide vital basic training across the American forces.<sup>60</sup>

In the early months of its existence, the Naval Gunfire Training Section concentrated on preparing JASCO personnel for the rigors of combat in the Pacific. The school's curriculum stressed water survival skills, familiarity with landing craft, proficiency with communications gear, the ability to perform under enemy fire, and a

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<sup>60</sup> Commander, Fifth Amphibious Corps, *Corps Training Memorandum Number 17-43: Joint Assault Signal Company* (San Francisco: Headquarters, Fifth Amphibious Corps, 1943), 1; Heintz, "Naval Gunfire Training in the Pacific," 11-13; Heintz, "Naval Gunfire Support in Landings," 42; Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps* (New York: The Free Press, 1991), 406-07.

rudimentary background in naval gunnery.<sup>61</sup> As training cadre recognized, the specialized JASCO personnel would require a broad set of talents and would be asked to bridge the inherent chasms between American land, sea, and air forces. Step-by-step, the school introduced American troops to the tenets of amphibious war and firepower coordination. An ambitious venture by all accounts, Kahoolawe initially took a broad but elementary approach to JASCO training. Built largely on interwar theory and peacetime drills, the curriculum could hardly produce experts in its early months. Just as the interwar Marine Corps was forced to prepare for future amphibious challenges without a reliable index, the Naval Gunfire Training Section prepared its early JASCOs without the benefit of operational feedback.

#### *Putting JASCO to the Test*

As 1943 came to a close, American commanders in the Pacific received updated marching orders from their military and political leaders. Despite the costs of the Gilberts offensive, Allied war planners expressed growing confidence in their amphibious forces and sought to maintain the initiative by tightening their grip on the shrinking Japanese Empire. At an Allied conference in Quebec in August of 1943—indeed, even before the American offensive into the Gilberts—strategists had agreed to an American follow-on invasion into the Marshalls, a massive but vulnerable chain of islands covering 800 square miles in the Central Pacific. By securing crucial airfields

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<sup>61</sup> Commander, Fifth Amphibious Corps, *Joint Assault Signal Company, Training* (San Francisco: Headquarters, Fifth Amphibious Corps, 1943), 1-11.

throughout the Marshall Islands, the Americans would be able to leverage their budding strategic air power in campaigns against the Japanese home islands. At the same time, an offensive through the Marshalls would further deprive the Japanese Imperial Navy of its air and naval bases in the region.

For its role, the Fifth Amphibious Corps drew assignment for an amphibious assault against the islands of Roi and Namur, with D-Day slated for 1 February 1944.<sup>62</sup> As planning proceeded, the lessons of “Bloody Tarawa” remained forefront in the minds of American staff officers, who made several significant changes in the operational plans. Marine officers petitioned for—and received—30 days of deliberate aerial bombing prior to the landing, and also secured a massive naval bombardment that dwarfed the preparatory fires used at Tarawa. Instead of Tarawa’s three-hour barrage, the landing force watched approvingly as naval ships blasted the Japanese-held islands for three full days. Additionally, the firing ships operated much closer to shore, thereby accepting far greater risk in order to deliver more effective fires on behalf of the landing force. Both impressed and surprised by the Navy’s willingness to tolerate close-shore danger, the Marines approvingly nicknamed Admiral Richard L. Conolly, the naval attack force commander, “Close-in Conolly.”<sup>63</sup>

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<sup>62</sup> D-Day, as a general military term, refers to the initial day of combat operations in a battle or campaign. In an amphibious context, the term refers to the day of invasion by the landing force.

<sup>63</sup> Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* (Princeton, NJ: Princeton University Press, 1951), 253-70; Henry I. Shaw, Jr., Bernard C. Nalty, and Edwin T. Turnbladh, *History of U.S. Marine Corps Operations in World War II*, vol. 3, *Central Pacific Drive* (Washington, D.C.: U.S. Government Printing Office, 1966), 117-25; Samuel Eliot Morison, *History of United States Naval Operations in World War II*, vol. 7, *Aleutians, Gilberts and Marshalls: June 1942-April 1944* (Boston: Little, Brown and Co., 1951), 240-44.

After completing their initial training in Hawaii, American Joint Assault Signal Companies made their first major combat debut on Roi and Namur, intending to smooth out the cross-branch friction within the triphibious task force. Marine planners, while anticipating the JASCOS' impact, emphasized a hasty ship-to-shore transition that would avoid the nightmares of Tarawa's infamous coral reef. In addition, Marine officers stressed the importance of intense and continuous fire support throughout the assault. By each planning measure, leaders resolved to apply the costly lessons of Tarawa to their operations on Roi and Namur.

Further strengthening the preliminary barrage, American officers landed several artillery battalions on undefended islets within firing range of Roi and Namur. Moving ashore on the morning of 1 February, the Marine landing force enjoyed outstanding coverage from its supporting units. Against light opposition—no doubt weakened by the heavy preliminary fires of the task force—the Marines advanced with crucial tank support and cleared both islands by the end of the second day. JASCO coordination proved particularly valuable as the landing force closed in on the northeast corner of Roi, where three Japanese naval air groups held out with dogged resistance. Calling for fire from the light cruiser *Santa Fe*, the Shore Fire Control Parties coordinated several five-inch salvos onto the Japanese positions.<sup>64</sup> Following up the stunning naval fires, the 2d Battalion of the 23rd Marines used a combined advance of tank and infantry units to move in and clear the Japanese emplacements. Witnessing the effects of the coordinated

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<sup>64</sup> Robert D. Heinl, Jr. and John A. Crown, *The Marshalls: Increasing the Tempo* (Quantico, VA: Historical Branch, G-3 Division, Headquarters, U.S. Marine Corps, 1954), 74-75.

assault on the enemy positions, one air observer transmitted from his sector that “ONLY TWO REMAIN WHO HAVE NOT AS YET MET HONORABLE ANCESTORS.”<sup>65</sup>

Due in part to the success of the pre-landing bombardment, the Marines completed their assaults on Roi and Namur with notable speed. Supporting ships and aircraft actually remarked that the landing forces on the islands moved too rapidly across the beaches, creating concerns about fratricide. The complaint held little weight with the troops fighting ashore, however. To the relief of Tarawa veterans, the Marines secured their assigned islands at a cost of less than 800 casualties.<sup>66</sup>

In their first significant role of the war, the Joint Assault Signal Companies performed admirably. The Corps’s post-battle analysis revealed that the JASCOs facilitated timely and accurate supporting fires throughout the battle, much to the approval of the landing force. Officers remarked that air support was dependable and continuous, in stark contrast to the coordination struggles experienced in the Gilberts assault. Likewise, naval gunfire support was judged responsive and accurate on both Roi and Namur islands. The Marines commended the Shore Fire Control Party’s ability to adjust fires with devastating effect.<sup>67</sup> Of particular achievement, Corps battle reports praised the JASCOs’ proficiency in establishing communications with their supporting arms immediately after arriving ashore—an achievement made all the more impressive by their still-undependable communications gear. Often, the assaulting troops benefitted

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<sup>65</sup> Air observer quoted in Heinl and Crown, *The Marshalls*, 76. Emphasis in original.

<sup>66</sup> McMillian, “Naval Gunfire at Roi-Namur,” 51-5; Millett, *Semper Fidelis*, 399-401.

<sup>67</sup> Commanding General, Fifth Amphibious Corps, *Special Report on FLINTLOCK Operations* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 15-6; Commander, Fifth Amphibious Corps, “Extracts from Observers’ Comments on FLINTLOCK Operation” (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 8.

from on-call fire support within twenty minutes of the Joint Assault Signal Company's arrival. For Marine veterans familiar with the unique challenges of amphibious operations, the achievement carried impressive weight.<sup>68</sup>

Two Fifth Amphibious Corps after-action reports on the Roi-Namur operation noted some areas for JASCO improvement. A primary concern was that the JASCOs' communications gear was inadequate for the rigors of amphibious combat. Having damaged and lost various radios during the beach assaults, JASCOs were forced once again—as at Tarawa—to scavenge and improvise in order to establish their critical radio nets with supporting ships and aircraft. While JASCOs' radio allocations had improved relative to the earlier complaints of the Gilberts, there was still significant room for progress. According to a 1943 Corps General Order, the solution was rather simple: “operators should be impressed with the necessity of protecting radio sets from jarring and rough use . . . equipment must be kept dry.”<sup>69</sup> But for the Marine embarked in a landing craft—battling seasickness and enemy fire while bobbing his way ashore—the “ordered” solution seemed a bit more challenging in practice than it did in theory. The radio sets were simply too heavy and bulky for the JASCO troops fighting their way ashore. Commanders recommended an overhaul in the JASCOs' communications equipment, hoping that future campaigns could be resourced with lightweight, versatile

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<sup>68</sup> Naval Gunfire Officer, *Naval Gunfire Report on the FLINTLOCK Operation* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 9; Commanding General, Fifth Amphibious Corps, *Special Report on FLINTLOCK Operations*, 16.

<sup>69</sup> Commander, Fifth Amphibious Corps, *Corps General Order Number 6-43*, 53.

radio sets suited for the austere conditions of amphibious warfare.<sup>70</sup> In this way, the JASCOs aimed to both prompt and respond to technological innovations that could aid more effective performance on the battlefield.

A second significant suggestion was for Joint Assault Signal Companies to pursue even closer integration with naval gunfire personnel and aviation squadrons. Despite the proficient support displayed in the year's early operations, officers noted a lack of understanding between the JASCO personnel requesting fire support and the firing agencies offshore. After-action reports recommended supplementary training for the JASCOs in naval gunfire and aviation capabilities and also suggested that the companies develop closer working relationships with the ships and aircraft they orchestrated.<sup>71</sup> As the "bridge" between land, air, and sea components, commanders depended upon the JASCO personnel to lead the way in triphibious integration. Naval personnel at sea, aviators above the battlefield, and the attacking troops ashore needed to better understand the role, capabilities, and limitations of their counterparts. Given their role as a cross-branch agency, commanders determined, the JASCOs were the most logical and effective vehicle for pursuing such integration.

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<sup>70</sup> Commanding General, Fifth Amphibious Corps, *Special Report on FLINTLOCK*, 1; Commander, Fifth Amphibious Corps, "Extracts from Observers' Comments," 12, 15.

<sup>71</sup> Commanding General, Fifth Amphibious Corps, *Special Report on FLINTLOCK*, 15; Commander, Fifth Amphibious Corps, "Extracts from Observers' Comments," 10, 15; Naval Gunfire Officer, *Naval Gunfire Report*, 20.

### *Refining the JASCO Model*

The lessons derived from firepower coordination in the Marshall Islands soon took the form of new training recommendations both amongst combat forces in the Pacific and the Naval Gunfire Training Section back at Kahoolawe. As with earlier operations, most of the reforms attempted to improve integration between the triphibious units. During and immediately following operations in the Marshalls, Navy and Marine Corps leaders began a concerted effort to unite the shipboard officers, aviation squadrons, and JASCO personnel across the Pacific forces. By the summer of 1944, troop commanders were facilitating shipboard visits for the Joint Assault Signal Companies, hoping that a more personal and familiar understanding of naval gunnery would breed closer coordination in the midst of battle. The face-to-face liaison and training became so central to American combat preparation that JASCO teams were flown back to the Solomon and Marshall Islands “to drill with their assigned ships in communications and spotting procedures” before the assault on Guam.<sup>72</sup>

For naval task force and landing force commanders, the measure proved incredibly fruitful and produced near-immediate results. During the Third Amphibious Corps’s assault on Guam in July 1944, observers praised the tight-knit relationship between naval gunfire crews and the JASCO personnel. One naval officer pronounced that the Shore Fire Control Parties “controlled every type of fire that had ever been thought possible and actually even uncovered many new schemes for employing naval gunfire support. Full and frequent use was made of them up until the time that all

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<sup>72</sup> I. E. McMillian, “Naval Gunfire at Guam,” *Marine Corps Gazette* 32, no. 9 (September 1948): 53.

organized resistance ceased.”<sup>73</sup> Other participants described the JASCOS’ keen ability to incorporate non-traditional methods of fire: on one occasion, the coordination teams directed nearby LCI gunboats to use their rockets and machine guns against stubborn Japanese positions ashore. To the delight of the landing force, the novel tactic propelled the Marines’ advance ashore.<sup>74</sup>

While the JASCOS built closer trust with their seaborne counterparts and instituted novel methods of firepower coordination, they also began to imbed themselves in the landing forces that they fought with ashore. Marine officers concluded that by better appreciating the conditions and challenges that the assault force confronted, the Joint Assault Signal Companies could deliver more effective and appropriate fire support. Many JASCO personnel whose prior service had been entirely naval lacked an appreciation of ground force organization, objectives, and tactics. By inculcating them with an understanding of the landing force and its ground scheme of maneuver, the amphibious forces strengthened their combined power. Shore Fire Control Parties began to appreciate how their firepower coordination supported the troops on the ground and naval liaison officers began to envision how their fires assisted the landing force commander in achieving his objectives on shore.<sup>75</sup>

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<sup>73</sup> McMillian, “Naval Gunfire at Guam,” 56; Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook*, 7; McMillian, “Naval Gunfire at Roi-Namur,” 52.

<sup>74</sup> The LCI (Landing Craft, Infantry) gunboat included several large caliber machine guns (40 mm and .50 caliber) and up to ten rocket launchers; McMillian, “Naval Gunfire at Guam,” 56.

<sup>75</sup> Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook*, 7; Marine Corps Schools, *PHIB-11: Amphibious Operations—Naval Gunfire Support* (Quantico, VA: Marine Barracks, Marine Corps Schools, 1945), 24; W. B. Oldfield, “Our Naval Gunfire Preparation,” *Marine Corps Gazette* 29, no. 7 (July 1945), 44; Reber, “Evolution of Amphibious Communications,” 42.

Across the amphibious forces in the Pacific, incorporation and acquaintance became the focus for the Joint Assault Signal Companies. But even while frontline commanders and staff officers enabled integration within their units, they also sent requests back to their partners at Amphibious Training Command, Pacific—the central hub of pre-combat training for American amphibious forces destined for the war against Japan. Hoping to mold future JASCOs during their formative stage, some officers suggested modifications to the scope and standards used by the Naval Gunfire Training Section on Kahoolawe. One of the chief complaints that sailed east from American combat forces concerned the JASCOs’ trailing knowledge of recently-adopted naval gunfire tactics and techniques.<sup>76</sup> While gunnery crews updated their tactics throughout the Pacific campaigns, the frontline JASCO troops failed to keep pace with operational changes. The JASCO training pipeline focused almost exclusively on an elemental understanding of naval gunnery and failed to account for the transformations taking place within the naval gunfire community during the war. To address the fissure, naval leaders began recalling the operational JASCOs to Kahoolawe for training in updated gunnery tactics and techniques.<sup>77</sup>

The operational forces also expressed concern to Amphibious Training Command about the naval gunnery and coordination standards used for training on Kahoolawe. Frontline leaders believed that the JASCO personnel reporting to the amphibious task forces lacked an accurate understanding of the challenges and realities

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<sup>76</sup> Heinel, “Naval Gunfire Training in the Pacific,” 12-13.

<sup>77</sup> Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook*, 6; Commander, Fifth Amphibious Corps, *Corps General Order Number 6-43*, 64-5; Heinel, “Naval Gunfire Training in the Pacific,” 12-13.

of fighting from sea to shore. In response, the Hawaiian school raised its standards for naval gunfire and inserted more grueling criteria into the practical exercises. Under the new guidelines, Shore Fire Control Party trainees were required to run incessant communication drills with every available ship as it entered or exited the naval station at Pearl Harbor. The sections were tasked with relaying relevant target information to and from the ships and were forced to develop successful working relationships with various gunnery crews at sea. Concurrent with the practical drill adjustments, the school lengthened its training period and enhanced the course with additional live-fire exercises. In short time, the operational forces reported back that their Joint Assault Signal Companies displayed marked improvement in tactical proficiency and had also achieved better working relationships with the shipboard gunnery teams and officers.<sup>78</sup>

While American forces polished their training curriculum in the Pacific and improved the individual skills of the JASCOs, they also came up with new ways to share the gained knowledge and experience of the young coordination teams. Inevitably, certain Joint Assault Signal Companies saw more action than others. Even those that did see combat—depending on the campaign—had varying levels of experience in coordinating fires during a contested landing. This left certain JASCOs with the preponderance of experience and know-how while other units were forced to rely solely on their basic training. As the Naval Gunfire Training Section recalled each JASCO from combat areas for updated training, they learned to reshuffle combat veterans

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<sup>78</sup> Heintz, “Naval Gunfire Training in the Pacific,” 14; Commander, Fifth Amphibious Corps, *Joint Assault Signal Company, Training*, 10; McMillian, “Naval Gunfire at Guam,” 54.

between the various JASCOS. Under the same exchange effort, the Kahoolawe school learned it could supplement casualty-stricken JASCOS with experienced personnel from other units. Instead of replacing proficient veterans with green troops—the conventional and often only option for most military units plagued by combat losses—the school could replace JASCO casualties with trained substitutes. Simple enough in concept, these innovative practices spread the JASCOS’ collective experience and knowledge throughout the Pacific Theater and distributed crucial JASCO experience to the units that needed it most.<sup>79</sup>

One final impediment Navy and Marine officers identified in the early months of JASCO incorporation concerned, once again, the operational control of the coordination teams. Although the formation of JASCOS finally allowed the coordination agencies to train and fight as a permanent and unified component, the entire company itself was regularly rotated from landing force to landing force as approaching operations dictated. In some cases, senior leaders actually withdrew the JASCOS as soon as a beachhead was established ashore (a practice commanders later learned was both ill-advised and, in certain combat conditions, actually impossible). Under these orders, JASCO personnel moved from campaign to campaign with little opportunity to adjust to their new units and circumstances. Despite ongoing efforts to encourage integration with the naval gunnery crews, aviation squadrons, and landing force, many signal companies were

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<sup>79</sup> McMillian, “Naval Gunfire at Guam,” 53; Heintz, “Naval Gunfire Training in the Pacific,” 12-13.

unable to develop lasting relationships of any utility.<sup>80</sup> An early training memorandum from 1943 exposed the inherent contradiction between the companies' cyclic duty assignments and the expectation that they integrate fully within their amphibious task force: "JASCO's are corps troops which are reassigned to divisions or combat teams for training and operations. They are not organic division troops. They may revert to corps control at any time that higher authority considers it necessary. During the period when attached to divisions or combat teams, JASCO's are an integral part of those organizations."<sup>81</sup>

In their first year of existence, the Joint Assault Signal Companies exhibited steady adaptation to the unique demands of amphibious operations. Aided by the direction of officers on the frontlines and the responsive support of the Naval Gunfire Training Section at Kahoolawe, Navy and Marine officers improved upon the initial JASCO model. By introducing shipboard visits, stressing cross-branch relationships, instituting joint training exercises, and integrating with the landing force that they supported, JASCOs made several crucial gains in the coordination of American supporting arms. But despite their encouraging progress, the units continued to struggle with erratic operational assignments and the ensuing challenges such a lifecycle created for JASCO integration within the task force. By the summer of 1944, American Joint Assault Signal Companies were destined for another test in the cauldron of combat. Invigorated by the initial success of the Naval Gunfire Training Section at Kahoolawe

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<sup>80</sup> Commander, Fifth Amphibious Corps, *Corps Training Memorandum Number 17-43*, 1; Heintz, "Minority Report on (J)ASCO," 30.

<sup>81</sup> Commander, Fifth Amphibious Corps, *Corps Training Memorandum Number 17-43*, 1.

and the perceptive recommendations of frontline units, the nascent units—not yet one-year old—were about to undergo their next phase of wartime adaptation under the frightening conditions of the Pacific War.

## CHAPTER IV

### TRIAL BY FIRE:

#### LESSONS FROM THE MARIANAS AND THE ASSAULT ON IWO JIMA

Amphibious operations in the Marshalls left Navy and Marine officers confident in their progress and optimistic that an end to the war in the Pacific was within reach. The home front discovered new-found excitement as well, eager to celebrate U.S. momentum and ready to witness the defeat of Japan. Low casualty counts from the assaults on Roi and Namur further strengthened U.S. conviction and provided evidence for the value of recent developments: namely, those in naval gunfire, ship-to-shore movement, and the organization of supporting firepower.<sup>82</sup> Nonetheless, prudent strategists acknowledged opportunities for improvement and cautioned against toxic hubris. Holland Smith, still in command of the Fifth Amphibious Corps following the Marshalls campaign, declared that “very few recommendations can be made to improve upon the basic techniques previously recommended and utilized . . . However, there is still much to be desired to improve planning, improve coordination of efforts, and prepare for the attack of more difficult objectives.”<sup>83</sup>

As Allied war plans unfolded throughout 1943 and 1944, the Joint Chiefs of Staff (JCS) considered their options following the capture of the Marshalls chain. Continuing

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<sup>82</sup> Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook* (Quantico, VA: Marine Corps Schools, 1948-1950), 7; Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* (Princeton, NJ: Princeton University Press, 1951), 308-09.

<sup>83</sup> Holland Smith quoted in Henry I. Shaw, Jr., Bernard C. Nalty, and Edwin T. Turnbladh, *History of U.S. Marine Corps Operations in World War II*, vol. 3, *Central Pacific Drive* (Washington, D.C.: U.S. Government Printing Office, 1966), 227.

to avoid the muddy service politics of assigning a single unified commander of all U.S. forces in the Pacific, the Joint Chiefs persisted in appeasing the egos of several senior officers. The resulting strategy directed a dual-axis advance with preference for neither party: General Douglas MacArthur, commanding primarily Army forces, would continue to tighten the noose around Rabaul while preparing for his long-awaited invasion of the southern Philippines. Meanwhile, Navy and Marine forces would press ahead through the Central Pacific.

Chief of Naval Operations Admiral Ernest King and Commander of the U.S. Pacific Fleet Admiral Chester Nimitz lobbied the JCS to turn American forces toward the Marianas Islands, a target which suited American naval interests on several accounts. Operations against the Marianas would sever the enemy's naval supply lines, provide crucial forward bases for U.S. forces, and—with a dash of luck—compel the Japanese into a decisive naval engagement on American terms. In a rare show of service harmony, General Henry “Hap” Arnold, Commanding General of the Army Air Forces, cast his branch's vote for the Marianas option as well. Advocates of American air power believed that the islands' capture would enable strategic aerial bombardment against the Japanese home islands. After thorough deliberation, the Joint Chiefs agreed and directed Nimitz to launch his Pacific forces against the Marianas Islands in mid-summer.

The approaching target dwarfed the real estate of the former Marshalls campaign. In contrast to Roi and Namur—lands which measured their length and width in thousands of yards—two of the main objectives of the Marianas assault, Guam and Saipan, covered a staggering 300 square miles. In comparison, Tarawa's largest island,

Betio, had totaled less than two square miles. American planners expected stiff Japanese resistance and a defense scheme well informed by the war's earlier battles.

Approximations placed Japanese strength on Saipan, the most heavily defended island, at approximately 12,000. Unfortunately for the Americans, this initial estimate was a far cry from the garrison's actual strength of 30,000 troops. An overreliance on aerial photography was to blame for the faulty intelligence; focused predominantly on the exterior beaches, observers were unable to accurately gauge inland Japanese units. In both the massive geography and the reinforced enemy strength of the Marianas, U.S. forces faced an ominous opponent.<sup>84</sup>

In their approach to the newest Allied objective, staff officers of the Fifth Amphibious Corps intensified many of their ongoing efforts. Most prominent was a renewed emphasis on one of the lessons from Tarawa: that supporting fires must be able to adapt to the movements of the landing wave rather than follow a rigid, inflexible timeline. American plans again called for speed in the opening hours of the amphibious assault, as well as a swift movement between the transport ships and the beaches. Once again, officers sought massive fire support to counter Japanese defenses. As at Roi-Namur, the firing ships would accept extraordinary risk as they minimized their distance from the threatening shore.

Aided by Vice Admiral Marc Mitscher's Task Force 58—which constituted an astounding 16 aircraft carriers (including light variants) in all—the Americans planned

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<sup>84</sup> Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 231-46; Millett, *Semper Fidelis*, 409-11; Isely and Crowl, *The U.S. Marines and Amphibious War*, 306-15.

to gain complete air superiority over the skies of Saipan prior to the assault. Beginning on 13 June, Mitscher's aerial attack would be supplemented by two days of naval gunfire. Ground units for the operation were designated the "Northern Troops and Landing Force" and comprised three reinforced divisions—two Marine and one Army—formed under Holland Smith's command. In all, the landing force comprised more than 71,000 troops. By any measure, the American task force posed a menacing threat. Indeed, by mid-1944 the emerging modus operandi of American amphibious warfare was an aggressive operational speed supported with overwhelming air and naval firepower.<sup>85</sup>

While Smith built his landing force, the Joint Assault Signal Companies' Marianas preparation focused on establishing communications and improving integration between the naval gunfire ships, aerial ground support, and coordination teams. The 1st and 2nd Joint Assault Signal Companies, slated to support the Northern Troops and Landing Force, conducted eight live-fire exercises and constant communication drills on Kahoolawe in the spring of 1944. They focused on refining the call fire procedures and improving the responsiveness of amphibious fire support. In addition, JASCO personnel participated in several joint conferences with staff from the firing ships destined for Saipan. All across the Pacific, American units prepared for the inherent challenges of attacking yet another Japanese-held shore.

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<sup>85</sup> Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 253-55.

### *The Battle of Saipan*

On 15 June 1944, D-Day arrived on Saipan. The preliminary naval bombardment—already preceded by weeks of aerial strikes—had opened on 13 June. By the second day of shelling, Admiral Richmond Kelly Turner’s Joint Expeditionary Force included eight battleships, six heavy cruisers, five light cruisers, and 26 destroyers. Despite such intimidating numbers, the task force achieved only a moderately successful barrage. Many of the firing ships had not had an opportunity to complete the updated training course at Kahoolawe; the gunnery crews also lacked the experience of the theater’s more seasoned vessels. The barrage did knock out a considerable portion of Japanese communications on the island, but did little to penetrate the defensive positions.

At 0844 on D-Day, the initial wave reached the southwest beaches of the island and the Second and Fourth Marine divisions began to wade ashore under heavy enemy fire. Although the landing force displayed impressive tempo by landing 8,000 Marines in just 20 minutes, their advance soon stalled against stubborn opposition. On the south end of the island, the Japanese counterattacked Lieutenant Colonel Hollis Mustain’s First Battalion of the 25th Regiment and threatened to drive it back into the ocean. Mustain’s Air Liaison Party and Shore Fire Control Party called for air and naval gunfire support, and in short time, the Japanese were subjected to the collective firepower of three American destroyers, the battleship *Tennessee*, and several supporting aircraft. The enfilade helped stop the Japanese assault in place and revive the Marines’ offensive. By early afternoon, the First Battalion had regained the initiative, destroyed two

Japanese companies, and denied the enemy his most promising counterattack of Saipan's first day. Just hours into the battle, the Joint Assault Signal Company had played a vital role in coordinating the American task force and propelling the Marines forward on the beaches.<sup>86</sup>

The early hours of 16 June brought additional Japanese counterattacks against the Marines ashore. Battered but holding, the Americans repelled a coordinated assault by Japanese tanks and infantry in the center of the island. As American strength began to build on Saipan—with the notable arrival of 105mm howitzer battalions on the second day—the Marines' situation improved. By the battle's third day, the Northern Troops and Landing Force had secured an ample beachhead by which it could land additional forces and prepare for a more ambitious attack inland. Supported by the Army's 27th Infantry Division, the Marines battled on and made steady progress. Finally, on 9 July 1944, General Holland Smith declared the island secure.

The final weeks of the battle, indeed even after Smith's "all clear" pronouncement, the American troops on Saipan encountered shocking realities. Fueled by their officers' rhetoric, Japanese defenders mounted a 3,000-man *banzai* charge on 7 July, armed with little more than swords and grenades. Having already lost any sensible chance of defeating the American invasion, the fanatical troops hoped only to fulfill their commander's final plea: to take seven American lives before their dying breath.<sup>87</sup> The

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<sup>86</sup> Millett, *Semper Fidelis*, 411-12; Isely and Crowl, *The U.S. Marines and Amphibious War*, 317-25; Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 274-75; Samuel Eliot Morison, *History of United States Naval Operations in World War II*, vol. 8, *New Guinea and the Marianas: March 1944-August 1944* (Boston: Little, Brown and Co., 1953), 180-192.

<sup>87</sup> Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 339.

effort symbolized equally the desperation of the Japanese troops as well as their resolute commitment to the threatened Empire.

Even more concerning, as the Marines closed in on the northernmost point of the island, they observed a gut-wrenching horror. Fed with Japanese propaganda and stricken by fear of American capture, hundreds of Japanese civilians chose to throw themselves from Saipan's cliffs rather than resign themselves to U.S. control. Most unsettling was the sight of young Japanese children, persuaded by their parents, who chose suicide over capitulation. For the Marines, the event provided a sobering end to the fight on Saipan. These gruesome civilian deaths added to an already bloody campaign, one which cost Holland Smith's Northern Troops and Landing Force 3,225 killed and over 13,000 wounded. Estimates placed the enemy dead at 23,811 with just over 1,000 prisoners of war—a shocking fact that revealed the sheer tenacity of Saipan's defenders.<sup>88</sup>

Throughout the battle, the Marines benefited from close coordination amongst the landing force, naval gunfire ships, and aircraft squadrons. While fighting through various deadlocks across the beach and greater island, Marine officers sought flexibility in their fire support plan, seeking to insure supporting aircraft and ships were responsive to the demands of infantry breaking through Japanese resistance. In such cases, JASCO fires were decisive in allowing Marine forces to overcome the Japanese defenders. Though discrete incidents revealed frustration between the JASCOs and their supporting

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<sup>88</sup> Millett, *Semper Fidelis*, 412-14; Isely and Crowl, *The U.S. Marines and Amphibious War*, 317-25; Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 339-46.

Navy aviators (accused of not understanding the trials and conditions of the troops on the ground), the Marine consensus judged air support reliable throughout the Saipan operation and fundamental to the landing force's ability to fight its way across the island.<sup>89</sup>

Several changes in supporting arms coordination enabled the crucial firepower displayed on Saipan. From the outset, American leaders focused on revamping tactical communications for the battle. To boost collaboration and timing across the amphibious force, they increased the allocation of radio sets, expanded the number of frequencies available, and directed particular agencies to monitor specific radio nets. While the efforts were primarily focused on improving casualty evacuation procedures and facilitating supply movements ashore, the initiative also bred significant results for the coordination agencies of the JASCOs.<sup>90</sup>

As at Roi and Namur, the coordination teams demonstrated their increasing proficiency by establishing air-ground and air-sea communications just minutes after coming ashore on Saipan. Tying the triphibious components together quickly paid dividends for American troops, most notably in the supporting fires that turned back the Japanese counterattack against Lieutenant Colonel Mustain's battalion in the early hours of D-Day.<sup>91</sup> Throughout the campaign, JASCO communications remained reliable

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<sup>89</sup> Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 274-77; Isely and Crowl, *The U.S. Marines and Amphibious War*, 333-34; Air Officer, *Air Officer's Report: Phase I (SAIPAN)* ("In the Field:" Northern Troops and Landing Force, 1944), 2-3.

<sup>90</sup> Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 248.

<sup>91</sup> Naval Gunfire Officer, "Communications" enclosed [enc.] in *Naval Gunfire Report, Phase I (SAIPAN)* ("In the Field:" Headquarters, Northern Troops and Landing Force, 1944), 14.

across the island, leading the Landing Force Signal Officer to later reflect that supporting arms communications were “very satisfactory” throughout the entire battle.<sup>92</sup>

The Shore Fire Control Parties on Saipan also benefitted from a novel tactic that JASCO troops introduced in the Marianas. Instead of keeping coordination teams on separate radio channels, the teams experimented with a common radio frequency that included each supporting arm and controlling team. Under this system, a Shore Fire Control Party, its supporting ships at sea, and any aircraft operating in the local vicinity could coordinate their actions simultaneously. Not surprisingly, the measure improved coordination across the triphibious force and allowed for near-simultaneous synchronization between naval and aerial fires. As soon as the firing ships were complete with a salvo, the JASCOs could direct aircraft onto the target, thereby sustaining devastating firepower against the most stubborn of Japanese positions. This practice of combining agencies onto a single frequency proved incredibly beneficial on Saipan and many veteran officers recommended the technique for use in future operations.<sup>93</sup>

In the immediate weeks after the Battle of Saipan, officers of the Northern Troops and Landing Force conducted a thorough after-action review of the unit’s performance in the Marianas. Holland Smith ordered each section of his command to submit an analysis of the campaign along with ensuing recommendations for

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<sup>92</sup> Signal Officer, “Naval Gunfire Support” enc. in *Signal Officer’s Report: Phase I (SAIPAN)* (“In the Field.” Headquarters, Northern Troops and Landing Force, 1944), 27.

<sup>93</sup> Naval Gunfire Officer, “Call Fires” enc. in *Naval Gunfire Report, Phase I (SAIPAN)* (“In the Field.” Headquarters, Northern Troops and Landing Force, 1944), 8; Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 250.

improvement. Indeed, for American forces in the Pacific, the analysis process had become a regular practice following each amphibious assault. The units solicited thoughts from their subordinate sections, sorted through the scrutiny, and merged the evaluations into a single commentary which was then submitted to the landing force and Fifth Amphibious Corps headquarters. While the extent of internal analysis was dependent upon the particular commander's initiative, it commonly penetrated the junior officer and senior enlisted ranks of the Marine and Navy components. Determined to polish their wartime apparatus, senior officers solicited critique from the battlefield leaders who directly supervised combat operations.

Within this cycle, JASCO analysis and recommendations spanned across several of the post-action examinations. As a conduit between the land, sea, and air forces, the companies were included in the naval gunfire and aerial support summaries and in the Signal Officer's report. In some instances, a JASCO critique was also included in the Fifth Amphibious Corps headquarters section's general analysis. Through this wide-ranging and thorough procedure of institutional evaluation, Navy and Marine officers continued to critique and evolve the JASCO concept.

As the naval gunfire officer for the Saipan operation, Lieutenant Charles Corben collected and merged the post-battle analysis from each ship and Shore Fire Control Party involved in the battle. His particular report included input from dozens of ships and coordination parties and offered the most revealing analysis of the Joint Assault Signal Companies on Saipan. The Corben report praised the JASCOs for their ability to manage multiple ships, aircraft, and fire support requests throughout the campaign.

Amidst the daunting conditions on the island, many troops began to take notice of the JASCOs' unique training background and distinctive skills that seemed to fuse American efforts on the battlefield. After watching the coordination teams direct 24-hour fire support for 26 straight days on Saipan, Corben pronounced that the JASCOs "displayed a high degree of skill . . . Throughout the operation, the spirit, ingenuity, and teamwork of the shore fire control parties was deserving of the highest commendation."<sup>94</sup>

To those who contributed to the Corben report, the Joint Assault Signal Companies came into their own on the contested beaches of Saipan. In addition to achieving effective coordination between the landing force and its air and naval assets, the JASCOs began to catalyze closer integration across the entire American task force. Most indicative of this growing trend was the synchronization between the signal companies, air and naval supporting arms, and the infantry and artillery units of the Fifth Amphibious Corp. JASCOs on Saipan served as a general communications bridge within the task force, opening up valuable and timely avenues of information between the land, sea, and air forces. As one anonymous contributor attested, the JASCO structure allowed artillery, air, and naval gunfire liaison officers to exchange target information, damage assessments, and reports on enemy activity across the entire Corps.<sup>95</sup>

Since JASCO organization connected officers on the battlefield in an unprecedented manner at Saipan, the naval ships, aircraft squadrons, and artillery units

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<sup>94</sup> Naval Gunfire Officer, "Call Fires" enc. in *Naval Gunfire Report*, 8.

<sup>95</sup> Naval Gunfire Officer, "Coordination with Artillery and Air Support" enc. in *Naval Gunfire Report, Phase I (SAIPAN)* ("In the Field:" Headquarters, Northern Troops and Landing Force, 1944), 13.

had access to one another's fire missions throughout the conduct of the battle. This practice allowed each supporting arm to attack targets it was best suited for, interject in another agency's fire mission if deemed necessary, and eliminate redundancy in the fire request process. A Naval Gunfire Officer's after-action report taken in August of 1944 summarized the JASCOs' impact in the following manner: "by reason of the coordination with artillery and air, duplication and waste of ammunition was avoided. Also, the combined and coordinated use of these supporting weapons made them far more effective than they would have been if used separately."<sup>96</sup> The Fifth Corps Signal Officer heaped equal praise on the JASCOs at Saipan: "the value and necessity of the duties accomplished by these units cannot be over emphasized. Beach communications were excellent from D-Day on. Naval Gunfire and Air Support were delivered quickly."<sup>97</sup>

Captured Japanese prisoners of war (POW) also attested to the coordination skills of the American forces on Saipan. One soldier remarked that "[American] call fire on land is extremely quick and exact." Another Japanese POW observed during the battle that "the enemy is gradually advancing under cover of fierce naval gunfire and [aerial] bombing and strafing."<sup>98</sup> From the approval of the landing force to the trepidation of the enemy, JASCOs displayed remarkable influence in the battle for Saipan.

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<sup>96</sup> Naval Gunfire Officer, "Coordination with Artillery and Air Support" enc. in *Naval Gunfire Report*, 13; Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 275.

<sup>97</sup> Signal Officer, "Signal Communications" enc. in *Signal Officer's Report: Phase I (SAIPAN)* ("In the Field:" Headquarters, Northern Troops and Landing Force, 1944), 32.

<sup>98</sup> Naval Gunfire Officer, "Enemy Comments on Naval Gunfire" enc. in *Naval Gunfire Report, Phase I (SAIPAN)* ("In the Field:" Headquarters, Northern Troops and Landing Force, 1944), 20.

Ironically, the greatest compliment paid to the JASCOs' performance may have come in the single, widespread complaint that appeared in the aftermath of the battle. Officers criticized the JASCOs' inability to fill their own casualties during the month-long campaign. Since Corps leadership continued to attach the JASCOs temporarily to a landing force, the units did not have trained personnel to fill combat losses in the midst of battle. The problem was accentuated by the consistently high casualty rates experienced by JASCO units, an unavoidable reality since the companies regularly landed in the second assault wave immediately behind the initial infantry ranks. In place of appropriately trained replacements, Corps headquarters supplemented JASCO casualties with untrained, inexperienced troops from the landing force. Lacking the advanced training necessary for the JASCOs, many of these replacements were incapable of fulfilling their specialized duties.<sup>99</sup>

Despite this organizational critique—in fact, a critique that seemed to validate the competence and utility of the JASCOs—the companies had displayed marked progress on Saipan. By the summer of 1944, the Joint Assault Signal Companies had effectively adapted to the powerful demands of amphibious war in the Pacific. Armed with an evolutionary mindset, the companies initiated valuable training reform at Kahoolawe, improved the accuracy and effect of naval and aerial fires during amphibious assaults, and became a bridge of information between the various components of the American task forces.

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<sup>99</sup> Signal Officer, "Signal Communications" enc. in *Signal Officer's Report*, 31; Isely and Crowl, *The U.S. Marines and Amphibious War*, 332.

### *Preparing for the Final Chapter*

By the autumn of 1944, the Imperial Japanese Army and Navy was under the relentless pressure of Allied forces in the Pacific. The Marines' pace of advance through the Central Pacific had surprised even the most confident American strategists. With their rapid assault through the Marshalls, war planners had expedited the Marianas invasion by months and shortened the trail to final victory. In little less than nine months, American forces had seized control of the Gilbert, Marshall, and Mariana Island chains. Along the way, Marine officers had achieved considerable progress in the art of amphibious operations.

Back in Washington—and eager to capitalize on U.S. momentum—the Joint Chiefs of Staff revised their war plans and ordered Admiral Nimitz to begin preparing for attacks against Iwo Jima in the Bonin Islands and Okinawa in the Ryukyu Islands. Capture of the territories, given their proximity to Japan, would further erode the enemy's ability to supply and base its forces in the Pacific. But more importantly, the islands held potential as key emergency landing strips for American aircraft headed to and from the Japanese home islands. Just as crucial, the islands promised an escort base from which American fighters could escort B-29 Superfortresses into the skies over Tokyo, adding to the already menacing pressure of the Army Air Forces.<sup>100</sup>

As U.S. forces leapfrogged their way across the Central Pacific, Marine officers continued to refine the tenets of the now-familiar amphibious assault. Indeed, the American island-hopping strategy as conducted in the Pacific War allowed U.S. troops

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<sup>100</sup> Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 580-85; Millett, *Semper Fidelis*, 426-27.

to operate within a repetitive and advantageous cycle of planning, preparation, execution, and recovery. The sequence was ideally suited for lesson learning and benefitted the units most able to analyze and adapt to the successes and failures of each campaign.

As they prepared for the operations of 1945, the JASCOs of the Fifth Amphibious Corps continued to polish their skills and improve coordination efforts across the task force. The companies sent their Shore Fire Control Parties back to Kahoolawe in November and December 1944 for another round of live naval gunfire exercises and simulated amphibious landings. Here, the curriculum stressed communications and live-fire application of various naval gunfire targets. In all, the control parties called for and coordinated more than 2,000 rounds of naval shells in the Hawaiian drills. Concurrent with the training, commanders also continued their efforts to fuse the JASCOs, gunnery crews, and aircraft squadrons by arranging shipboard conferences for detailed planning and association.<sup>101</sup>

The JASCOs' Air Liaison Parties also increased their training in the closing months of 1944. In December, the Fifth Amphibious Corps organized several air-ground exercises on the now American-held Mariana islands of Saipan and Tinian. American pilots practiced recently adopted techniques, such as aligning their strafing runs parallel to friendly lines to maximize the safety of their own troops. Air Liaison Parties assisted by coordinating smoke signals and panel markers to alert the aircraft of

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<sup>101</sup> Robert D. Heintz, Jr., "Naval Gunfire Training in the Pacific," *Marine Corps Gazette* 32, no. 6 (Jun 1948): 14; I. E. McMillian, "Naval Gunfire at Guam," *Marine Corps Gazette* 32, no. 9 (Sep 1948): 53.

friendly positions. The liaison parties also learned to use 81mm smoke mortars to clearly distinguish their target priorities for the aircraft overhead. As was happening on Kahoolawe, officers emphasized live-fire training and facilitated regular meetings between the air liaison officers and the pilots of the supporting squadrons. These joint meetings allowed the two entities to analyze their tactical tasks together before the training missions took place and also allowed them to meet ashore and evaluate their performance in the aftermath of the exercise. In the final weeks of December alone, JASCOs trained with 181 aircraft and carried out 158 close air support missions on Saipan and Tinian. Both on the frontlines and at the training centers, JASCOs prepared for what was sure to be a year full of challenging combat operations in the Central and Western Pacific.<sup>102</sup>

Other Fifth Amphibious Corps initiatives confronted the lingering organizational weakness of the JASCOs. Following operations in the Marianas, several sections of the Corps agreed that the JASCOs' transitory, rotational nature was the crucial weakness behind the units' inability to withstand combat losses. One Signal Officer remarked in late 1944 that the JASCOs' "designation as Corps Troops has proved to be impracticable," and that because of the troubling casualty rates on Saipan, "it was deemed necessary to detach personnel from the JASCO and assign them to their respective Divisions in order to replace losses of communications personnel."<sup>103</sup> Since the JASCOs had received specialized, incremental training during their first year, the

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<sup>102</sup> Commanding Officer, 2d Joint Assault Signal Company, *Report of Air-Ground Exercises* ("In the Field:" Second Marine Division, 1945), 1-6.

<sup>103</sup> Signal Officer, "Signal Communications" enc. in *Signal Officer's Report*, 31.

landing force's standard casualty replacements could not adequately perform the duties of the Shore Fire Control Parties, Air Liaison Parties, or Beach Communications Teams. Naval gunfire and air liaison officers argued that to combat this weakness in future operations, JASCOS should be permanently allocated to each division—casualty replacements and all—and become a standing component of the landing forces.<sup>104</sup>

Marine requests for JASCO realignment rose through the ranks and finally landed on the desks of the Joint Chiefs. In early 1945, after determined lobbying, the Marine Corps received the Chiefs' approval to make the Joint Assault Signal Companies an organic element of the standing Marine divisions. Such a designation provided several unique advantages to the coordination companies. First, the move allowed JASCOS to train and control their own casualty replacements, thereby ensuring effective performance throughout an extended and casualty-ridden campaign like Saipan. Furthermore, the measure allowed JASCOS to integrate within the landing force during the preparation, execution, and recuperation phases of operations in the Pacific. With a full quota of trained personnel and a stable attachment to the landing force, the Joint Assault Signal Company joined the permanent structure of U.S. amphibious forces.<sup>105</sup>

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<sup>104</sup> Signal Officer, "Signal Communications" enc. in *Signal Officer's Report*, 31; Isely and Crowl, *The U.S. Marines and Amphibious War*, 332; Naval Gunfire Officer, *Naval Gunfire Report*, 15.

<sup>105</sup> Heinl, Jr., "Naval Gunfire Training in the Pacific," 12-13; Signal Officer, "Signal Communications" enc. in *Signal Officer's Report*, 31; Naval Gunfire Officer, "Communications" enc. in *Naval Gunfire Report*, 15; Robert D. Heinl, Jr., "Minority Report on (J)ASCO," *Marine Corps Gazette* 31, no. 7 (July 1947): 30.

### *The Black Sands of Iwo Jima*

As January turned to February 1945, the Fifth Amphibious Corps prepared for its most daunting task of the entire war. Under the direction of Holland Smith—by now the Commanding General of the Fleet Marine Force, Pacific—Major General Harry Schmidt would fight the Fifth Corps across the black sands of the island. The landing force, composed of three reinforced divisions, comprised the largest group of Marines ever established under a single tactical commander. Lieutenant General Tadamichi Kuribayashi, the Japanese commander on Iwo, had been preparing for the destined clash for more than eight months. Commanding his 21,000 men from a command post 75 feet underground, Kuribayashi planned to draw the Marines onto the beaches and destroy their assault at its most vulnerable moment. The defenders would take full advantage of the island's cave networks, appearing only at the time and place of their choosing. American officers, by now well-educated in the challenges of the amphibious assault and the tenacity of their Japanese opponent, prepared for a gruesome and costly campaign for the island's eight square miles.

Intelligence estimates warned of several alarming realities on Iwo Jima. The island's terrain made it an intimidating objective. Planners expected the shoreline's loose sand to create difficulties for any wheeled vehicles delivering troops and equipment ashore. The sloping beaches created excellent fields of fire for the defenders and the topography inland similarly aided the Japanese. But the natural conditions seemed almost trivial when compared with the deliberate defense scheme of Kuribayashi and his men. The defenders fortified Iwo Jima with 642 concrete blockhouses and

pillboxes, some possessing walls from three to five feet in thickness. Arming the positions with six-inch coastal defense guns, 37- and 47-millimeter antitank guns, and 25-millimeter machine guns, Kuribayashi constructed a fortress of concrete and firepower. If such conditions were not intimidating enough, the Japanese littered Iwo with buried gasoline drums, emplaced systematically on the island's prospective landing beaches and wired together with explosive cord. In all, Iwo represented the quintessential defended shore, aided by both natural terrain and careful human construction.<sup>106</sup>

Alarmed by the island's unique characteristics, Marine officers, as they had many times in the Pacific, petitioned for a lengthy preparatory bombardment on Iwo. Senior Navy officers, however, were concerned with simultaneous carrier raids against Tokyo that were slated to coincide with the task force's operations on Iwo. A lengthy preliminary bombardment would risk the strategic surprise of the carrier raids. Based on such logic, the Marines' initial request for a ten-day shelling was denied; instead, the ensuing Navy-Marine negotiation settled on a three-day barrage. As in earlier operations—and despite Iwo Jima's imposing defenses—the Marines would be forced to land behind an expedited bombardment.

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<sup>106</sup> Millett, *Semper Fidelis*, 426-29; George W. Garand and Truman R. Stobridge, *History of U.S. Marine Corps Operations in World War II*, vol. 4, *Western Pacific Operations* (Washington, D.C.: U.S. Government Printing Office, 1971), 448-57; Bernard C. Nalty and Danny J. Crawford, *The United States Marines on Iwo Jima: The Battle and the Flag Raisings* (Washington, D.C.: History and Museums Division, Headquarters, U.S. Marine Corps, 1995), 1; Commanding General, Fleet Marine Force, Pacific[hereafter CGFMF(Pac)], "Appendix III: Analysis of Preliminary Bombardment," *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report* (San Francisco: Headquarters, Fleet Marine Force, Pacific, 1945).

Schmidt's assault force numbered 71,000 troops comprised of the 3rd, 4th, and 5th Marine Divisions. Although the latter division was only recently stood up in late 1943, it included a dependable cadre of combat veterans. The 3rd and 4th Divisions had already served with distinction during the Marianas and Marshalls offensives, respectively. The plan called for the 4th and 5th Divisions to land on the eastern beaches of Iwo with the 3rd Division in reserve. Advancing simultaneously across the island, components of the 5th Division would wheel south while their partners mirrored their movement to the north. Key objectives included the two airstrips of the Motoyama Plateau, in the center of the southern sector, and the crucial terrain of Mount Suribachi, located on the tip of the southern peninsula.

At 0640 on 19 February 1945, naval gunfire ships opened their final sequence of the preliminary bombardment as the Marines' amphibian tractors made their way toward the eastern beaches of Iwo. With the precision of an expensive timepiece, the American task force unfolded its D-Day schedule. Shortly after 0800, naval gunfire executed a momentary pause while 120 U.S. fighters and bombers attacked Japanese positions from the air. As the planes settled on their return heading to the American carriers offshore, the ships resumed their torrent. Under this lethal umbrella of fire, the initial wave of 68 landing craft churned ashore and prepared to land the anxious Marines.

American Joint Assault Signal Companies performed their first crucial task on Iwo Jima just as the Marines began to descend on the beaches. Frustrated with earlier Pacific assaults that failed to time the lifting of supporting fires with the actual landing of the troops, officers of the Fifth Amphibious Corps ventured into untested waters. On

Iwo Jima, they planned a “rolling barrage” of naval and aerial firepower as the infantry units moved ashore. In theory, the fires of the task force would remain just 400 yards in front of friendly troops as they advanced up the beaches. Although the technique was quite familiar to contemporary artillerymen, it had not been tested by an American triphibious force. The procedure, of course, required exact timing and close coordination between the landing troops and their supporting ships and aircraft.<sup>107</sup>

As the landing units struggled to advance in the soft volcanic ash of Iwo’s beaches, Japanese resistance mounted. Aided by their now-solidified relationships throughout the task force, JASCO coordination teams directed an effective rolling barrage and assisted in jolting the Marines forward. Two later reports described the barrage as “excellent supporting gunfire” and a “vital continuation of support” as the landing force wrestled its way ashore.<sup>108</sup> In the first hours of the Iwo landing, the JASCOs exhibited their indispensable value in the coordination of triphibious war.

Despite the momentum of the rolling barrage, however, the Marines faced several hurdles on the first day of the assault. Slowed by the soft ash of Iwo’s beaches, the landing force—and most specifically the armored vehicles—struggled to scale the first steep terrace of the eastern beaches and were forced to offload Marines and supplies earlier than anticipated. Congestion ensued as the various landing craft, armored vehicles, and disabled tractors were forced to share the limited real estate. With

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<sup>107</sup> Garand and Stobridge, *Western Pacific Operations*, 467-76, 502-9; Isely and Crowl, *The U.S. Marines and Amphibious War*, 432-40, 475-79.

<sup>108</sup> Commander, Amphibious Group Two [hereafter CAGT], *Report of Iwo Jima Operation* (San Francisco: Commander Amphibious Group Two, 1945), 2; CGFMF(Pac), *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report*, 27.

Japanese resistance increasing progressively in relation to the Marines' advance—indeed, Kuribayashi's strategy all along—American success began to depend largely on hand-to-hand combat and the clearing of individual bunkers.<sup>109</sup>

After four days of hard fighting, the American task force reached a momentous checkpoint on the summit of Mount Suribachi, a zone assigned to the 28th Regiment of the 5th Division. When a Marine patrol raised the American colors over the seized mountain on 23 February, it raised the spirits of the beleaguered troops both ashore and at sea. An iconic photograph of the event quickly became a symbol of the American war effort and the fighting spirit of the Marine Corps service. Despite the event's historic significance, however, it did little to assuage the bloody combat taking place in the shadow of Mount Suribachi. Even while the photograph raised American spirits across the home front, the image did little to clear the remaining bunkers on Iwo Jima.

The Marine divisions continued to slug their way north across the Motoyama Plateau under menacing fire support. Faced with the extraordinary discipline and skill of Kuribayashi's men, casualties remained high while the Americans measured their progress in yards. Coordinated through the JASCOS' Shore Fire Control Parties, American mortar gunboats provided crucial supporting fires, particularly at night, against stubborn Japanese positions. The landing force found the ships' performance so

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<sup>109</sup> Isely and Crowl, *The U.S. Marines and Amphibious War*, 478-83; CAGT, *Report of Iwo Jima Operation*, 2-3.

effective that they requested the permanent assignment of at least one mortar gunboat per battalion for the remainder of the Iwo campaign.<sup>110</sup>

While sustaining the proficiency they displayed during the Marshalls and Marianas campaigns, the JASCOs added several innovative updates to their coordination techniques on Iwo Jima. For the first time, Shore Fire Control Parties required supporting aircraft assigned to air spot missions (an observation task whereby airborne pilots would provide target details and firing adjustments to other ships and aircraft) to check in on a dedicated radio frequency as they approached their assigned area. This practice allowed the JASCOs to effectively manage and reassign their air and naval assets according to the current situation ashore.

The coordination companies displayed even greater progress with their supporting ships by further evolving the process for fire support. Each night, landing force commanders began to pass their prospective fire support requests to the offshore ships and aircraft based on their expectations for the following day. This procedure allowed the supporting units to adjust their ammunition stocks, relocate their position, and prepare for the missions of the approaching day. Although battlefield conditions inevitably changed details during the ensuing combat, the preparation proved worthwhile. Furthermore, when naval gunfire ships were not engaged in an active fire mission, the gunnery crews would scan the island's coastline and search for enemy activity and possible targets. The crews passed this intelligence to the JASCOs ashore

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<sup>110</sup> CAGT, "Part IV: Naval Gunfire Support," *Report of Iwo Jima Operation* (San Francisco: CAGT, 1945), 1-6; Millett, *Semper Fidelis*, 429-30.

and, when appropriate, coordinated their own fires through the Shore Fire Control Party.<sup>111</sup> Undoubtedly, these techniques were a clear illustration of the JASCOs' effective synchronization of the triphibious task force. From ship to shore—including the airspace over Iwo Jima—American units fought with a striking degree of coordination.

Air support also remained reliable, if slightly less effective than naval gunfire, during the campaign on Iwo. The Americans exhibited a brand-new method of coordination through a novel unit, the Air Support Control Unit. Headed by Colonel Vernon Megee, the outfit worked alongside the JASCOs' Air Liaison Parties, directly controlling the aircraft over the island.<sup>112</sup> This convenience provided the landing force a direct avenue to request, coordinate, and control its air support. Again, this measure bred increased coordination and responsiveness as it minimized the information relay between the troops on the ground and the pilots overhead. With near-immediate updates and instructions directly from the battlefield, American air support remained consistent throughout the battle. As one naval commander reflected, “troop requests for air support were run much more expeditiously than ever before.”<sup>113</sup>

But American supporting arms alone could never quell resistance on the island of Iwo Jima. From late February through the second week of March, Kuribayashi's resolve—and his troops' unwavering obedience—compelled the Marines to use every

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<sup>111</sup> CGFMF(Pac), *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report*, 8-14; CGFMF(Pac), “Extracts from Ships' Action Reports” *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report* (San Francisco: Headquarters, Fleet Marine Force, Pacific, 1945), 17.

<sup>112</sup> In this sense, aircraft *control* is the authority to direct the physical maneuver of an aircraft.

<sup>113</sup> CGFMF(Pac), *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report*, 2-4; CAGT, “Part V: Air Support,” *Report of Iwo Jima Operation* (San Francisco: CAGT, 1945), 1.

tool at their disposal. In addition to their naval and aerial support, American units applied flamethrowers, dynamite, tanks, and halftracks to the caves and tunnels of fortress Iwo. The Marines inched their way up the island and resolved themselves to a dreadful routine of slow but positive progress. Finally, at 1800 hours on 16 March 1945, the Fifth Amphibious Corps declared the island of Iwo Jima secure. Scattered resistance continued for another two weeks, suggestive of the undying Japanese determination displayed throughout the battle. As Kuribayashi intended, almost every Japanese defender died in the shadow of their bunker or pillbox. At a staggering cost of 17,000 wounded and nearly 6,000 killed, the Marines had wrested control of the Japanese stronghold on Iwo Jima.<sup>114</sup>

#### *Analyzing Iwo Jima*

By nearly every measure, the amphibious assault on Iwo Jima was the most challenging objective the Marines had faced in the war, leading the Marine Corps's official history to label the campaign "the supreme test."<sup>115</sup> Despite the marked progress of the Corps's amphibious approach, the island presented intimidating features, both natural and manmade. Few of these challenges were lost on the staff of the Fifth Amphibious Corps, and accordingly, the unit dedicated unprecedented planning and preparation to the assault. To tackle such a colossal task, the Corps needed every hand hard at work, refining its individual role in the operation.

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<sup>114</sup> Millett, *Semper Fidelis*, 429-31; CAGT, "Part IV: Naval Gunfire Support," 8; Nalty and Crawford, *The United States Marines on Iwo Jima*, 21.

<sup>115</sup> Garand and Stobridge, *Western Pacific Operations*, 728.

After struggling through their early months of existence, and flexing promising utility in the Mariana Islands, the Joint Assault Signal Companies reached the apex of their potential on Iwo Jima. In communications, organization, and tactical skill, the coordination units provided crucial expertise to the American task force. During the campaigns on Saipan and Iwo Jima, the JASCOs introduced new radio frequencies that enabled more effective coordination across the triphibious force. The novel measure helped each component share target information and use the most appropriate American weapon available. Furthermore, by revamping their administrative organization and eventually securing an organic position within the Marine division, the JASCOs were able to furnish their own casualty replacements, trained and equipped for the companies' specialized mission. This step ensured that the Marines fighting ashore would benefit from continual and effective firepower coordination throughout the struggle ashore, not just in the opening blows of the assault. Through their pursuit of triphibious coordination, the JASCOs fused the efforts of aviation squadrons, naval ships, and landing forces into an integrated tool of destructive combat power.

Historians Jeter Isely and Philip Crowl, in their landmark study of the Marines' amphibious war in the Pacific, remarked that "coordination among the three supporting arms was superb throughout [Iwo Jima], a consequence not only of sound doctrine, training, and experience, but also of the excellent communications."<sup>116</sup> Holland Smith's own 1945 naval gunfire report also attested to the Joint Assault Signal Companies'

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<sup>116</sup> Isely and Crowl, *The U.S. Marines and Amphibious War*, 501.

recent evolution and their instrumental role on Iwo. From organization to tactical procedures, the JASCOS' development improved American battlefield performance.<sup>117</sup>

In the final analysis, the success of the assault was dependent on several crucial factors: air and naval superiority in the seas and skies around Iwo Jima, a crushing preparatory bombardment, the effective coordination of supporting arms throughout the campaign, and the courage and determination of the Marines charged with clearing the island of its determined enemy. While each ingredient was an impressive achievement in its own rite, no single one could deliver victory by itself. Without one of these crucial and mutually-supporting elements, it is easy to envision an alternative ending to the American assault on Iwo Jima. For their part, the Joint Assault Signal Companies integrated American combat power with crushing effect and thereby enabled the seizure of one of Japan's most foreboding Pacific strongholds.

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<sup>117</sup> CGFMF(Pac), *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report*, 8.

## CHAPTER V

### CONCLUSION

At the close of World War II, Fleet Admiral and Chief of Naval Operations Ernest King concluded that “the outstanding development of this war, in the field of joint undertakings, was the perfection of amphibious operations, the most difficult of all operations in modern warfare.”<sup>118</sup> The distinguished wartime correspondent Robert Sherrod was similarly impressed: the Marine Corps’s amphibious advance in the Pacific War was “a campaign which has no precedent in history.”<sup>119</sup> Stripped of hyperbole, the Marines’ achievements continued to elicit recognition by scholars long after the wartime years. More than forty years later, the prominent historian Allan Millett concluded that “the Corps had made a major contribution (perhaps *the* major contribution) to creating an essential Allied military specialty, the amphibious assault against a hostile shore.”<sup>120</sup> Most evidently, the Corps’s amphibious evolution was marked by the vast disparity between its early travails in the Gilbert Islands and its adept performances on Iwo Jima and Okinawa. From its previously-discounted status in prewar military thought, the Marines resurrected the controversial and often costly—yet fundamentally necessary—amphibious assault.

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<sup>118</sup> Ernest J. King, *U.S. Navy at War, 1941-1945: Official Reports to the Secretary of the Navy* (Washington, D.C.: United States Navy Department, 1946), 171.

<sup>119</sup> Robert Sherrod, *On to Westward: The Battles of Saipan and Iwo Jima* (1945; repr., Baltimore: The Nautical & Aviation Publishing Company of America, 1990), xi.

<sup>120</sup> Millett, *Semper Fidelis*, 439.

The wartime creation and adaptation of the Joint Assault Signal Company (JASCO) was an essential component of Marine Corps evolution in the Second World War. In direct response to the war's early combat lessons, the JASCOs resolved to improve firepower coordination across American triphibious units. Linking the land, sea, and air components, the JASCOs bred more effective integration between not only the supporting arms components that they directed, but the entire American task forces they fought alongside. By measure of their impact, the JASCOs were an example of successful wartime military adaptation. Amphibious war historians Jeter Isely and Philip Crowl paid testament to the JASCOs' remarkable impact in the concluding chapter of their exhaustive study on the Marines in the Pacific War: "Coordination among all elements of the amphibious force and especially among the supporting arms of air, artillery, and naval gunfire was considerably improved throughout the war by the adoption of new techniques as well as by technological advance."<sup>121</sup>

#### *Wartime Effects of the Joint Assault Signal Company*

In late November of 1943, the Marines of the Fifth Amphibious Corps experienced their baptism by fire on the beaches of Tarawa in the Gilbert Islands of the Central Pacific. Despite the atoll's meager two square mile size, Japanese forces exacted a heavy price from Major General Holland Smith's amphibious task force. By battle's end, the Fifth Corps had suffered more than 3,400 casualties in fewer than eighty hours

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<sup>121</sup> Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* (Princeton, NJ: Princeton University Press, 1951), 585.

of combat.<sup>122</sup> As Americans on the home front grappled with the war's most discouraging casualty lists to-date, Smith's staff officers committed themselves to close scrutiny of the conflict's first contested amphibious landing. In short time, Tarawa became the gauge by which American forces could measure and compare their operational adjustments.

Most discouraging to the Marines who waded ashore on Tarawa was a troubling lapse in supporting fires just as the landing waves reached the sand. Several battle accounts reported that the American ships and aircraft ended their supporting fires long before the landing force touched down. Unaided by this crucial support, the ground troops fought ashore under horrific conditions and tenacious Japanese fire. Even as the landing troops began to consolidate on the beaches, they continued to suffer from inadequate air and naval support. The disjointed fires of the American task force left the attacking Marines vulnerable to the entrenched Japanese defenders, and the onus for advance fell onto the shoulders of the exposed units ashore, aided only by meager supporting firepower.<sup>123</sup>

Unfortunately, poor firepower coordination was not unique to the first day's landing on Tarawa. Post-battle reports revealed that air-ground harmonization suffered throughout the four-day struggle. Pilots regularly failed to communicate their target locations and attack plans to units on the ground. Even when the two components had

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<sup>122</sup> Joseph H. Alexander, *Across the Reef: The Marine Assault of Tarawa* (Washington, D.C.: Marine Corps Historical Center, 1993), 8-13.

<sup>123</sup> I. E. McMillian, "Naval Gunfire at Roi-Namur," *Marine Corps Gazette* 32, no. 7 (July 1948): 51; Corps Air Officer, "Air Officer Report of GALVANIC Operations," in *Report by Special Staff Officers on Gilbert Islands* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 1-4.

operational radios and were able to establish positive communications—a status not easily achieved on Tarawa—they struggled to effectively coordinate ground movements with the aircrafts’ supporting fires.<sup>124</sup> Most efforts to organize, however, were stopped well short of this step. In their first true evaluation under battlefield conditions, the Marines’ radio sets proved inadequate for amphibious combat. Many of the landing force’s air-to-ground radios were destroyed during the harrowing trek ashore—lost in the violent chaos of bombs, bullets, and chest-deep water. Of the radios that did make it to the beach, many were ruined by saltwater damage and useless weight for the beleaguered troops.<sup>125</sup>

Based on their analytical study of the offensive in the Gilbert Islands, the Fifth Amphibious Corps’s staff officers emphasized several key areas for improvement in the subsequent Pacific campaigns. With near-unanimous agreement, their most pressing concern was the inflexibility of fire support in the Gilberts. Instead of the fragmented, seemingly sporadic coverage received on Tarawa, the landing force needed responsive and focused firepower from its air and naval assets. In future amphibious operations, the officers reasoned, American ships and aircraft must closely tether their supporting fires to the needs of the landing force. Furthermore, fires in support of the initial assault

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<sup>124</sup> Corps Signal Officer, “Analysis of Communication Reports, Galvanic Operation,” in *Report by Special Staff Officers on Gilbert Islands* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944); Corps Air Officer, “Air Officer Report,” 4.

<sup>125</sup> Corps Naval Gunfire Officer, “Report on Naval Gunfire during GALVANIC,” in *Report by Special Staff Officers on Gilbert Islands* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 5; J. J. Reber, “The Evolution of Amphibious Communications,” *Marine Corps Gazette* 40, no. 11 (November 1956): 39; Corps Air Officer, “Air Officer Report,” 3-4.

should “be lifted with reference to the progress of the landing craft rather than on a time schedule.”<sup>126</sup>

In addition to their plea for greater flexibility, Navy and Marine officers recommended two more significant adjustments in American supporting arms after Tarawa: to adapt the force’s communications equipment and to improve battlefield integration between the disparate elements of the task force. The inadequacy of the radio sets was hard to ignore. Clearly, American forces needed waterproof communications equipment suited for the rigors of littoral combat. But at a more fundamental level, the various components of the triphibious force needed to generate more effective integration across the seas, skies, and surf. The disparate units—despite their distinct roles—needed more coordinated effort on the battlefield. They needed to share target information more freely, provide more timely updates on friendly positions and objectives, and meld their simultaneous actions into a more unified effort.<sup>127</sup> In short, the units needed to fight as one cohesive force.

Spurred by these very frustrations, Navy and Marine officers proposed the Joint Assault Signal Company concept in late 1943. Intended to draw the land, sea, and air components together and effectively synchronize American firepower, the nascent unit was an adaptive and original approach to supporting arms coordination. The company brought together hundreds of service members from the naval gunfire, aviation, ground,

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<sup>126</sup> Corps Naval Gunfire Officer, “Report on Naval Gunfire,” 7; Corps Air Officer, “Air Officer Report,” 1-2.

<sup>127</sup> Corps Signal Officer, “Analysis of Communication Reports,” 2-4; Corps Naval Gunfire Officer, “Report on Naval Gunfire,” 7-8, 10, 15; Thomas N. Greene, “Greater Coordination of Supporting Fires,” *Marine Corps Gazette* 31, no. 4 (Apr 1947): 40.

and communications specialties and billeted them under one administrative umbrella.<sup>128</sup> In addition to giving the various coordination teams a single “home,” the change gave tactical commanders a more tangible pressure point for the planning, conduct, and review of supporting arms coordination.

This administrative adjustment—however modest in its initial creation—opened the floodgates for American Joint Assault Signal Companies to improve not only American proficiency in fire control and management, but to meld a cross-community team of expert tacticians. The young signal companies secured their own equipment and began training together for upcoming operations. They developed a sense of unit camaraderie and began to break down existing barriers between the ground, naval, and aviation components.<sup>129</sup> The initial concept was far from a definitive solution to the difficulties of triphibious fires, but it was the first and indispensable step in the evolutionary path of supporting arms coordination.

After adjusting to their new makeup, and even while building cohesion through their wartime training, the JASCOs incorporated several crucial combat lessons during 1944. After their creditable performance during the amphibious assault on Roi and Namur Islands in February, JASCO leaders petitioned for more robust radio sets that could withstand the surf and sand of the Pacific Theater. Despite the companies’

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<sup>128</sup> Robert D. Heintz, Jr., “Naval Gunfire Training in the Pacific,” *Marine Corps Gazette* 32, no. 6 (June 1948): 12; Robert D. Heintz, Jr., “Minority Report on (J)ASCO,” *Marine Corps Gazette* 31, no. 7 (July 1947): 28. While Heintz’s title implies serious contention within the ranks, he is clear that JASCO post-war critique focuses almost exclusively on administrative organization and command relationships, not tactical utility or proficiency. In his words, “the real nexus of controversy settles about organizational complaints.”

<sup>129</sup> Reber, “Evolution of Amphibious Communications,” 39, 43; William B. Oldfield, “Shore Fire Control Parties,” *Marine Corps Gazette* 29, no. 11 (November 1945): 54.

obvious concern in the aftermath of Tarawa, the radios continued to disappoint American troops when they needed them most. More importantly for the JASCOs, however, was another concern that post-battle reports stressed after the assault on Roi-Namur: despite modest progress in coalescing the efforts of naval gunfire ships, aviation squadrons, and landing forces, officers of the Fifth Corps called for even more acquaintance and integration between the disparate elements.<sup>130</sup>

Responding to the invitation, JASCO units established several practices that unified the American tripartite force. Between campaigns, the companies arranged shipboard visits that gathered leaders from the naval, aerial, and ground components for the express purpose of generating cohesion amongst supporting arms personnel.<sup>131</sup> At the same time, the JASCOs took deliberate measures to firmly root themselves within the culture and mission of the landing force.<sup>132</sup> By better understanding the landing forces' capabilities, priorities, and difficulties, JASCO personnel could provide more effective and responsive firepower coordination. In this manner, the Joint Assault Signal Companies built bridges of acquaintance and cooperation throughout the Navy and Marine forces, with the intent of producing a unified battlefield effort.

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<sup>130</sup> Commanding General, Fifth Amphibious Corps, *Special Report on FLINTLOCK Operations* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 15; Commander, Fifth Amphibious Corps, "Extracts from Observers' Comments on FLINTLOCK Operation" (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 10, 15; Naval Gunfire Officer, *Naval Gunfire Report on the FLINTLOCK Operation* (San Francisco: Headquarters, Fifth Amphibious Corps, 1944), 20.

<sup>131</sup> Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook* (Quantico, VA: Marine Corps Schools, 1948-1950), 7; McMillian, "Naval Gunfire at Roi-Namur," 52.

<sup>132</sup> Amphibious Warfare School Senior Course, *Naval Gunfire Support Handbook*, 7; Marine Corps Schools, *PHIB-11: Amphibious Operations—Naval Gunfire Support* (Quantico, VA: Marine Barracks, Marine Corps Schools, 1945), 24; W. B. Oldfield, "Our Naval Gunfire Preparation," *Marine Corps Gazette* 29, no. 7 (July 1945): 44.

As the Fifth Amphibious Corps campaigned through the Marshall and Mariana Islands in late 1944, the JASCOs provided reliable and efficient fire coordination. They continued to introduce innovative techniques to address the persistent challenges of attacking from ship to shore. At Saipan in mid-1944, the JASCOs initiated a single common radio frequency for battlefield coordination between aircraft, ships, and ground spotters. The measure proved remarkably successful and allowed American forces to shift between naval and aerial fires with crushing effect.<sup>133</sup>

By the summer of 1944, the JASCOs had established themselves as a dependable communications bridge between the various arms of the triphibious force. Not only did their efforts aid the individual performance of each supporting arm, they also drastically improved the combined effect of the task force. JASCO troops learned to prioritize fires in a more uniform and efficient manner, eliminated redundancy between naval gunfire and air support missions, and made American combined arms more responsive and effective.<sup>134</sup>

The Joint Assault Signal Companies achieved their operational apex during the colossal amphibious assault on Iwo Jima. Beginning in late 1944—a full four months before the massive campaign—JASCO components began a series of intense live-fire training on the Hawaiian island of Kahoolawe as well as on the recently captured islands of Saipan and Tinian. Stressing dependable communications and accurate on-call fires,

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<sup>133</sup> Naval Gunfire Officer, “Call Fires” enc. in *Naval Gunfire Report, Phase I (SAIPAN)* (“In the Field:” Headquarters, Northern Troops and Landing Force, 1944), 8; Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 250.

<sup>134</sup> Naval Gunfire Officer, “Coordination with Artillery and Air Support” enc. in *Naval Gunfire Report*, 13; Shaw, Jr., Nalty, Turnbladh, *Central Pacific Drive*, 275.

the coordination teams continued to liaise closely with the participating ships and flying squadrons through their now-familiar routine of shipboard conferences. Meeting before and after their training exercises, they completed exhaustive live-fire exercises and refined their synchronization procedures on the spot with the pilots and naval gunnery crews. In all, American forces pummeled the training islands with more than 2,000 rounds of naval gunfire and more than 150 close air support missions.<sup>135</sup>

One example in particular highlighted the progress and proficiency of the Joint Assault Signal Companies on Iwo Jima. Aware of Iwo's formidable emplacements and by now well acquainted with the tenacity of the Japanese defenders, the Fifth Amphibious Corps planned to use a rolling naval barrage as the landing force descended on the firmly-held beaches. Building on a technique developed for assaulting trenches in the First World War, commanders of the Fifth Corps asked the JASCOs to take a conventional artillery concept and apply it to the much more daunting circumstances of a ship-to-shore combat transition.<sup>136</sup> To the credit of the JASCOs, American forces executed the concept with precision on Iwo Jima. As Holland Smith described it: "Starting at the edge of the beach, naval guns placed their fire 200 yards inland, and as the Marines began to land the fire was lifted in 200-yard jumps ahead of the men. This

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<sup>135</sup> Heinl, Jr., "Naval Gunfire Training in the Pacific," 14; I. E. McMillian, "Naval Gunfire at Guam," *Marine Corps Gazette* 32, no. 9 (Sep 1948): 53; Commanding Officer, 2d Joint Assault Signal Company, *Report of Air-Ground Exercises* ("In the Field:" Second Marine Division, 1945), 1-6.

<sup>136</sup> The idea of the land-based "rolling" or "creeping" artillery barrage first appeared in World War I as a means to cover an advancing infantry unit. For a thorough analysis, see David T. Zabecki, *Steel Wind: Colonel Georg Bruchmüller and the Birth of Modern Artillery* (Westport, CT: Praeger, 1994).

scheme proved highly successful.”<sup>137</sup> Additional reports equally praised the JASCOs’ execution of this “creeping” barrage, with one observer describing the tactic as “excellent supporting gunfire” and another labeling the procedure a “vital continuation of support” during the Marines’ vulnerable transition.<sup>138</sup>

The Iwo barrage may have most pointedly represented the wartime adaptation and innovation of the JASCOs, but it was hardly an isolated achievement in the short history of the signal companies. The campaign for Iwo Jima saw several fruitful changes in the coordination of supporting fires, from the JASCOs’ innovative use of radio frequencies to the effective inclusion of mortar gunboats during night operations ashore.<sup>139</sup> Although the island’s capture required tenacious close combat and flamethrowers to root out the most stubborn Japanese positions, the Marines advanced across the island under a critical umbrella of supporting arms. As Smith reflected, “artillery barrages, poundings by naval guns, and air strikes were maintained as a matter of routine.”<sup>140</sup> At times, the JASCOs directed off-shore fire a mere 100 yards in front of friendly lines. Compared with the earlier battles of the Pacific War, this achievement signified a new level of firepower coordination.<sup>141</sup>

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<sup>137</sup> Holland M. Smith and Percy Finch, *Coral and Brass* (1948; repr., Washington, D.C.: Zenger Publishing Co., Inc., 1979) 257.

<sup>138</sup> Commander, Amphibious Group Two [hereafter CAGT], *Report of Iwo Jima Operation* (San Francisco: Commander Amphibious Group Two, 1945), 2; Commanding General, Fleet Marine Force, Pacific, *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report* (San Francisco: Headquarters, Fleet Marine Force, Pacific, 1945), 27.

<sup>139</sup> Commander Amphibious Group Two, “Part IV: Naval Gunfire Support,” *Report of Iwo Jima Operation* (San Francisco: CAGT, 1945), 1-6; Millett, *Semper Fidelis*, 429-30; Commanding General, Fleet Marine Force, Pacific, *Iwo Jima Naval Gunfire Support: Expeditionary Troops Report*, 8-14.

<sup>140</sup> Smith and Finch, *Coral and Brass*, 273.

<sup>141</sup> *Ibid.*, 260.

The JASCOS' ability to coordinate triphibious firepower during the assault on Iwo Jima served as a strong indicator of the units' wartime progress. Through gradual yet committed adaptation, Joint Assault Signal Companies encouraged unified effort across the entire American task force. The companies gave landing force commanders a tangible avenue to measure, improve, and refine the unity of their forces. By linking the land, sea, and air components, JASCOS served as a model for inter-unit and inter-service cooperation and achievement. Their ability to synchronize the actions of several disparate groups not only benefitted the execution of supporting fires, but helped to assimilate the various forces into a more integrated fighting machine. In essence, the JASCOS promoted unity within the American force.

#### *Post-War Reflections*

Just as Navy and Marine officers reflected on supporting arms coordination in their post-battle reports throughout the war, so they considered the topic in the immediate aftermath of the conflict. The most popular venue for their thoughts was the service's professional journal and primary outlet for intra-service intellectual debate, the *Marine Corps Gazette*. Between 1945 and 1948, the *Gazette* published fourteen articles on supporting arms in the Pacific War, each of which professed confidence in, and appreciation for, the JASCOS' wartime evolution. Although some authors recommended postwar organizational changes for the signal companies, not one discounted the units' performance or utility in the fight with Japan.

Many of the articles considered the evolution of supporting arms coordination to be a steady, measured process from the war's opening salvos to its final volleys. Marine Captain Thomas Greene wrote that the coordination process "grew gradually during the war, as a result of vital needs."<sup>142</sup> Other contributors assigned checkpoints to the major campaigns, arguing that the integration of firepower grew stronger in both practice and principle between 1941 and 1945: "what at Tarawa was tentative, on Iwo Jima and Okinawa is now a firm well-defined part of amphibious doctrine."<sup>143</sup>

Some observers emphasized the JASCOS' ability to apply novel solutions on the battlefield, with one remarking that the companies "controlled every type of fire that had ever been thought possible and actually even uncovered many new schemes for employing naval gunfire support."<sup>144</sup> Echoing Holland Smith's earlier approval, Robert D. Heinl, a veteran of the Iwo Jima campaign and seasoned Naval Gunfire Officer of the Fifth Amphibious Corps, championed the JASCOS' coordination of the "rolling barrage" at Iwo Jima. Reflecting on the companies' larger influence in the Pacific, he commended the JASCOS' reforming influence on target prioritization during the war's many amphibious assaults. By encouraging level-headed analysis, the JASCOS delivered structure and rationale to an otherwise chaotic process.<sup>145</sup>

As after-action reports and training guidance from the Pacific Theater made clear, the wartime JASCOS spent considerable time and effort improving personal

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<sup>142</sup> Greene, "Greater Coordination of Supporting Fires," 42.

<sup>143</sup> R. D. Heinl, Jr., "Naval Gunfire Support in Landings," *Marine Corps Gazette* 29, no. 9 (September 1945): 43.

<sup>144</sup> McMillian, "Naval Gunfire at Guam," 56.

<sup>145</sup> Heinl, Jr., "Naval Gunfire Training in the Pacific," 15.

liaison and cooperation between the various components of the supporting arms complex. Predictably, *Gazette* writers recognized this JASCO initiative and extolled its influence in the war. One officer wrote that this personal interaction became a keystone of successful supporting fires and that the JASCO enterprise improved long-term coordination between the firing ships, the landing force, and the coordination sections. By the final campaigns for Iwo Jima and Okinawa, this integrated focus and strong rapport became a linchpin of the American task force.<sup>146</sup>

The JASCOs' enduring impact on naval gunfire in amphibious operations represented a common reflection for the *Gazette* contributors. The authors made clear that at the outbreak of war in 1941, Marine officers were skeptical of the utility of naval gunfire in amphibious operations, largely because of the officers' inadequate training and limited experience with sea-based fires. The few who did have familiarity with sea-based firepower were unimpressed by its accuracy and efficacy.<sup>147</sup> But as the Corps's operational planners soon acknowledged, the contested landings of the Pacific War demanded overwhelming fire support from naval ships. If the Marines had any hope of lodging a beachhead ashore, naval gunfire "must be the artillery of the landing force and the amphibious attacker's means of overbalancing the defense."<sup>148</sup>

With the arrival of the Joint Assault Signal Companies, Marines became more acquainted with the capabilities and nuances of naval firepower. As the Marine Corps developed the JASCO concept in 1943 and 1944, the companies improved their

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<sup>146</sup> Oldfield, "Our Naval Gunfire Preparation," 44; Oldfield, "Shore Fire Control Parties," 54.

<sup>147</sup> Oldfield, "Shore Fire Control Parties," 53.

<sup>148</sup> Heintz, Jr., "Naval Gunfire Training in the Pacific," 11.

organization, intensified their training, and secured more suitable equipment for their specialized mission. With steadily improving support from the offshore ships and aircraft—as well as the improved integration made possible by the control parties ashore—many of the earlier Marine skeptics came to new faith in the value of supporting arms, specifically that of naval gunfire. Landing force officers learned to welcome the maritime guns as an early and continuous form of fire support, and their efficacy was no longer up for debate. Most importantly, these guns were available long before landed mortars and howitzers could influence the battle. Thanks to the wartime competence of the Joint Assault Signal Companies, as well as the gunfire crews at sea, Marines learned to embrace their “floating artillery.”<sup>149</sup>

*“And Now the ANGLICO”*

In the aftermath of the Second World War, the Joint Assault Signal Company morphed into a new organizational construct that, once again, retained its fundamental purpose despite its periodic title rotations. Following a brief stint as Assault Signal Companies (dropping their “joint” designation), the units were reclassified as Air-Naval Gunfire Liaison Companies, or ANGLICOs. Struck by seemingly endless alterations to their task organization, the Marine Corps arranged its new ANGLICOs into one air support platoon and one naval gunfire platoon, with requisite communications personnel distributed throughout. Their function and presence, however, within the Marine divisions stood unaffected: one section each for the division’s three regiments and nine

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<sup>149</sup> Heintz, “Naval Gunfire Support in Landings,” 40; Oldfield, “Shore Fire Control Parties,” 54.

battalions with one senior, advisory team attached to the division headquarters itself. Despite their restructuring, the freshly minted ANGLICOs retained the JASCOS' wartime commission to "control, coordinate, and advise" air and naval gunfire support for the Marine division.<sup>150</sup>

As the precursor JASCOS had done during the world war, Air-Naval Gunfire Liaison Companies filled a unique, cross-service role in the U.S. armed forces. While the post-war Army retracted from its amphibious experiences during the war and directed its focus on large-scale land operations, the Joint Chiefs of Staff formally ordered the Marine Corps to create and train an explicit ANGLICO to support Army amphibious operations in future contingencies. This company would sustain its skills during peacetime and attach to appropriate Army units as needed. The Joint Chiefs' tasking solidified the Marines' reputation as amphibious warfare specialists and lent further credence to their progress and leadership during World War II. Indeed, Marine units had conducted cross-branch training for the Army's signal companies in the Pacific Theater as early as the spring of 1945 in order to share their expertise with Army amphibious outfits. Thus, the Corps's post-war assignment represented a natural and appropriate extension of their institutional role.<sup>151</sup>

On the Korean Peninsula just a few years later, the Marine Corps validated the Joint Chiefs' decision when Air-Naval Gunfire Liaison Companies advised American

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<sup>150</sup> R. D. Heinl, Jr., "And Now the Anglico," *Marine Corps Gazette* 35, no. 1 (Jan 1951): 22-23.

<sup>151</sup> Heinl, Jr., "Naval Gunfire Training in the Pacific," 15; Heinl, Jr., "And Now the Anglico," 24; Reber, "Evolution of Amphibious Communications," 42.

commanders on the use of supporting arms and coordinated naval and aerial firepower throughout the war. Particularly during the planning and execution of the amphibious assault at Inchon—one of the war’s most remarkable accomplishments—the ANGLICOs’ talent spoke for itself. The teams embedded themselves in the planning processes and conducted continual training for the units they supported, building operational bridges between ground commanders and their nonorganic supporting fires. In function and in spirit, the Air-Naval Gunfire Liaison companies mirrored their JASCO predecessors.<sup>152</sup>

### *The JASCO Legacy*

The United States Marine Corps faced a Herculean task in the war against Japan. American political and military leaders asked the service to fight across more than 3,500 miles of open ocean using—in contemporary thought—the least favorable method of attack. Not only was the amphibious assault inherently difficult because of its environmental hazards, exposed avenues of approach, and vulnerable landing phase, the task was further compounded by deadly advances in weaponry and defensive methods. In sum, the twentieth century amphibious assault was a mission suited for few other than a martial madman. Few service branches, units, or even individuals would have coveted such an assignment. Nonetheless, the discouraging nature of the task did not, indeed could not, preclude its necessity.

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<sup>152</sup> Lynn Montross and Nicholas A. Canzona, *U. S. Marine Operations in Korea, 1950-1953*, vol. 2, *The Inchon-Seoul Operation* (Washington, D.C.: Historical Branch, G-3, Headquarters U. S. Marine Corps, 1955), 5-6, 13, 41.

The Corps's assignment to advance across the Japanese-held islands of the Pacific compelled the service to solve the problems of triphibious coordination. At the most basic level, the Marines needed tremendous fire support in order to overcome Japanese resistance and lodge a beachhead ashore. For any hope of success, supporting fires needed to be timely, accurate, and overwhelming.

The Imperial Japanese Army and Navy countered the Corps's daring endeavor with tenacious, ideologically committed forces willing to fight to the death in the service of their Emperor. Japanese officers augmented this Samurai spirit with some of the most formidable defensive systems seen in modern war—linking deadly interlocking fires with menacing concrete fortifications. From the war's outbreak until the conclusion of hostilities, their doctrine and philosophy for amphibious defense promoted fights to the bitter end and strove to kill as many Americans as possible in their ultimately doomed efforts to thwart the Allied advance.<sup>153</sup>

Although the Japanese unveiled distinctive and threatening defensive developments as the war progressed, American Joint Assault Signal Companies nonetheless faced a fundamentally ancient tactical challenge in the Second World War. In many ways, their task was as old as the phenomena of armed conflict itself: how to turn dissimilar, disjointed weapons into *coordinated* combat power. Whether orchestrating a cavalry charge with an infantry advance or synchronizing the guns of a battleship with the strafing fire of an aircraft, armed forces have consistently—up to the

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<sup>153</sup> For a gripping and comprehensive study on Japanese strategy and determination to continue the war, see Richard B. Frank, *Downfall: The End of the Imperial Japanese Empire* (New York: Penguin Books, 1999).

present—struggled to translate disparate capabilities into unified power on the battlefield. In the understated words of Stephen Biddle, “combined arms tactics impose very high orders of complexity.”<sup>154</sup>

Senior U.S. commanders were certainly not oblivious to the challenges of battlefield coordination. In 1941, shortly after taking command of the Second Armored Division, legendary Army General George S. Patton addressed his troops and lamented the challenges of combined arms operations:

There is still a tendency in each separate unit . . . to be a onehanded puncher. By that I mean that the rifleman wants to shoot, the tankier to charge, the artilleryman to fire . . . That is not the way to win battles. If the band played a piece first with the piccolo, then with the brass horn, then with the clarinet, and then with the trumpet, there would be a hell of a lot of noise but no music. To get harmony in music each instrument must support the others. To get harmony in battle, each weapon must support the other. Team play wins.<sup>155</sup>

Patton’s words struck to the core of the JASCOS’ tall task. Yet even the iconic general’s tactical instincts failed to fully appreciate the challenges inherent in JASCOS’ coordination of land, air, *and* sea firepower. In this environment, the JASCOS had their truest challenge. If the coordination of combined arms was complex enough on land, its difficulty multiplied across the triphibious setting of the Marines’ war in the Pacific. Separated by miles of ocean and thousands of feet of altitude, commanders turned to their Joint Assault Signal Companies to act as the glue of the American task force.

The story of JASCOS in the Pacific War holds tremendous value not only for its lessons in military operations, but as a study in organizational learning. The companies’

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<sup>154</sup> Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, NJ: Princeton University Press, 2004), 38. Biddle’s account provides an excellent study of the development of twentieth century warfare and the modern challenges of combined arms.

<sup>155</sup> Martin Blumenson, *The Patton Papers, 1940-1945* (Boston: Houghton Mifflin Company, 1974), 39-40.

wartime development represents a rich example of *institutional adaptation*, whereby the Marine Corps slowly but assuredly identified and overcame the persistent problems of triphibious firepower coordination. The JASCOS' task was a difficult operational problem that, in the end, took careful, methodical, institutional energy to resolve.

Notably, this form of military innovation and adaptation is largely neglected in the standing scholarship. The preponderance of studies on military evolution, whether in peace or war, focus on top-down, directed change that flows from senior political and military leaders *into* the ranks of a service. Recognizing innovative and adaptive attitudes only among the most senior individuals, this perspective affords little agency to military institutions themselves. These scholars paint the armed forces as inherently conservative, committed to their established methods and traditions, rather than as learning organizations.<sup>156</sup>

The wartime evolution of Joint Assault Signal Companies in the Pacific War, however, compels an alternative explanation. Throughout the conflict, JASCOS exhibited recurrent lesson learning, adjustment, and refinement. The answer to the challenges of firepower coordination in the Pacific did not lie in one maverick's genius, one battle's "eureka" moment, or one senior officer's impetus. Instead, a multitude of junior leaders fueled the process, endeavoring to translate America's increasingly dominant amphibious power into tactical triumph. Unit commanders, liaison officers,

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<sup>156</sup> On the dominance of top-down theories in military innovation and adaptation studies, see Adam Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (October 2006): 905-34 and James A. Russell, *Innovation, Transformation, and War: Counterinsurgency Operations in Anbar and Ninewa, Iraq, 2005-2007* (Stanford, CA: Stanford Security Studies, 2011), 23-53.

pilots, and naval gunfire officers who experienced the battles at Tarawa, Kwajalein, Saipan, and Iwo Jima pushed the process forward. In the aftermath of combat, they applied candid critique to their unit's performance and sought out solutions that would ease the terrible bloodletting of the early amphibious assaults. They spent significant time and energy overcoming the difficulties of firepower coordination and made judicious recommendations while preparing for future campaigns.

Pacific War veteran (and later historian of the Marine Corps) Robert D. Heintz paid the highest tribute to the wartime service of the Joint Assault Signal Companies in a postwar article published in the *Marine Corps Gazette*. Heintz synthesized the companies' efficacy and flexibility in his simple definition of the JASCO: "a kind of wind-and-water bridge unit . . . which enables the amphibious division to tap the immense reservoir of external fleet support during the critical hours or days of new-born battle when air and naval gunfire are the elements that keep the landing force on the beaches."<sup>157</sup> Through their remarkable success in keeping the landing force "on the beaches," the Joint Assault Signal Companies played an indispensable role in the American victory over Japan.

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<sup>157</sup> Heintz, Jr., "And Now the Anglico," 22-3.

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