

# Operational Art and Sustainment of US Campaigns to Seize the Philippines and Okinawa in 1944-1945

A Monograph

by

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## Abstract

Operational Art and Sustainment of US Campaigns to Seize the Philippines and Okinawa in 1944-1945, by MAJ Benjamin S. Scott III, US Army, 64 pages.

This monograph discusses sustainment's relationship to successful campaign planning and execution. US campaigns for the Philippines and Okinawa during World War II represented the largest campaign in the Pacific and largest amphibious assault of the war. These undertakings required robust and detailed planning and execution of sustainment to achieve campaign objectives.

Operational art's elements of basing, tempo, operational reach, and risk are present in the planning and execution of both campaigns. This study analyzes the relationship between sustainment and these elements to provide the military practitioner with additional understanding in campaign planning.

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## Abbreviations

ASCOM	Army Service Command
CPA	Central Pacific Area
CCS	Combined Chiefs of Staff
ETO	European Theater of Operations
JCS	Joint Chiefs of Staff
POA	Pacific Operational Areas
PTO	Pacific Theater of Operations
SWPA	South West Pacific Area
USASOS	United States Army Services of Supply

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## Introduction

In mid-1944, US forces continued to advance across the Pacific towards a planned invasion of the Japanese home islands. Operations to capture the Philippines and Okinawa were essential to setting conditions for this planned final invasion. October of 1944 brought the US invasion of the Philippines by US Army forces followed in April of 1945 by an invasion of Okinawa by joint Army and Marine forces. The Philippines campaign was the largest US campaign of the war in the Pacific and Okinawa witnessed the war's largest amphibious assault. Did US forces use elements of operational art in sustainment of the campaigns for the Philippines and Okinawa in World War II by prioritizing sustainment planning and execution to achieve desired operational effects and strategic objectives?

This study will attempt to answer the above question by studying the sustainment of the campaigns for the Philippines (Operation Musketeer) and Okinawa (Operation Iceberg) through the lens of operational art from the perspective of US forces. The problem is determining if and how US forces applied elements of operational art during sustainment of these two campaigns or the US prevailed without use of the same elements. This study asserts US forces used elements of operational art in sustainment of the campaigns for the Philippines and Okinawa. Much extant literature describes the island-hopping campaigns' designs and attendant sustainment requirements. US forces' deliberate application of elements of operational art in sustainment is less examined or covered by existing literature despite its significance and relevance. Desired strategic end state and conditions, centers of gravity, decisive points, and lines of operations/effort drove sustainment planning, resourcing, and execution. Central to sustainment of the campaign were basing, enabling tempo, preventing and managing culmination, facilitating operational reach, and managing risk. Commanders and staffs used their skill, knowledge, experience, creativity, and judgment to integrate ends, ways, and means to sustain operations and

achieve strategic goals.<sup>1</sup> The purpose of this study is to identify and understand how US forces applied elements of operational art in sustainment of Operation Musketeer and Operation Iceberg.

This study is significant for its contribution to the historical body of knowledge on sustainment of the Pacific Theater of Operations (PTO) and military practitioners seeking to understand operational art's relationship to sustainment. The historian will identify historical precedent for the US military's current theory of operational art. The military practitioner will observe the relationship between operational art and sustainment in two similar but distinct campaigns during total war. Both the historian and military practitioner will discover that prioritizing planning and execution of sustainment operations can increase the possibility for operational success.

Sustainment of US forces will be analyzed through the lens of the theory of operational art and the tenets of basing, tempo, culmination, operational reach, and risk. This study must first clarify the definitions of these terms to enable a common language throughout the study and to facilitate comparison with other studies. Sustainment is the provision of logistics, personnel services, and health service support necessary to maintain operations until successful mission completion.<sup>2</sup> Joint Publication 3-0, *Joint Operations*, defines operational art as, "the cognitive approach by commanders and staffs - supported by their skill, knowledge, experience, creativity, and judgment - to develop strategies, campaigns, and operations to organize and employ military forces by integrating ends, ways, and means."<sup>3</sup> Elements of operational art directly related to sustainment are basing, tempo, culmination, operational reach, and risk. Basing is divided into permanent and non-permanent categories. This study is concerned primarily with non-permanent

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<sup>1</sup> US Department of Defense, Joint Staff, Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2017), II-3.

<sup>2</sup> US Department of the Army, Headquarters, Army Doctrine Reference Publication (ADRP) 4-0, *Sustainment* (Washington, DC: Government Printing Office, 2012), 1-1.

<sup>3</sup> Joint Staff, JP 3-0, *Joint Operations* (2018), GL-13.

basing and specifically base camps. A base camp is an evolving military facility that supports the military operations of a deployed unit and provides the necessary support and services for sustained operations.<sup>4</sup> Tempo is the relative speed and rhythm of military operations over time with respect to the enemy.<sup>5</sup> Culmination is a point at which a force no longer has the capability to continue its form of operations, offense or defense. While conducting offensive tasks, the culminating point occurs when the force cannot continue the attack and must assume a defensive posture or execute an operational pause.<sup>6</sup> Operational reach is applicable to Army forces as part of the joint force and reflects the ability to achieve success through a well-conceived operational approach.<sup>7</sup> Risk is the probability and severity of loss linked to hazards.<sup>8</sup>

This study uses a comparative case-study methodology of the campaigns for the Philippines and Okinawa. Five hypotheses are tested to determine the presence of operational art's elements in sustainment of the campaigns. The first hypothesis asserts that when operational planners prioritize planning and execution of sustainment operations they maximize tempo. The second hypothesis argues that when operational planners prioritize planning and execution of sustainment operations they maximize operational reach. The third hypothesis asserts that when operational planners prioritize planning and execution of sustainment operations they minimize culmination. The fourth hypothesis contends that when operational planners prioritize planning and execution of sustainment they optimize basing. The fifth hypothesis argues that when operational planners prioritize planning and execution of sustainment operations they reduce risk.

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<sup>4</sup> US Department of the Army, Headquarters, Army Doctrine Reference Publication (ADRP) 3-0, *Operations* (Washington, DC: Government Printing Office, 2017), 2-6.

<sup>5</sup> US Army, ADRP 3-0 (2017), 2-7.

<sup>6</sup> Ibid, 2-8

<sup>7</sup> Ibid, 2-9.

<sup>8</sup> Ibid, 2-10.

This study seeks to answer these questions given several limitations. Sustainment theory and doctrine in the interwar period and much of the development of sustainment in the PTO are not studied while operational details are omitted to enable a clear and concise analysis of the topic. All research is limited to open-source, English-language documents though this limitation is relatively minor because of wide access to declassified US primary-source documents. Scope of this study is confined to the campaigns for the Philippines in Operation Musketeer and Okinawa in Operation Iceberg. Operations prior, simultaneous, and after these operations are omitted unless they had significant and direct impacts. This restriction is necessary for clarity while enabling sufficient detail of studied operations.

This study contains seven sections. The first section is the introduction. The second section presents a literature review. Section three describes the methodology of this research. Section four and five discuss the campaigns for the Philippines and Okinawa. Section six presents the findings and analysis of the campaigns. Finally, section seven concludes this study with an assessment of the evidence to determine if prioritization of sustainment planning and execution maximized tempo, maximized operational reach, minimized culmination, optimized basing, and reduced risk.

## Literature Review

This section will review literature on operational art theory and the concepts of basing, tempo, culmination, operational reach, and risk. Understanding the theory of operational art and especially elements directly related to sustainment will enable comparative analysis of the US campaigns for the Philippines and Okinawa. This section will then review literature that documents the planning and execution of each campaign that identify elements of operational art in the sustainment of each. Numerous works have examined each campaign, sustainment in the PTO, and operational art. This study will fill an existing gap by comparing the relationship of operational art and sustainment within and between these campaigns.

Soviet military theorists developed the theory of operational art in the wake of World War I and the Russian Revolution. The first widely-accessible treatise on operational art was *The Nature of Operations of Modern Armies* written by Vladimir K. Triandafillov and published in 1929.<sup>9</sup> Triandafillov envisioned an ideal in which operations linked successively to achieve effects as one, continuous, deep operation. Tukhachevsky developed the concept of deep operations describing penetrations exploited with massed, mechanized maneuver into enemy rear-areas in his essay “New Problems of War.”<sup>10</sup> Georgii S. Isserson subsequently presented his theory of operational art publishing *The Evolution of Operational Art* in 1932 and again in an expanded version in 1937.<sup>11</sup>

The Soviet development of operational art presented in the writings of Triandafillov, Tukhachevsky, and Isserson and present in Soviet doctrine in the 1920s-1930s responded to new technological and tactical trends in warfare. Isserson noted that Napoleonic battles of single points with the ability to disperse and then mass formations against the flank of the enemy gave way to battles of multiple points.<sup>12</sup> The emerging trend in the late nineteenth and early twentieth century was toward armies of ever-greater size with continuous fronts not readily susceptible to flanking attacks. Soviet thinkers anticipated trends towards deeper and broader fronts enabled by technology and tactics. Isserson advocated for deep battle to defeat the front of stalemated opposing armies. Isserson envisioned future operations not as one chain of interrupted, sequential battles but instead as a “continuous chain of merged combat efforts throughout the entire depths,” dispersed in time and space, and unified by a common objective.<sup>13</sup> A key limitation in the

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<sup>9</sup> Clayton R. Newell and Michael D. Krause, ed. *On Operational Art* (Washington, DC: Center of Military History, 1994), 26.

<sup>10</sup> Richard Simpkin and John Erickson, *Deep Battle* (London: Pergamon-Brassey's, 1988).

<sup>11</sup> Georgii S. Isserson, “The Evolution of Operational Art,” translated by Bruce W. Menning (Fort Leavenworth, KS: SAMS Theoretical Special Edition, 2005), xvi-xvii, 1-9.

<sup>12</sup> *Ibid*, 19, 26.

<sup>13</sup> *Ibid*, 48.

application of the theory of deep battle is the ever-growing requirement for combat and support forces to realize the desired effects of a deep operation.

Where Isserson developed the linkage of units and efforts in time and space, John Boyd and James Schneider have contributed to the relationship between the arrangement of efforts in time and space to military and political objectives. Isserson describes linked efforts as “united by the general intent of defeating or resisting the enemy.”<sup>14</sup> John Boyd and James Snyder more directly link operational art to achieving specific strategic aims. Boyd elucidated specific attributes of operational art to increase opportunities for success while stressing the essential nature of shared understanding of the common operational and strategic aims.<sup>15</sup> Schneider similarly linked operational art with the strategic goals.<sup>16</sup> This link is a key element of the theory of operational art. The US Army defines operational art as “the pursuit of strategic objectives, in whole or in part, through the arrangement of tactical actions in time, space, and purpose.”<sup>17</sup> This definition incorporates the idea of arrangement of operations in time and space advocated by Isserson with the orientation on strategic aims of Boyd and Schneider.

The Army defines sustainment as “the provision of logistics, personnel services, and health service support necessary to maintain operations until successful mission completion.”<sup>18</sup> This definition of sustainment will be used for the purposes of this study. This current definition and current doctrine are consistent with previous definitions including those of the Army Service Corps during World War II and an even earlier definition provided by Jomini of “the practical art

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<sup>14</sup> Isserson, “The Evolution of Operational Art,” 26.

<sup>15</sup> John Boyd, “Patterns of Conflict,” “Proceedings of Seminar on Air Antitank Warfare, May 25-26, 1978,” (Springfield, VA: Battelle, Columbus Laboratories, 1979), accessed 23 March 2018, <http://dnipogo.org/john-r-boyd/> 90-140.

<sup>16</sup> James J. Schneider, “Theoretical Paper No.3: The Theory of Operational Art” (Fort Leavenworth, KS: School of Advanced Military Studies, 1988) 52.

<sup>17</sup> US Army, ADRP 3-0 (2017), 2-1.

<sup>18</sup> US Army, ADRP 4-0 (2012), 1-1.

of moving armies...providing for the successive arrival of convoys of supplies...establishing and organizing lines of supplies.”<sup>19</sup> The Army integrally ties sustainment to basing, tempo, culmination, operational reach, and risk in its descriptions of the sustainment warfighting function, the elements of sustainment, and those elements’ principles.<sup>20</sup>

US Army doctrine separates basing into two general categories: permanent (bases or installations) and non-permanent (base camps).<sup>21</sup> This study will be limited to the bases and base camps directly involved in the campaigns. It will assess and describe basing in its roles as an enabling, limiting, and driving factor. Focus will be the role of mixtures of bases and base camps that served as intermediate staging bases, lodgments, and forward operating bases to extend operational reach to extend operations in time and space. Quantitatively, basing’s enabling and limiting roles will be in terms of personnel, combat-systems, distance, and time. Basing as a driving factor of operations will be measured in terms of requirements generated or further enabled operations.

The Army defines tempo as “the relative speed and rhythm of military operations over time with respect to the enemy.”<sup>22</sup> John Boyd and Robert Leonhard provide theories on tempo. John Boyd thoroughly describes the relationship between decision-making cycles in his Orient-Observe-Decide-Act loop while further expanding on initiative and the cognitive, spatial, moral, and temporal aspects of war relative to belligerents.<sup>23</sup> Robert Leonhard further refines tempo in

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<sup>19</sup> The Army’s World War II definition is provided in the Final Report of the Army Service Forces. The Army Service Forces, *Final Report of the Army Service Forces* (Washington DC: War Department, 1947), viii. Both the Army’s current and World War II definitions are congruent with Jomini’s definition. Henri Antoine Jomini, *The Art of War*, translated by G.H. Mendell and W.P. Craighill (Philadelphia, PA: J. B. Lippencott & Co., 1862).

<sup>20</sup> US Army, ADRP 4-0 (2012), 1-1 - 1-6.

<sup>21</sup> US Army, ADRP 3-0 (2017), 2-6.

<sup>22</sup> Ibid, 2-7.

<sup>23</sup> Boyd, “Patterns of Conflict,” 90-140.

terms of duration, frequency, and sequencing while again emphasizing tempo's nature as relative to the belligerents.<sup>24</sup> This study will focus on which belligerent possesses the initiative as a result of tempo throughout each campaign.

The third element of operational art this study will address is culmination. The culminating point "is a point at which a force no longer has the capability to continue its form of operations, offense or defense."<sup>25</sup> This study will measure culmination qualitatively by observing planned and unplanned transitions between offense and defense. Special attention will be paid to effects of culmination on sustainment and on sustainment's role in causing, preventing, or responding to culmination.

Operational reach is the fourth element of operational art this study will address. Operational reach is the distance and duration over which a force can achieve success through a well-conceived operational approach.<sup>26</sup> The limit of a unit's operational reach is its culminating point. This study will measure operational reach in terms of the tension between endurance, momentum, and protection in relation to distance, time, speed, and relative effects on forces.

The final element of operational art this study will address is risk. The Army's definition of risk is "the probability and severity of loss linked to hazards."<sup>27</sup> Risk will be assessed as either known or unknown. Known risk-decisions will be assessed based on proportion of opportunity to hazard and mitigations applied. Outcomes of risk decisions or acceptance will be evaluated based upon costs to mission, costs to forces, and judgement based on information available at the time.

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<sup>24</sup> Robert R. Leonhard, *Fighting by Minutes: Time and the Art of War*, 10-11, 69-85.

<sup>25</sup> US Army, ADRP 3-0 (2017), 2-9.

<sup>26</sup> Ibid, 2-9.

<sup>27</sup> Ibid, 2-10.



Primary sources consulted for this work include the after-action reports of Sixth Army on Leyte and Luzon and Tenth Army at Okinawa.<sup>28</sup> These reports cover planning, tactical and operational actions, staff-specific reports on planning and operations, and contain maps and orders. Other primary-source documents include the staff-studies and orders for the Philippine and Okinawa campaigns, correspondence of the Commander-in-Chiefs (CinC) Southwest Pacific Areas (SWPA) and Pacific Operations Area (POA).<sup>29</sup> For strategic context, the reports of the Army Chief of Staff and Navy Fleet Admiral provided concise primary-source overviews.<sup>30</sup>

Secondary-source works used in the two case studies consist primarily of the Center of Military History's series "The US Army in World War II." *Leyte: The Return to the Philippines*, *Triumph in the Philippines*, and *Okinawa: The Last Battle* detail the strategic, operational, and tactical aspects of the US military and especially US Army's efforts to seize the islands.<sup>31</sup> These broad and detailed works cover the strategic and operational environment to include debates and decision, the planning of operations, execution, and finish with strategic implications. Each work contains tremendous detail verified through numerous primary sources and citations. Additionally, Coakley and Leighton's *Global Logistics and Strategy: 1943-1945* is a definitive American account of strategic, theater, and operational logistics for a period that covers both

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<sup>28</sup> Sixth Army, *Report of the Leyte Operation* (Unknown: US Sixth Army, 1945); Sixth Army, *Report of the Luzon Operation* (Unknown: US Sixth Army, 1945); Tenth Army, *After Action Report of the Ryukyus* (Unknown: US Tenth Army, 1945).

<sup>29</sup> Command Summary of Fleet Admiral Chester W. Nimitz Volumes 5-6 of 8, United States Department of the Navy, maintained by Captain James M. Steele (US Naval War College, 2014), 2053-2105; Douglas MacArthur, *The Campaigns of MacArthur in the Pacific* (Washington, DC: Center of Military History, US Army, 1966.).

<sup>30</sup> Earnest J. King, *U.S. Navy at War, 1941-1945: Official Reports to the Secretary of the Navy* (Washington, DC: US Navy Department, 1946); George C. Marshall, *Biennial Reports of the Chief of Staff of the United States Army to the Secretary of War: 1 July 1939-30 June 1945* (Washington, DC: Center of Military History, 1996).

<sup>31</sup> M. Hamlin Cannon, *Leyte: the Return to the Philippines* (Washington, DC: Center of Military History, US Army, 1996).; Robert Ross Smith, *Triumph in the Philippines* (Washington, DC: Center of Military History, US Army, 1994).; Roy E. Appleman, *Okinawa: The Last Battle* (Washington, DC: Center of Military History, US Army, 1996).

campaigns.<sup>32</sup> The work provides technical information, details, and insights into the sustainment of the campaigns and is similarly reinforced by primary sources. Finally, Michael R. Matheny's *Carrying the War to the Enemy: American Operational Art to 1945* contains the historical roots, component histories, and specific chapters on the European and Pacific Theaters.<sup>33</sup> While it does not delve into great details regarding sustainment of the two campaigns, it provides a concise and coherent overview of operational art present during the campaigns as a cue for further investigation.

This study aims to fill an existing gap by further examining and describing operational art in the sustainment of US campaigns for the Philippines and Okinawa. The study asserts that US forces successfully used operational art in the sustainment of campaigns for the Philippines and Okinawa to achieve military and strategic objectives. This study will test this assertion by assessing four hypotheses. When operational planners prioritize planning and execution of sustainment operations they maximize tempo. When operational planners prioritize planning and execution of sustainment operations they maximize operational reach. When operational planners prioritize planning and execution of sustainment operations they minimize culmination. Finally, when operational planners prioritize planning and execution of sustainment operations they reduce risk. If correct, these hypothesis support the thesis that US forces successfully applied operational art in sustainment of the campaigns.

## Methodology

This study will qualitatively assess two campaigns using a series of research questions and use the structured, focused comparison methodology. Six research questions provide the

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<sup>32</sup> Robert W. Coakley and Richard M. Leighton, *Global Logistics and Strategy, 1943-1945* (Washington, DC: Center of Military History, US Army, 1999).

<sup>33</sup> Michael R. Matheny, *Carrying the War to the Enemy: American Operational Art to 1945* (Norman: University of Oklahoma, 2012).

structure to make qualitative comparisons.<sup>34</sup> The focus of this comparison will be on operational art in sustainment of each campaign to identify similarities and disparities between the two campaigns and to understand the resulting impacts. Selection of two case studies optimizes the use of limited length and balances the value of comparison for the identification of potential relationships or trends without sacrificing detailed analysis. The remainder of this section contains a brief overview of each case study analyze, research questions for analysis, and sources to be used to obtain qualitative data.

Cases for study are the US campaigns for the Philippines (Operation Musketeer) and Okinawa (Operation Iceberg). These campaigns were selected because of specific similarities and differences. Both campaigns were primarily US operations with land, air, and sea elements that included amphibious operations that occurred in the PTO and during the final year of World War II. Important differences of the two campaigns include the level of joint operations, service-lead (commanders, staffs, and forces), geographic considerations, and duration.

This study uses six focused research questions to guide collection of data and analysis of the two case studies. The same six questions will be used to analyze both case studies and provide the structure of this study. First, what were the US national political objectives in the Pacific Theater? These objectives link with and inform US military objectives and end-state while further illuminating the desired political end-state.<sup>35</sup> The second question links the strategic and operational levels of warfare by bridging from strategic objectives to military objective. What were the US military objectives in the Pacific Theater?<sup>36</sup> The third question flows from the objectives through the operational approach: what was the campaign plan for the Philippines and

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<sup>34</sup> Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge: MIT Press, 2005), 67-72.

<sup>35</sup> William J. Davis, "The End of End State - Strategic Planning Process for the 21st Century," *InterAgency Journal* 6, no. 4 (Fall 2015): 16–23, accessed April 25, 2018, <http://thesimonscenter.org/iaj-6-4-fall-2015/>.

<sup>36</sup> US Department of Defense, Joint Staff, Joint Publication (JP) 5-0, *Joint Planning* (Washington, DC: Government Printing Office, 2017), IV-16.

Okinawa? This question will describe the objectives of each campaign while investigating the planning undertaken to achieve military objectives. These first three questions establish the strategic and operational environments, provide strategic and operational objectives, and describe the plan for each campaign. The answers to these questions provide information required to answer subsequent questions.

The fourth through sixth questions focus on sustainment and the operational approach. The fourth question posits, what was the sustainment plan for the Philippines and Okinawa? The fifth question examines, how did the sustainment plan extend operational reach and prevent culmination? Finally, how did the sustainment plan account for and mitigate operational risk? Risks may be strategic, operational, or tactical. Implicit in the question is analysis of unidentified risks and resulting outcomes. Taken together these three questions elucidate sustainment of each campaign, examine relationships between sustainment and the operational approach, and enable comparison of the two case studies.

## Case Studies

The section will outline the studied cases and answer the focused questions described in the methodology section. Answering the focused questions, this section will enable comparison of the US campaigns for the Philippines and Okinawa in World War II. These two campaigns are similar because of their relationship to US strategy in the PTO and their adherence to fundamental elements of operational approaches used there from 1943-1945. Both Operations Musketeer and Iceberg fit within the Joint Chiefs' May 1943 "Strategic Plan for the Defeat of Japan" and that plan's focus on progressive basing to enable US sea and airpower to isolate and destroy Japanese war-making capacity and a land invasion, if required.<sup>37</sup> In addition to nesting within the strategic plan, both campaigns leveraged air, sea, and land-power at the operational

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<sup>37</sup> US Joint Chiefs of Staff, "Strategic Plan for the Defeat of Japan, May 19, 1943 (JCC 287/I)," in Louis Morton, *Strategy and Command: The First Two Years* (Washington, DC: Center of Military History, US Army, 2000), App. M, 645.

and tactical levels to increase operational reach.<sup>38</sup> The campaigns differ in duration, the scope of geographic and human terrain, and the composition of forces employed. This section is divided into two subsections. The first subsection is the case study of the Philippines and the second is the case study of Okinawa. Each case study begins with a historical overview of the case and proceeds to provide answers to the structured-focused questions using empirical data.

## The Philippines, October 1944-June 1945

The US campaign for the Philippines, Operation Musketeer, began on 17 October and consolidation of the archipelago continued at the end of World War II in August 1945.<sup>39</sup> This case study specifically addresses the campaigns for Leyte and Luzon undertaken by Sixth Army which ended when relieved on Luzon in June 1945. Leyte, a shaping operation at Mindoro, and Luzon represent the first three major islands recaptured by US forces in the Philippines. The Japanese 14<sup>th</sup> Area Army under GEN Yamashita, supported by air and naval elements, defended the Philippines seeking decisive battle at Leyte and later fighting a delaying action on Luzon.<sup>40</sup>

Air and maritime forces attempted to isolate and prepare objectives on Mindanao and Leyte in September and October 1944, destroying an estimated 500 Japanese aircraft and 180 merchant ships.<sup>41</sup> Based on these successes, the Joint Chiefs of Staff (JCS) cancelled intermediate operations against Yap and Mindanao and ordered GEN MacArthur to accelerate the South West Pacific Area (SWPA) forces invasion of Leyte to 20 October.<sup>42</sup> Meanwhile, Japanese planners prepared to concentrate forces to meet and defeat Allied landings wherever they might occur within the Philippines. The Japanese 14th Area Army under GEN Yamashita was responsible for

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<sup>38</sup> Cannon, *Leyte* (1996), 54; Smith, *Triumph in the Philippines* (1994), 421.

<sup>40</sup> Smith, *Triumph in the Philippines* (1994), 88-90.

<sup>41</sup> Command Summary of Fleet Admiral Chester W. Nimitz Volume 5 of 8, United States Department of the Navy, maintained by Captain James M. Steele (US Naval War College, 2014), 2053-2105.

<sup>42</sup> M. Hamlin Cannon, *Leyte: the Return to the Philippines* (Washington, DC: Center of Military History, US Army, 1996), 1-8.

the defense of the Philippines with approximately 432,000 troops in the archipelago and 20,000 on Leyte.<sup>43</sup>

After completing minesweeping operations and seizing islands controlling approaches to the eastern beaches, LTG Krueger's Sixth Army began landing on Leyte on 20 October 1944.<sup>44</sup> Sixth Army's two corps landed with X Corps between Tacloban airfield and the Palo River in the north and XXIV Corps between San Jose and the Daguitan River in the south.<sup>45</sup> The landings and subsequent advances on Leyte are depicted in Figure 1 below. Each corps beachhead rapidly supported landing of follow-on forces, heavy equipment, and vast quantities of supplies. After gaining control of Tacloban airfield, Dulag, and key terrain influencing the beaches on the first day ashore, Sixth Army advanced inland against determined but uncoordinated resistance. X Corps advanced west to the Leyte Valley and north to seize the San Juanico Strait along with adjacent portions of Leyte and Samar while XXIV Corps attacked to seize planned airfields and sustainment facilities in southern Leyte Valley.<sup>46</sup>

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<sup>43</sup> Cannon, *Leyte* (1996), 23-54.

<sup>44</sup> Sixth Army, *Report of the Leyte Operation* (1945), 31-33.

<sup>45</sup> Cannon, *Leyte* (1996), 60-62, 72; Sixth Army, *Report of the Leyte Operation* (1945), 32-33.

<sup>46</sup> Cannon, *Leyte* (1996), 54-80; Sixth Army, *Report of the Leyte Operation* (Unknown: Sixth Army, 1945), 31-40.

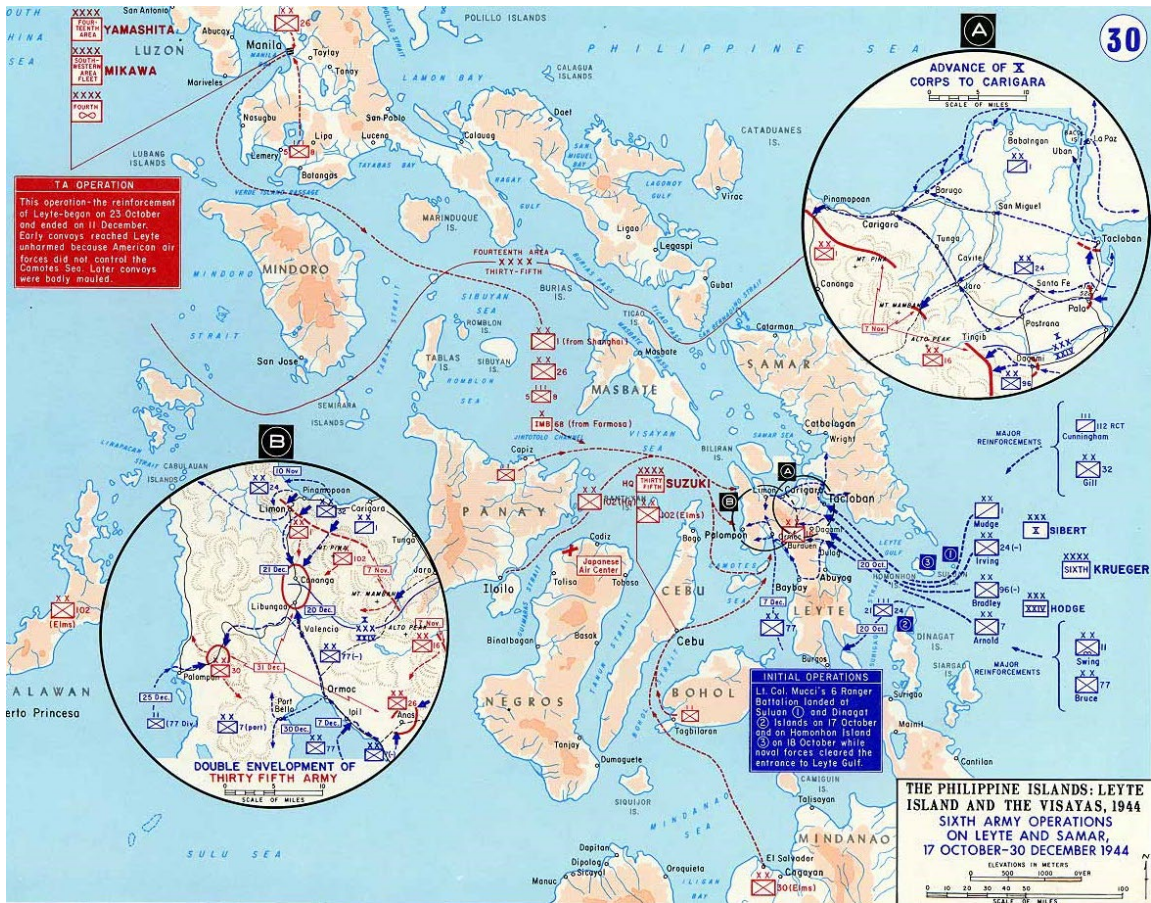


Figure 1. Sixth Army Operations on Leyte and Sambar, October-December 1944. Map courtesy of the Department of Military History, United States Military Academy, “Sixth Army Operations on Leyte and Sambar, October-December 1944,” *United States Military Academy Atlases*, accessed November 2, 2017, <https://www.usma.edu/history/SiteAssets/SitePages/World%20War%20II%20Pacific/ww2%20as ia%20map%2030.jpg>.

Japanese air and naval attacks by the bulk of available aircraft and nearly the entire remaining Japanese surface fleet damaged supply areas and threatened support shipping; these attacks failed at great cost to destroy US support shipping and carriers from 23-28 October.<sup>47</sup> Air and naval action paired with failures to establish planned basing for land-based US aviation to allow the Japanese to reinforce defenses on Leyte and similarly degraded air-support for ground

<sup>47</sup> Cannon, *Leyte* (1996), 85-88; Sixth Army, *Report of the Leyte Operation* (1945), 40-43.

offensive action.<sup>48</sup> Slowed US progress allowed the Japanese to retain Ormoc and its port which enabled still further reinforcement and resupply.

Responding to Japanese reinforcement and to maintain tempo, LTG Krueger employed three committed reserve divisions as X Corps attacked south and XXIV Corps north along the western shore of the island.<sup>49</sup> Commitment of the reserve divisions delayed both timelines for operations in the Philippines and subsequent operations across the PTO.<sup>50</sup> Fighting in restrictive terrain, Japanese defenders heavily contested advances by Sixth Army towards Ormoc in late November and early December.<sup>51</sup> Sixth Army's advances strained resupply over increasing distances with limited roads degraded by heavy rains.<sup>52</sup> Sixth Army then defeated Japanese attacks against airfields in the Burauen area between 6-11 December, as LTG Kreuger committed the 77<sup>th</sup> Division in an amphibious assault to assist XIV Corps' seizure of Ormoc.<sup>53</sup> XXIV Corps continued its attack north as X Corps advanced sought from Carigara Bay; the two corps converged on 22 December before capturing the final port under Japanese control at Polompon on 25 December 1944.<sup>54</sup> Eighth Army relieved Sixth Army on Leyte on 26 December.

Failure to establish airfields on Leyte necessitated completion of the already planned seizure of southern Mindoro to achieve air superiority over the Philippines.<sup>55</sup> GEN MacArthur

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<sup>48</sup> Cannon, *Leyte* (1996), 92-102; Sixth Army, *Report of the Leyte Operation* (1945), 40-43, 83.

<sup>49</sup> Sixth Army, *Report of the Leyte Operation* (1945), 34-40.

<sup>50</sup> Cannon, *Leyte* (1996), 102; Robert Ross Smith, *Triumph in the Philippines* (Washington, DC: Center of Military History, 1994), 22-25.

<sup>51</sup> Sixth Army, *Report of the Leyte Operation* (1945), 61-67.

<sup>52</sup> *Ibid.*, 45-70.

<sup>53</sup> Sixth Army, *Report of the Leyte Operation* (1945), 62, 72-80; Cannon, *Leyte* (1996), 275-305.

<sup>54</sup> Cannon, *Leyte* (1996), 206-235, 257-305, 313-367; Sixth Army, *Report of the Leyte Operation* (1945), 71-82.

<sup>55</sup> Smith, *Triumph in the Philippines* (1994), 22-26, 43-52.



ordered LTG Krueger and Sixth Army to seize airfields on the southern coast of Mindoro.<sup>56</sup> On 15 December, two regiments supported by a large contingent of naval and air elements landed against minimal opposition and immediately began airfield construction.<sup>57</sup> Two airfields were in operation within two weeks and enabled additional direct support for the planned beachhead on Luzon and greater ability to isolate Luzon from air and maritime support. Meanwhile, GEN Yamashita divided and prepared his 260,000 defenders on Luzon to fight a protracted delaying action without significant air or naval support.<sup>58</sup>

To seize Luzon, GEN MacArthur directed Sixth Army under LTG Krueger to land at Lingayan Gulf and attack south to seize Manila and Manila Bay.<sup>59</sup> Landing under nearly ideal conditions on 9 January 1945, Sixth Army encountered minimal resistance as I Corps secured the Army's flanks and XIV Corps prepared to advance south to Clark Field and Manila.<sup>60</sup> These landings and the subsequent advance south to Manila are depicted on the map below. XIV Corps attacked south on 18 January and fought through moderate resistance en route to capturing Clark Field at the end of January before reaching the outskirts of Manila on 3 February.<sup>61</sup> Sixth Army then encircled Manila from 4 and 12 February and fought to clear the city of Japanese defenders until 4 March.<sup>62</sup>

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<sup>56</sup> Allied Forces Southwest Pacific Area, General Headquarters, "GHQ Operations Instructions Number 74, 13 October 1944," (Unknown: Allied Forces Southwest Pacific Area, 1945).

<sup>57</sup> Smith, *Triumph in the Philippines* (1994), 22-26, 43-52.

<sup>58</sup> Ibid, 88-96.

<sup>59</sup> Sixth Army, *Report of the Luzon Operation* (Unknown: Sixth Army, 1945), 1.

<sup>60</sup> Sixth Army, *Report of the Luzon Operation* (1945), 17-21; Smith, *Triumph in the Philippines* (1994), 73-87.

<sup>61</sup> Smith, *Triumph in the Philippines* (1994), 104-115, 147-231.

<sup>62</sup> Smith, *Triumph in the Philippines* (1994), 240-305; Sixth Army, *Report of the Luzon Operation* (1945), 13-37.

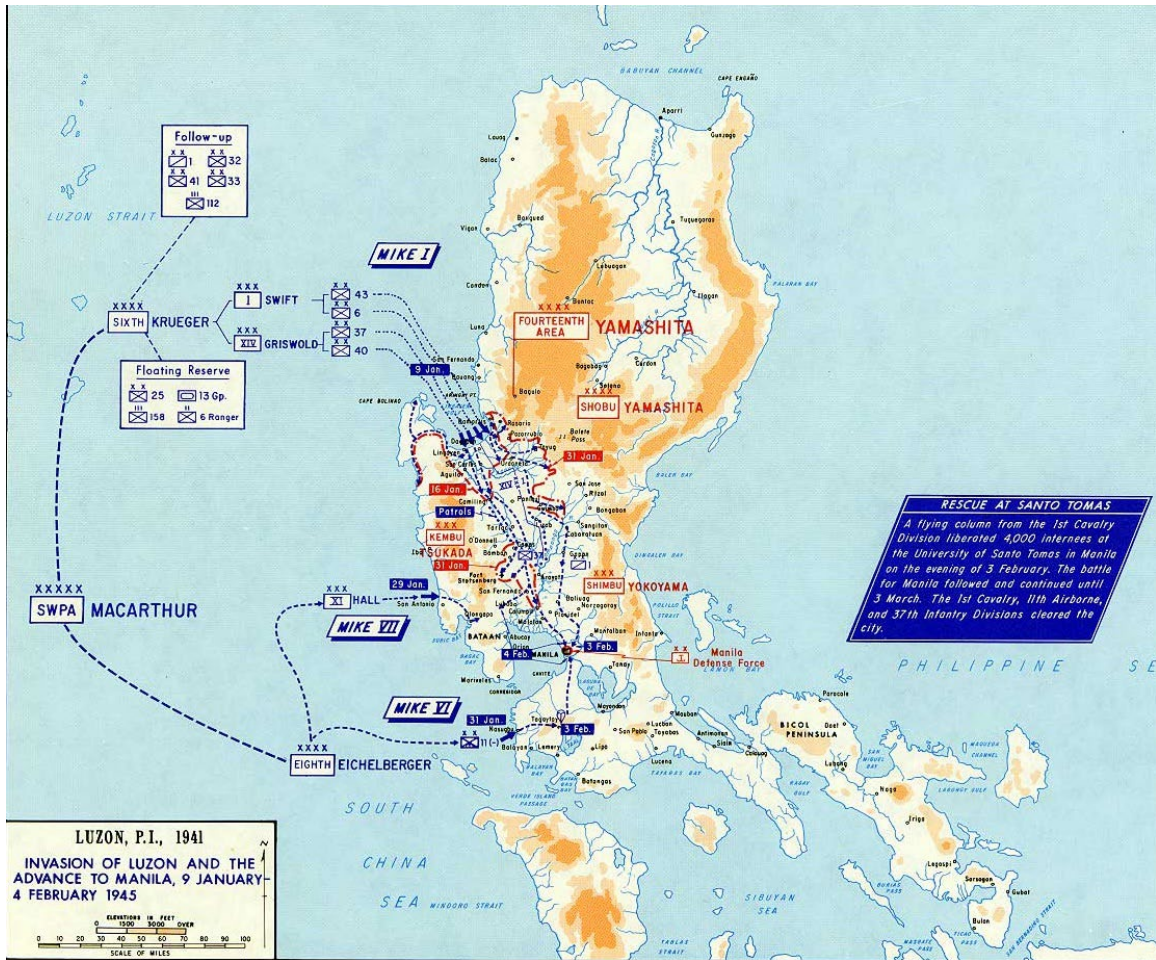


Figure 2. Invasion of Luzon and the Advance to Manila, 9 January-4 February 1945. Map courtesy of the Department of Military History, United States Military Academy, “Invasion of Luzon and the Advance to Manila, 9 January-4 February 1945,” *United States Military Academy Atlases*, accessed November 2, 2017, <https://www.usma.edu/history/SiteAssets/SitePages/World%20War%20II%20Pacific/ww2%20asia%20map%2033.jpg>.

As XIV Corps fought to Manila, Sixth Army received XI Corps for use in seizing the Bataan Peninsula. XI Corps landed on the Zambales Coast on 29 January and fought to clear the peninsula, encountering significantly fewer Japanese troops than expected and concluded on 8 February.<sup>63</sup> On 16 February, Sixth Army forces assaulted Corregidor with coordinated airborne

<sup>63</sup> Smith, *Triumph in the Philippines* (1994), 309-313; Sixth Army, *Report of the Luzon Operation* (1945), 30-38.

and amphibious assaults, seizing the island on 26 February. Paired with the seizure of Manila, XI Corps' actions opened Manila Bay for use by US forces.<sup>64</sup>

Over the following months, Sixth Army continued to fight isolated Japanese Army groups. Sixth Army employed XIV Corps and XI Corps from 20 February 1945 through 31 May when southern Luzon was cleared of all major Japanese formations.<sup>65</sup> At the end of February, I Corps had begun probing in preparation for an offensive into northern Luzon. US forces controlled all strategically and economically significant portions of Luzon at the end of March. Losing divisions for use elsewhere in the Philippines, I Corps continued offensive actions against numerically superior Japanese defenders until relieved by Eighth Army in June 1945.<sup>66</sup>

The first structured, focused question asks: what were the US national political objectives in the Pacific Theater? In October of 1944, Allied Forces in the Pacific had ejected the Japanese from the Aleutians, seized the Marianas, and had advanced in bounds along the coast of New Guinea and had seized Morotai.<sup>67</sup> In Europe, Allied Forces continued to advance towards Germany's borders. In the China-Burma-India theater, the Allied situations in Burma and India were stable while Allied airfields in China were lost and unable to be regained.<sup>68</sup> The US political objective was the unconditional surrender of Japan rapidly after conclusion of hostilities in the ETO. Japan's surrender was subordinate in priority to operations in the ETO by a strategy of containment, opportunistic offense, and unremitting pressure against Japanese forces.<sup>69</sup> As part of

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<sup>64</sup> Smith, *Triumph in the Philippines* (1994), 313-352; Sixth Army, *Report of the Luzon Operation* (1945), 59-98.

<sup>65</sup> Smith, *Triumph in the Philippines* (1994), 361-448.

<sup>66</sup> Smith, *Triumph in the Philippines* (1994), 468-572; Sixth Army, *Report of the Luzon Operation* (1945), 46-48, 59-98.

<sup>67</sup> Marshall, *Biennial Reports of the Chief of Staff of the United States Army to the Secretary of War: 1 July 1939-30 June 1945* (1996), 161-170.

<sup>68</sup> *Ibid*, 155-162.

<sup>69</sup> Robert W. Coakley and Richard M. Leighton, *Global Logistics and Strategy, 1943-1945* (Washington, DC: Center of Military History, 1999), 391-416.

this strategy, the US aimed to deny Japan access by sea or land to the resource-rich East Indies.<sup>70</sup> The US additionally sought to maintain of sea lines of communication to Australia and New Zealand, liberation of the Philippines, and to support Chinese Nationalists. The preponderance of forces in the PTO were US forces, and the US exercised broad latitude in prosecution of the war within the theater.<sup>71</sup> Japan was on the strategic defense as the Allies were on the strategic offense in the Pacific.<sup>72</sup>

The second structured, focused question asks: what were the US military objectives in the Pacific Theater? By October 1944, Allied forces seized the Marianas and had advanced in bounds along the coast of New Guinea and had seized Morotai.<sup>73</sup> Military objectives in October 1944 sought penetration into the area of Formosa, Luzon, and China to “establish bases for a final assault upon Japan.”<sup>74</sup> Prior to establishment of bases for a final assault, US forces were to establish air and naval bases in Formosa and China to support strategic bombing and naval blockade of the Japanese home-islands.<sup>75</sup> Throughout the campaign, US forces sought continued degradation of Japanese military power. Throughout 1943 and through July of 1944, the JCS, subordinate committees, and commanders in the PTO debated the merits and feasibility of bypassing either the Philippines, Formosa, or both in the advance on the Japanese home islands.<sup>76</sup>

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<sup>70</sup> Cannon, *Leyte* (1996), 1-10; Smith, *Triumph in the Philippines* (1994), 3-17.

<sup>71</sup> Coakley and Leighton, *Global Logistics and Strategy, 1943-1945* (1999), 391-416.

<sup>72</sup> Cannon, *Leyte* (1996), 21-23; Smith, *Triumph in the Philippines* (1994), 88-90.

<sup>73</sup> Marshall, *Biennial Reports of the Chief of Staff of the United States Army to the Secretary of War: 1 July 1939-30 June 1945* (1996), 161-170.

<sup>74</sup> Allied Forces Southwest Pacific Area, General Headquarters, “Reno V Outline Plan, 8 May 1944,” (Unknown: Allied Forces Southwest Pacific Area, 1944), 1-5.

<sup>75</sup> Smith, *Triumph in the Philippines* (1994), 4.

<sup>76</sup> *Ibid*, 8.

Leyte as an objective supported the planned invasion of Formosa.<sup>77</sup> In the SWPA, the JCS ordered GEN MacArthur on 12 March 1944 to conduct island-hopping operations towards the objective of Mindanao with a target date of 15 November 1944 to enable “air forces to reduce and contain Japanese forces in the Philippines preparatory to a further advance to Formosa either directly or via Luzon.”<sup>78</sup> This operational objective directly supported strategic objectives by establishing bases for the isolation and bombing of Japan. The JCS study of Formosa determined invasion of the island infeasible until well after the conclusion of the war in Europe.<sup>79</sup> The operational objective envisioned and acted upon by GEN MacArthur was the seizure and consolidation of the Philippines for use as an advanced base for operations against Japan’s home islands. Planners also considered movement from the Philippines against Hainan to the Liaotung Peninsula on Chinese mainland.<sup>80</sup>

Operational objectives changed during the campaign but remained oriented on the original purpose. The JCS on 15 September cancelled the Mindanao operation to instead advance directly to Leyte based upon assessed weakness of Japanese resistance in the Philippines and to accelerate the advance in the Pacific.<sup>81</sup> Operational objectives did not significantly change after the JCS directive of 3 October specified GEN MacArthur invade Luzon on 20 December and that ADM Nimitz invade Iwo Jima on 20 January and Okinawa on 1 March.<sup>82</sup> GEN MacArthur and SWPA forces oriented on Leyte and Luzon as the primary objects of strategic consequence.

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<sup>77</sup> Smith, *Triumph in the Philippines* (1994), 8.

<sup>78</sup> Command Summary of Fleet Admiral Chester W. Nimitz Volume 5 of 8, 2310; Allied Forces Southwest Pacific Area, “Reno V Outline Plan” (1945), 1-3.

<sup>79</sup> Commander in Chief US Pacific Fleet and Pacific Ocean Areas, “Causeway Joint-Staff Study (2 December 1944),” Concept; Cannon, *Leyte* (1996), 1-7; Coakley and Leighton, *Global Logistics and Strategy, 1943-1945* (1999), 391-416.

<sup>80</sup> Coakley and Leighton, *Global Logistics and Strategy, 1943-1945* (1999), 391.

<sup>81</sup> Cannon, *Leyte* (1996), 8-10; Sixth Army, *Report of the Leyte Operation* (1945), 18-19.

<sup>82</sup> Sixth Army, *Report of the Luzon Operation* (1945), 5.

Luzon was desired for its potential use in basing substantial air, land, and sea forces and Leyte for its potential use in seizing Luzon.<sup>83</sup>

The third structured, focused question asks: what was the campaign plan for the Philippines? GEN MacArthur published his initial plan which described a two-phased operation in the Philippines on 15 June 1944.<sup>84</sup> First, as a shaping operation, US forces were to conduct an amphibious assault on Mindanao at Sarangani Bay area on 25 October to establish land-based air forces.<sup>85</sup> After establishment of airfields on Mindanao, the decisive operation to seize airfields and bases on Leyte would be accomplished by 15 November. Centrally located and with an excellent anchorage in Leyte Gulf, seizure of Leyte would physically divide Japanese forces, enable land-based air operations against targets throughout the Philippines, the coast of China, and Formosa, and serve as a forward-base for subsequent operations throughout the Philippines or on Formosa.<sup>86</sup>

Changes of operational objectives in the Philippines occurred largely within the framework of the original Musketeer plan. Musketeer I, published in July of 1944, envisioned four phases named King, Love, Mike, and Victor. King, the first phase, would begin with landings on southwest Mindanao to enable the primary objective of seizing Leyte. Phase two, Love, was to gain favorable positions on the periphery of Luzon and on Mindoro for subsequent execution of Mike. Mike, the main effort of the campaign, would begin with landings at Lingayen Gulf to secure the Central Plain and Manila. Subsequent Mike landings would support the main attack and would be executed as necessary. Victor operations, the consolidation of gains and

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<sup>83</sup> Sixth Army, *Report of the Leyte Operation* (1945), 1-4; Sixth Army, *Report of the Luzon Operation* (1945), 1-3.

<sup>84</sup> Cannon, *Leyte* (1996), 2; Douglas MacArthur, *Reports of General MacArthur* (Washington, DC: Center of Military History, 1994), 170-174.

<sup>85</sup> Sixth Army, *Report of the Luzon Operation* (1945), 5-7.

<sup>86</sup> MacArthur, *Reports of General MacArthur* (1994), 170-174; Sixth Army, *Report of the Leyte Operation* (1945), 17-23; Sixth Army, *Report of the Luzon Operation* (1945), 5-12.

clearances of bypassed Japanese forces in the Visayas and Mindanao, were planned to begin prior to the end of Mike operations on Luzon. Musketeer I was modified twice after its initial publication. Musketeer II, published in August 1944, deleted shaping elements of the Love and Mike phases. After the decision to bypass Mindanao, Musketeer III retained King as the invasion of Leyte, Love as the seizure of southern Mindoro, and Mike as the main assault and Lingayen. Other portions of Musketeer II remained as contingencies. GEN MacArthur ordered Sixth Army under LTG Kreuger to seize Leyte and southern Samar as portions of King operations and later execute Mike operations on Luzon.<sup>87</sup>

At Leyte, LTG Krueger and Sixth Army planned to attack in four phases. First, elements of the 6<sup>th</sup> Ranger Infantry Battalion would seize islands at the mouth of Leyte Gulf simultaneous to minesweeping of the channel leading to the landing beaches.<sup>88</sup> Then, X Corps and XXIV Corps would land simultaneously. X Corps was to assault north to secure the Tacloban area and its airfield while attacking northwest toward Carigara. XXIV Corps would seize airfields near Dulag and Burauen and then attack inland to Baybay. Meanwhile, the reinforced 21<sup>st</sup> Infantry Regiment was to seize the strait between Leyte and Panaan Islands and clear southern Leyte. X Corps and XXIV Corps were to link up in or near Ormoc, clear Leyte and the southwestern portion of Samar Island, and open the Surigao Strait. Planned airfields at Leyte were to support the subsequent invasion of Luzon.<sup>89</sup>

When Leyte's airfields proved inadequate, GEN MacArthur ordered LTG Kreuger and Sixth Army to seize airfields and the anchorage at Mangarin Bay on Mindoro for use in the

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<sup>87</sup> This paragraph draws its content from Musketeer's evolution detailed in MacArthur, *Reports of General MacArthur* (1994), 170-174. It also contains information from GEN MacArthur's order for the Leyte operation, "GHQ Operations Instructions Number 70, 21 September 1944," found in Cannon, *Leyte* (1996), 371-377.

<sup>88</sup> Operations Instruction Number 70 and Field Order 25 both document complete plans for the Leyte operation and are contained with a summary in Sixth Army, *Report of the Leyte Operation* (1945), 19-20, 91-93, 93-134.

<sup>89</sup> Sixth Army, *Report of the Leyte Operation* (1945), 17-23.

invasion of Luzon.<sup>90</sup> Sixth Army was then to seize Luzon. GEN MacArthur directed LTG Kreuger to seize and secure a beachhead and Lingayan Gulf for the landing beaches' proximity to the best road and rail networks, access to the Central Plains, and relative superiority to other potential landing sites. Landing at Lingayan Gulf with I Corps and XIV Corps, I Corps was to defend Sixth Army's flanks at the beachhead while XIV Corps fought south to Clark Field and Manila.<sup>91</sup> I Corps was then to attack east and north to secure vital road junctions connecting the western beaches with the mountainous northeast of Luzon. Once forces became available, Sixth Army or its relief was to consolidate the archipelago.<sup>92</sup>

The fourth structured, focused question asks: what was the sustainment plan for the Philippines? Much of the logistical planning from the cancelled Yap operation was adapted with minor change to support the Leyte invasion.<sup>93</sup> The Allied Naval Forces under ADM Kinkaid were tasked with transporting and establishing the ground assault force ashore.<sup>94</sup> The United States Army Services of Supply (USASOS), SWPA, was to furnish logistical support for the operation. Within Sixth Army and for the first time in the SWPA, the subordinate headquarters of the Sixth Army Service Command (Sixth ASCOM) was to provide engineer and general logistic support.<sup>95</sup> Sustainment responsibilities passed up echelons, with divisions initially responsible for their own sustainment. Once established ashore, corps assumed responsibility for rear supply depots and dumps. In turn, corps were to be relieved of rear areas by the ASCOM. Divisions and corps remained responsible for forward sustainment of their forces as they advanced, developing

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<sup>90</sup> Smith, *Triumph in the Philippines* (1994), 22-26, 43-52.

<sup>91</sup> Sixth Army, *Report of the Luzon Campaign* (1945), 3.

<sup>92</sup> *Ibid*, 3.

<sup>93</sup> Cannon, *Leyte* (1996), 27.

<sup>94</sup> Cannon, *Leyte* (1996), 24; "GHQ Operations Instructions Number 70, 21 September 1944," found in Cannon, *Leyte* (1996), 371-377.

<sup>95</sup> Sixth Army, *Report of the Leyte Operation* (1945), 24-27.



sequential supply points behind the front and either rolling-up or passing to the ASCOM rear supply points and other installations. GEN MacArthur ordered LTG Kreuger and Sixth Army to seize and establish a series of airfield capabilities within the first five and sixty days ashore.<sup>96</sup> Sixth Army engineers identified and indicated to GEN MacArthur that airfield development on Leyte might encounter unsuitable weather, soil composition, and roads.<sup>97</sup> Sixth Army additionally tasked ASCOM with establishment and improvement of naval facilities in the Leyte area, road construction and improvement, and the hiring and use of native labor in all possible construction and sustainment endeavors.

With advancement of planned execution and responding to shipping reductions, Sixth Army, VII Amphibious Force, and Fifth Air Force finalized shipping schedules and echelons.<sup>98</sup> All invasion-echelon units at Leyte were to carry between 20-30 days of supplies.<sup>99</sup> After the amphibious assault, subsequent support was to be furnished by calling-forward ships located around New Guinea and the CPA. Shipping was to be loaded for selective discharge and all resupply shipping was to be duplicate-loaded with diverse classes of supply.<sup>100</sup> Resupply shipping was to load and sail from bases in the United States, Australia, and New Guinea. Urgent requirements were to be met using floating reserves loaded primarily with fuel and ammunition. Sixth Army and X Corps were to be sustained by the SWPA while XXIV Corps continued to receive sustainment from ADM Nimitz' POA until relieved by GEN MacArthur. XXIV Corps, because it had loaded in preparation for the cancelled Yap invasion in the CPA, loaded in accordance with CPA standards. Prepared for invasion over coral reefs, XXIV Corps loaded with

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<sup>96</sup> Sixth Army, *Report of the Leyte Operation* (1945), 23; Cannon, *Leyte* (1996), 23-35.

<sup>97</sup> Cannon, *Leyte* (1996), 35-36.

<sup>98</sup> Cannon, *Leyte* (1996), 38; Sixth Army, *Report of the Leyte Operation* (1945), 19.

<sup>99</sup> Cannon, *Leyte* (1996), 80-84.

<sup>100</sup> *Ibid*, 7-8, 37-39.

amphibian vehicles and brought only 50% of its organic wheeled vehicles.<sup>101</sup> XXIV Corps also brought with an Army garrison unit novel to the SWPA that was not integrated into the plan.<sup>102</sup>

The Luzon operation's purpose was establishment of air and logistical bases to support further operations against Japan.<sup>103</sup> The capture of Luzon would also reinstate the Philippine Commonwealth Government in Manila. To reach the Lingayan Gulf beaches, GEN MacArthur considered both eastern and western approaches.<sup>104</sup> Eastern routes required a subsidiary operation requiring two corps at Aparri to establish air cover, an operation both logistically infeasible and vulnerable to Japanese air attacks. GEN MacArthur determined to move GEN Kreuger's Sixth Army through the Visayas supported by land-based aircraft on Mindoro.<sup>105</sup> As at Leyte, the USASOS SWPA was to support Sixth Army ground forces and most air elements in the operation while the Navy relied upon its own logistics. Air elements would again draw air-specific items from Allied Air Forces while responsible for emergency aerial resupply.<sup>106</sup>

Prior to the invasion, divisions and corps planned and executed decentralized sustainment for staging and loading.<sup>107</sup> From the invasion date, divisions and corps were to be responsible for construction and supply duties not performed by the Navy and Air Forces. Sustainment was marked by decentralization to the division-level with unloading at beaches decentralized further to the Army shore parties and Navy beach parties. Troops and units were to land with roughly

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<sup>101</sup> Smith, *Triumph in the Philippines* (1994), 37; XXIV Corps, *Action Report of the Leyte Operation* (Unknown: XXIV Corps, 1945), 35.

<sup>102</sup> XXIV Corps, *Action Report of the Leyte Operation* (Unknown: XXIV Corps, 1945), 35.

<sup>103</sup> Sixth Army, *Report of the Luzon Campaign* (1945), 1.

<sup>104</sup> *Ibid.*, 5-13.

<sup>105</sup> Smith, *Triumph in the Philippines* (1994), 19-26.

<sup>106</sup> Smith, *Triumph in the Philippines* (1994), 38; Sixth Army, *Report of the Luzon Campaign* (1945), 136-139.

<sup>107</sup> Smith, *Triumph in the Philippines* (1994), 38-43.

ten-days' supply of all items and sufficient ammunition for two-days' active combat.

Approximately six days after landing, Sixth Army ASCOM was to assume responsibility of the Lingayan Gulf area and logistical support elements ashore.<sup>108</sup> Sixth Army ASCOM would remain responsible for all logistical operations on Luzon until relieved around thirty-five days later by the USASOS SWPA, which would assume responsibility for all logistical activity excluding combat-supply. Simultaneously, USASOS would relieve Allied Naval Forces of requirements to transport personnel and equipment to Luzon.<sup>109</sup>

The fifth structured, focused question asks: how did the sustainment plan extend operational reach and prevent culmination? At Leyte, Sixth Army immediately encountered problems of poor roads and unsuitable terrain for airfield development.<sup>110</sup> Insufficient engineer assets were incapable of meeting all mission requirements.<sup>111</sup> Roads could not support two-way traffic or the weight of fully loaded vehicles or construction equipment. Soil composition limited improvement of roads as conditions further deteriorated under heavy rains from 25 October through November. ASCOM took measures to limit damage to roads by issuing supplies at night to lessen congestion, banning transport of foot-mobile troops, and maximizing efforts to keep road-construction equipment functional. Essential efforts by engineers to maintain roads deprived capacity from airfield development and rehabilitation efforts.<sup>112</sup>

Sixth Army captured the primary airfields sought in the Leyte campaign at Tacloban and Dulag in the first 24 hours after landing.<sup>113</sup> The strip at Dulag was unusable and the field at Tacloban was both shorter than anticipated and in need of resurfacing and all strips on Leyte were

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<sup>108</sup> Smith, *Triumph in the Philippines* (1994), 57, 133-135.

<sup>109</sup> Smith, *Triumph in the Philippines* (1994), 19, 38-39.

<sup>110</sup> Ibid, 184-190.

<sup>111</sup> Ibid, 184-190.

<sup>112</sup> Cannon, *Leyte* (1996), 184; Sixth Army, *Report of the Leyte Operation* (1945), 31-40.

<sup>113</sup> Cannon, *Leyte* (1996), 62-65; Sixth Army, *Report of the Leyte Operation* (1945), 32-37.

largely unusable during the rainy season. Engineers worked constantly to establish a usable field at Tacloban, but delays compounded as requirements for surfacing materials were exacerbated by disruption by Japanese air attack and use by Naval aviation as an emergency strip. Abandoning efforts at failing airfields, ASCOM oriented on construction of Tanuan airfield at the end of November with the field operational on 16 December.<sup>114</sup> The failure to quickly establish sufficient airfields for use by land-based aviation resulted in failure by the Allies to achieve air-superiority to isolate Leyte; Naval aviation, required to continue support of Leyte operations, was unable to orient on threats beyond Leyte.<sup>115</sup> The result of this failure was the Japanese reinforcement of Leyte as they sought decisive battle on Leyte.

The schedule of unloading supplies created challenges at Leyte.<sup>116</sup> Air Forces equipment and personnel, loaded on early echelons of shipping to rapidly establish ground-based aviation, were unable to complete their missions without the timely establishment of airfields.<sup>117</sup> These personnel and equipment occupied space otherwise available to transport additional engineers and support troops. Discharge rates of the vessels themselves were insufficient to build supply stocks ashore. To improve discharge, LTG Krueger and Sixth Army established a committee to prioritize discharge by class of supply, increased discharge hours from by from twelve to twenty-four hours in the first two months ashore, and implemented a call-forward process to alleviate congestion of ships awaiting discharge.<sup>118</sup> Once ashore, movement of supplies to advancing units presented further challenges. Inadequate roads paired with limited motorized transportation increased the use of other modes of transport. Alternatives included delivery by amphibious

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<sup>114</sup> Cannon, *Leyte* (1996), 188-189.

<sup>115</sup> Cannon, *Leyte* (1996), 187-188, 305-308; Sixth Army, *Report of the Leyte Operation* (1945), 69.

<sup>116</sup> Cannon, *Leyte* (1996), 80-84.

<sup>117</sup> *Ibid*, 185-190.

<sup>118</sup> Cannon, *Leyte* (1996), 190-192; Sixth Army, *Report of the Leyte Operation* (1945), 218.

vehicles as close as possible to troops, hiring of Filipino civilians, and aerial resupply to isolated troops fighting in the mountains.<sup>119</sup> The 77<sup>th</sup> Infantry Division, when it landed on the west coast of Leyte, was to be supplied overwater with an initial surge of landing craft in the first week ashore and sustained by a dedicated set of craft thereafter. In the event, Japanese fire sunk two landing craft during the landing creating an extreme shortage in shipping. While XXIV Corps committed an overland resupply column, the column and roads could not sustain the 77<sup>th</sup> Infantry Division in this manner and GEN Kreuger urgently requested and received additional amphibious shipping from ADM Kinkaid.<sup>120</sup>

Later, at Luzon, challenges immediately arose at the beaches of Lingayan Gulf with assault shipping. Much of the assault shipping grounded on a sand bar between 20-175 yards from the beaches depending upon conditions and type of craft.<sup>121</sup> While ships' crews, shore parties, beach parties, and engineers worked to improvise solutions, numerous additional challenges arose. Insufficiently manned unloading teams, inability to offload shore party and engineer equipment, and factors of terrain further delayed unloading. Once unloaded, the struggle continued to transport supplies to forward units. Advancing inland faster than expected, motorized transportation was insufficient and disorganization compounded shortfalls.<sup>122</sup> Shortages in shipping and expectations of heavy resistance in the assault resulted in much of the engineer equipment, shore-party equipment, and service troops and equipment being relegated to land two days after the initial assault.

Unloading delays of craft at the beach in-turn delayed off-shore discharge and caused further congestion. Unloading challenges slowed discharge on the afternoon of 10 January and

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<sup>119</sup> Cannon, *Leyte* (1996), 308-312.

<sup>120</sup> *Ibid*, 192, 308-311.

<sup>121</sup> Smith, *Triumph in the Philippines* (1994), 118-127.

<sup>122</sup> *Ibid*, 128-130.

unloading ceased that evening. Shore parties made use of this time to clear beach congestion and impose order, though they remained unable to move supplies inland due to shortages of trucks and bridging equipment.<sup>123</sup> The second day after landing, 11 January, unloading resumed though still limited by surf conditions. Over the next five days, the situation at the Lingayan Gulf beaches gradually improved with use of a river mouth for unloading, establishment of further causeways and sand ramps, and increased order from the shore parties and Naval management of lighterage.<sup>124</sup> Vehicle shortages persisted and significant efforts undertaken to improvise and rehabilitate rail facilities in captured areas achieved significant success.<sup>125</sup> Moving supplies inland from the beaches, bridge construction was an acute challenge and numerous amphibious vehicles and landing craft were utilized as ferries. Unlike at Leyte, roads were not an issue except on the extreme left of Sixth Army where roads were subsequently cut with bulldozers. Bridge construction could not maintain pace with the advance of the infantry and occupied most engineer efforts. In response, the Air Forces limited further bombing of bridges to those specifically requested by Sixth Army.<sup>126</sup>

Base facility construction on Luzon focused first on establishment of airfields in the Lingayan area. Enabled by contracted Filipino labor using hand tools, engineers overcame delays in offloading equipment and matting to get the first airfield and Lingayan strip into service one day behind schedule on 17 January 1945 with a second critical strip under construction and ready on 22 January.<sup>127</sup> Simultaneously, Naval Service Command developed limited basing as ASCOM

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<sup>123</sup> Smith, *Triumph in the Philippines* (1994), 118-128.

<sup>124</sup> *Ibid.*, 127-128.

<sup>125</sup> Sixth Army, *Report of the Luzon Campaign* (1945), III, 58; Smith, *Triumph in the Philippines* (1994), 130.

<sup>126</sup> Smith, *Triumph in the Philippines*, (1994), 130; Sixth Army, *Report of the Luzon Campaign* (1945), I 139-142, 152; III 56-58, 113-114, 169, 243; IV 8, 28-29, 34, 43, 80.

<sup>127</sup> Smith, *Triumph in the Philippines* (1994), 132-133.

developed fuel, rail, and additional cargo offloading facilities. As with Leyte, at Luzon, ASCOM assumed responsibility for the Army Base Area on 19 January. As I Corps and XIV Corps advanced, the corps turned over installations to ASCOM and displaced supply points and dumps forward.<sup>128</sup> Sixth Army ASCOM maintained centralized control and responsibility for logistics operations until relieved by USASOS SWPA on 13 February. Sustainment centralization at Luzon is partially attributable to storage of supplies and ordinance in large, open dumps; early achievement of ground-based air support and air superiority enabled these actions.

The sixth structured, focused question asks: how did the sustainment plan account for and mitigate operational risk? Within the campaign for the Philippines, shortages were managed through maximized use of available assault and ordinary shipping, employment of multiple planned turns for engineers and support personnel, and prioritization of aviation units and equipment. These plans and actions display the sustainment principle of anticipation and were based upon reasoning, experience, and deliberate planning, though they were imperfect in dealing with events of the campaign and generated delays while limiting momentum and tempo. At Leyte, unsuitable terrain for employment of engineers and aviation personnel to complete their missions resulted in additional traffic at the beach and denied commanders effective use of all available shipping space. In contrast, at Luzon, favorable conditions for airfield construction meant that when engineers could arrive with and unload their equipment, they were immediately engaged in completing essential missions.

Sustainment at both Leyte and Luzon modelled the sustainment principles of responsiveness and improvisation to mitigate risk. While anticipation managed operational risk to the limits of prediction, personnel and systems were sufficiently prepared for unanticipated conditions. Sound decisions such as prioritizing soldiers, ammunition, and equipment at the expense of vehicles created other problems. Responsiveness and improvisation encompass the

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<sup>128</sup> Smith, *Triumph in the Philippines* (1994), 133-135.

creative acts of initiative with the means at hand demonstrated in non-standard employment of torpedo bombers to deliver required sustainment prior to culmination of fighting units.

## Okinawa, April-June 1945

The campaign for Okinawa, Operation Iceberg, occurred from 23 March through 30 June 1945. Located in the Ryukyus Islands, Okinawa and neighboring Ie Shima were desired by the US for basing of ground, air, and maritime forces in preparation for the planned invasion of Japan to follow. The Tenth Army commanded by LTG Buckner, consisting of XXIV Corps and III Amphibious Corps, conducted an amphibious assault and cleared Okinawa against the Japanese 32<sup>d</sup> Army conducting a defense in depth under LTG Ushijima.

After isolation and preparation of Okinawa by air and maritime forces, LTG Buckner's Tenth Army began landings in the Kerama Islands on 23 March 1945.<sup>129</sup> Elements of the 77<sup>th</sup> Infantry Division secured naval and seaplane bases and XXIV Corps Artillery emplaced 155mm howitzers on Keise Shima to support the main assault on Okinawa.<sup>130</sup> Japanese defenders on Okinawa under LTG Ushijima sought to delay US forces by ceding the beaches and instead defending further inland.<sup>131</sup> The Japanese prepared a defense-in-depth using favorable terrain around Shuri and Minatogo in the south, the Chinen Peninsula to the east, and the Motuba Peninsula and Ie Shima Island in the north.<sup>132</sup> Though Japanese air and maritime forces were degraded, kamikaze, surface, and suicide-boat attacks against the supporting fleet would complement the defense of Okinawa.

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<sup>129</sup> Roy E. Appleman, *Okinawa: The Last Battle* (Washington, DC: Center of Military History, 1996), 44-67.

<sup>130</sup> Benis M. Frank and Henry I. Shaw, *Victory and Occupation* (Washington, DC: Historical Branch, US Marine Corps, 1989), 83-108.

<sup>131</sup> Appleman, *Okinawa* (1996), 84-95.

<sup>132</sup> *Ibid.*, 92-93.



On 1 April 1945, LTG Buckner's Tenth Army assaulted Hagushi beaches with III Amphibious Corps in the north and XXIV Corps in the south. Enabling the Hagushi landings, 2nd Marine Division demonstrated at the Minatoga beaches while enduring kamikaze attacks. XXIV Corps met unexpectedly light resistance and overran Kadena airfield as III Amphibious Corps seized Yontan. Tenth Army ended 1 April with four divisions ashore and continued landing reserves, service troops, and supplies.<sup>133</sup> Over the next two days, lead divisions of the Tenth Army reached the eastern shore of Okinawa, bisecting the island.<sup>134</sup> On 3 April, XXIV Corps advanced south through increasing resistance.<sup>135</sup> Landings and the subsequent advances of XXIV Corps and III Amphibious Corps in the first week are depicted in figure 3 below.

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<sup>133</sup> Appleman, *Okinawa* (1996), 68-83.

<sup>134</sup> Appleman, *Okinawa* (1996), 74-79; Frank and Shaw, *Victory and Occupation* (1989), 107-131.

<sup>135</sup> Appleman, *Okinawa* (1996), 98-102, 104-113; Frank and Shaw, *Victory and Occupation* (1989), 126-131.

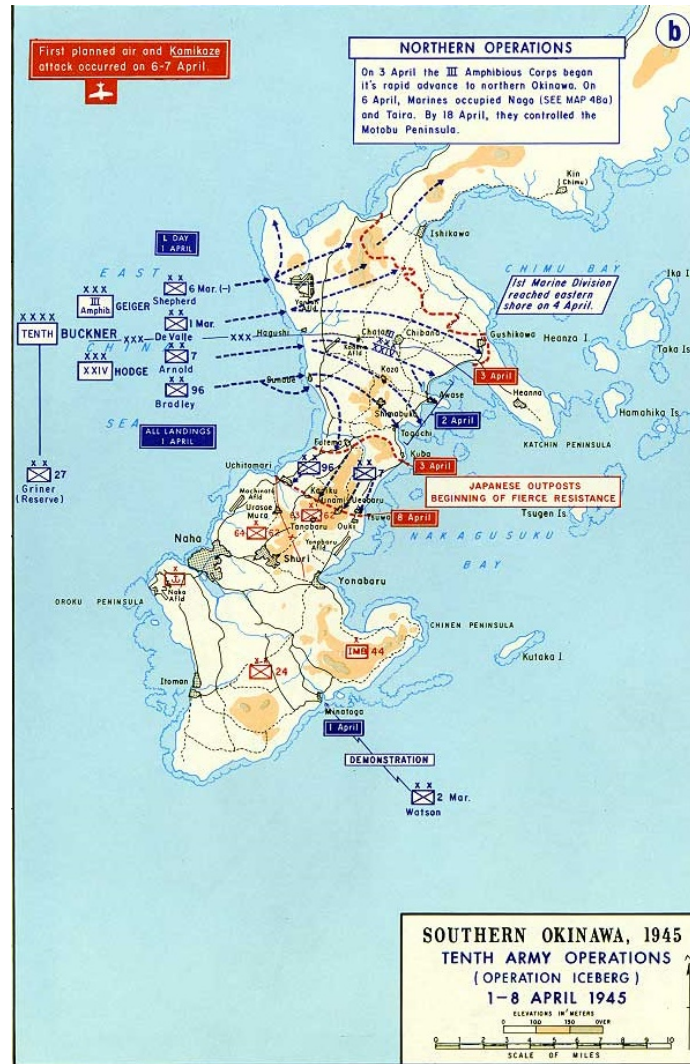


Figure 3. Tenth Army Operations and Japanese Thirty-Second Army Defensive Dispositions. Map courtesy of the Department of Military History, United States Military Academy, “Okinawa, April 1945,” *United States Military Academy Atlases*, accessed November 2, 2017, <https://www.usma.edu/history/SiteAssets/SitePages/World%20War%20II%20Pacific/ww2%20asia%20map%2048.jpg>.

The Japanese launched the first of ten planned kamikaze attacks on 6-7 April, heavily damaging and sinking ships around Okinawa and the Kerama Islands. Japanese air and surface attacks failed to cripple or drive away the US fleet at high cost, including the sinking of the battleship *Yamato*.<sup>136</sup> In Tenth Army’s north, III Amphibious Corps penetrated the Yontan Zan

<sup>136</sup> Appleman, *Okinawa* (1996), 96-102; Command Summary of Fleet Admiral Chester W. Nimitz, Volume 6 of 8, 2592-2601.

mountain complex and rapidly advanced towards the Motobu Peninsula. LTG Buckner adjusted his phasing and released III Amphibious Corps to fight north. On 7 April, III Amphibious Corps Marines isolated the Motobu peninsula which they controlled by 18 April. LTG Buckner on 11 April again adjusted phasing and ordered the 77<sup>th</sup> Infantry Division to seize Ie Shima on 16 April.<sup>137</sup> The division assaulted and seized the island, declaring it secure on 21 April. Airfield construction on Ie Shima progressed rapidly.

After 9 April, XXIV Corps encountered the Japanese' Shuri defenses. Fighting for southern Okinawa developed into a pattern of difficult assaults by US ground forces against sound positions for limited gains as US maritime forces and air installations confronted repeated Japanese air attacks.<sup>138</sup> On the nights of 12 and 13 April, LTG Ushijima executed a four-battalion infiltration against the XXIV Corps line oriented on Kishaba in XXIV Corps' rear area; the attack failed and the Japanese endured significant casualties.<sup>139</sup> XXIV Corps subsequently attacked the Shuri defenses on 19 April with three infantry divisions each supported by massed fires. Facing roughly a reinforced battalion each, gains were slow and costly until the Japanese displaced to a subsequent defensive ring on the night of 23 April.<sup>140</sup> As assaults continued, LTG Buckner's subordinates recommended a second landing at Minatoga or another location in southern Okinawa. These recommendations reflected previous experience and operational successes but were dismissed by LTG Buckner for logistical considerations and availability of warships for additional security.<sup>141</sup>

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<sup>137</sup> Appleman, *Okinawa* (1996), 138-183.

<sup>138</sup> *Ibid*, 113-137, 184-248, 265-394.

<sup>139</sup> Appleman, *Okinawa* (1996), 130-137; Frank and Shaw, *Victory and Occupation* (1989), 214-287.

<sup>140</sup> Appleman, *Okinawa* (1996), 184-248.

<sup>141</sup> Appleman, *Okinawa* (1996), 258-264; Frank and Shaw, *Victory and Occupation* (1989), 57-82.

Instead, LTG Buckner modified Tenth Army's plan and sought to mass additional divisions against the Shuri defense. US reconnaissance identified potential for airfield development greatly exceeded previous assessments. ADM Nimitz thus cancelled planned seizure of Miyako in the Sakishima Group later in the original Iceberg plan.<sup>142</sup> This enabled LTG Buckner and Tenth Army to employ III Amphibious Corps' fresh troops in the offensive against the Shuri defenses. LTG Buckner ordered two divisions south to relieve elements of XXIV Corps and planned to commit a third once relieved of consolidation activities in northern Okinawa. III Amphibious Corps and XXIV Corps prepared to attack to achieve a double-envelopment of Shuri.

On 24 April, the XXIV Corps commander ordered a frontal attack for 26 April. As two additional divisions moved into the line, the attack by XXIV Corps continued. Advances by Tenth Army met determined resistance and counterattacks to regain lost ground and On 4 May the Japanese defenders counterattacked to destroy XXIV Corps. Using a fresh infantry division and all available troops, tanks, amphibious engineers, and artillery, LTG Ushijima penetrated at a US divisional boundary and attacked two kilometers into the XXIV Corps area. Massed direct, indirect, and aerial-delivered fires destroyed the Japanese attack which hollowed Shuri defenses. As III Amphibious Corps' divisions entered the line with XXIV Corps units, LTG Buckner took direct command of the offensive. In late May, heavy rains impeded further ground advances as Japanese air attacks against ships off-shore and airfields on Ie Shima, at Yonton, and at Kadena peaked.<sup>143</sup> US advances against the Shuri defenses are shown on the maps below.

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<sup>142</sup> Appleman, *Okinawa* (1996), 260.

<sup>143</sup> Appleman, *Okinawa* (1996), 265-310, 360-364; Frank and Shaw, *Victory and Occupation* (1989), 214-243.

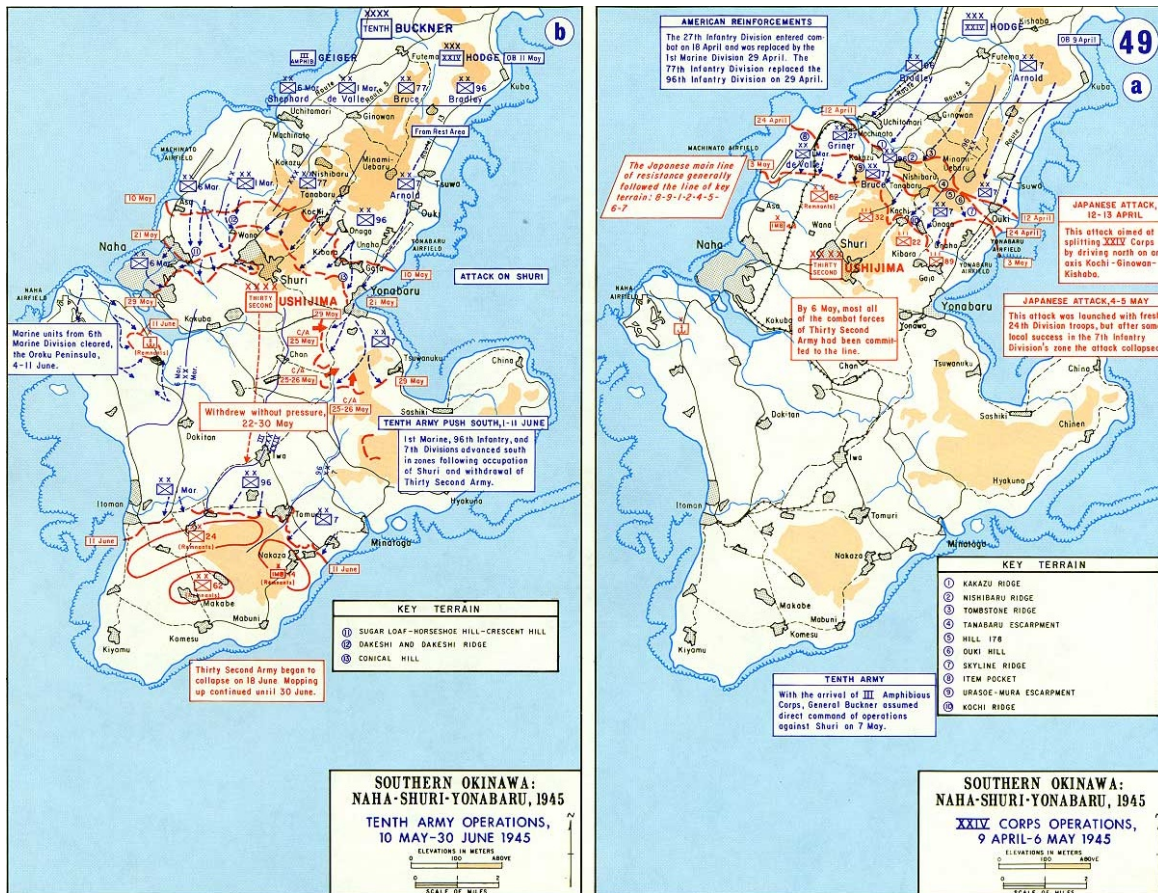


Figure 4. Tenth Army Operations and XXIV Corps Operations. Map courtesy of the Department of Military History, United States Military Academy, “Okinawa, May-June 1945,” *United States Military Academy Atlases*, accessed November 2, 2017, <https://www.usma.edu/history/SiteAssets/SitePages/World%20War%20II%20Pacific/ww2%20asia%20map%2049.jpg>.

Between 22 and 30 May, LTG Ushijima moved the remnants of his forces south from the Shuri pocket to prolong the defense’s endurance. Tenth Army continued to fight the Japanese force on the Oroku Peninsula and Yuza-Dake mountain defenses until the Thirty-Second Army collapsed around 18 June 1944. Nearing the end of the campaign, LTG Buckner was killed by Japanese fire while inspecting the front on 18 June, four days before a recently-promoted GEN Ushijima committed ritual suicide on 22 June. LTG Stillwell assumed command of Tenth Army as mopping-up operations continued through 30 June.<sup>144</sup>

<sup>144</sup> Appleman, *Okinawa* (1996), 423-462.

The first structured, focused question asks: what were the US national political objectives in the Pacific Theater? In late March 1945, SWPA forces had seized Leyte and Luzon and continued consolidation of the Philippine archipelago and organized resistance had ceased on Iwo Jima.<sup>145</sup> The United States possessed little hope for significant success in China to develop bases for the bombing and blockading of Japan. US national political objectives remained largely unchanged at the initiation of the campaign for Okinawa from those objectives during the campaign for the Philippines. As Allied forces in Europe bore towards Berlin and the defeat of Germany, preparation for the eventual invasion of Japan accelerated to meet the desired timeline of concluding the war with Japan within one year of Germany's surrender.<sup>146</sup> During the campaign, the war in Europe ended. The Japanese sought to prolong the war with the US to better Japanese opportunities to achieve a negotiated settlement to the conflict.

The second structured, focused question asks: What were the US military objectives in the Pacific Theater? Instead of seizing bases in Formosa which was logistically infeasible, bases on Luzon, Iwo Jima, and the Ryukyus would meet the original objectives of Operation Causeway. The purpose of Operation Causeway was to 1) establish bases from which to bomb Japan, support further advance into China, and sever Japanese sea and air communications between the home islands and the Philippines, Malaya, and Netherlands East Indies; 2) to establish secure sea and air communications to the coast of China; 3) to deprive Japan of the resources of Formosa and South China; and 4) to maintain unremitting military pressure against Japan.<sup>147</sup> ADM Nimitz tasked the Central Pacific Task Forces with the capture, occupation, defense, and development of

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<sup>145</sup> George C. Marshall, *Biennial Reports of the Chief of Staff of the United States Army to the Secretary of War: 1 July 1939-30 June 1945* (Washington, DC: Center of Military History, 1996), 176-178.

<sup>146</sup> Coakley and Leighton, *Global Logistics and Strategy, 1943-1945* (1999), 615-618.

<sup>147</sup> Pacific Fleet and Pacific Ocean Areas Headquarters, "Causeway Joint Staff Study Preliminary Draft Part 1 Concept 2 (Unknown: US Pacific Fleet and Pacific Ocean Areas Headquarters, 21 June 1945)," 1-5; Tenth Army, *After Action Report of the Ryukyus* (Unknown: US Tenth Army, 1945), Ch. 1.

air and naval bases on Okinawa and to gain and maintain control of the Ryukyus.<sup>148</sup> Central Pacific Task Forces were to protect air and sea communications along the Central-Pacific axis. The Ryukyus Forces, once released from Central Pacific Task Forces' operational control, were to defend and develop captured positions in the Ryukyus. Throughout the campaign, all forces were to seek maximum attrition of Japanese air, ground, and naval forces as well as merchant shipping through all means possible.

The third structured, focused question asks: was the campaign plan for Okinawa? The operational approach within the PTO remained consistent for Operation Iceberg. Land and carrier-based air forces and maritime forces would isolate and degrade the Japanese forces in the objective area. The objective, selected to advance towards the home islands, would then be contested and seized by amphibious assaults of ground forces supported by air and maritime forces.<sup>149</sup> Once established on the objective, ground forces were to rapidly develop base facilities and begin the process anew. Whenever possible, destruction of the enemy fleet and air forces was to be sought while concentrations of Japanese ground forces were to be isolated and bypassed.<sup>150</sup>

On 3 October, the JCS postponed the invasion of Formosa indefinitely, ordered GEN MacArthur to invade Luzon, and ordered ADM Nimitz to seize Iwo Jima and positions in the Ryukyus.<sup>151</sup> Target dates set for the operations were Luzon on 20 December 1944, Iwo Jima on 20 January 1945, and Okinawa on 1 March. Delays in operations and establishment of land-based air support in the Philippines twice delayed the scheduled commencement of invasions of Iwo

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<sup>148</sup> Tasks detailed in this paragraph are drawn from Operation Plan 14-44, *Iceberg*. Commander US Pacific Fleet and Pacific Oceans Area, "Operation Plan 14-44, *ICEBERG*," December 31, 1944, 3-4.

<sup>149</sup> *Ibid*, 3-4.

<sup>150</sup> Appleman, *Okinawa* (1996), 57-82; Smith, *Triumph in the Philippines* (1994), 3-22.

<sup>151</sup> Appleman, *Okinawa*, 1995, 4; US Pacific Fleet and Pacific Oceans Area, "Operation Plan 14-44, *ICEBERG*," December 31, 1944.



Jima and Okinawa.<sup>152</sup> After refitting amphibious shipping returned to his control from the SWPA, ADM Nimitz' forces seized Iwo Jima between 19 February and 26 March 1945.<sup>153</sup> ADM Nimitz assigned the seizure of Okinawa to ADM Spruance as commander of the Central Pacific Task Forces and LTG Buckner as commander of Tenth Army.<sup>154</sup>

The plan for invasion of Okinawa, Operation Iceberg, consisted of three phases.<sup>155</sup> First, Tenth Army forces were to seize Keise Shima, islands in the Keramas Group and southern Okinawa and initiate development of base facilities. Next, Tenth Army was to occupy Ie Shima and control northern Okinawa. Then, Tenth Army was to seize additional islands within the Ryukyus for use in future operations. Tenth Army served as a field army containing XXIV Army Corps and III Amphibious Corps (Marine).<sup>156</sup> Tenth Army was assigned a naval task group, the Tactical Air Force, and the Island Command for defense and development of the objectives.<sup>157</sup> CINCPAC planners anticipated that US air-attacks against Japan from both carriers and airfields combined with the recent seizure of Iwo Jima would cause concentration of Japanese air power on the home islands, Formosa, the coast of China, and in the Ryukyus; this concentration increased the importance of air superiority and of neutralizing or destroying Japanese air installations in both the target area and staging areas.<sup>158</sup>

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<sup>152</sup> Smith, *Triumph in the Philippines* (1994), 22-26; Appleman, *Okinawa* (1996), 19, 28.

<sup>153</sup> Frank and Shaw, *Victory and Occupation* (1989), 502-728.

<sup>154</sup> Appleman, *Okinawa* (1996), 23.

<sup>155</sup> The three-phases are presented in both the Joint-Staff Study and Operation Plan 14-44 of Iceberg. US Pacific Fleet and Pacific Oceans Area, "Changes to Joint Staff Study, *ICEBERG*," December 21, 1944, 1; Appleman, *Okinawa* (1996), 1995, 19.

<sup>156</sup> Appleman, *Okinawa* (1996), 1995, 19.

<sup>157</sup> Appleman, *Okinawa* (1996), 26; Tenth Army, "Tentative Operation Plan 1-45, *ICEBERG*," January 6, 1944, 1-10.

<sup>158</sup> Appleman, *Okinawa* (1995) 19-20; United States Pacific Fleet and Pacific Oceans Area, "Changes to Joint Staff Study, *ICEBERG*," December 21, 1944, 2-4.



The fourth structured, focused question asks: was the sustainment plan for the Okinawa? Much of the sustainment plan transferred from the Causeway plan for Formosa to the Iceberg plan for Okinawa.<sup>159</sup> Logistics support was to be provided by US Army Forces, POA (USAFPOA), the Air and Service Forces, Pacific Fleet, and the South Pacific Force. During planning, Tenth Army determined it necessary to increase the size of the troop-list from Causeway by approximately 70,000 including additional supporting combat and service units.<sup>160</sup> All forces within the POA were directed to support Operation Iceberg.<sup>161</sup> The assault echelon consisted of over 430 assault transports and landing ships loaded at eleven ports moving approximately 183,000 troops and 747,000 tons of cargo up to 6,000 miles.<sup>162</sup> The Amphibious Forces Pacific Fleet under ADM Turner were responsible for the provision of shipping, loading schedules, and delivery of men and supplies to the beach.

Tenth Army under LTG Buckner allocated assault shipping space to subordinate elements who were responsible for the landing of supplies and transportation from the beaches to supply dumps.<sup>163</sup> Initial supply and resupply ashore of Army troops remained the responsibility of the Commanding General, POA, as the commanders of the Fleet Marine Force, Service Force, and Air Forces of the Pacific Fleet supported Marine, Navy, and naval aviation elements, respectively.<sup>164</sup> CINCPOA was to control subsequent shipping to transport maintenance and basing supplies and equipment. Scheduled to sail in twenty-one shipments from Pacific ports at

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<sup>159</sup> Tenth Army, *After Action Report of the Ryukyus* (1945), II-IV-3, 4.

<sup>160</sup> Appleman, *Okinawa* (1995), 27, 36-37.

<sup>161</sup> US Pacific Fleet and Pacific Oceans Area, "Operation Plan 14-44, *ICEBERG*," December 31, 1944, 3.

<sup>162</sup> Tenth Army, *After Action Report of the Ryukyus* (1945), II-IV-1, 2; Appleman, *Okinawa* (1995), 36.

<sup>163</sup> Appleman, *Okinawa* (1995), 37; US Pacific Fleet and Pacific Oceans Area, "Operation Plan 14-44, *ICEBERG*," Annex D- 1, 2, 20-21.

<sup>164</sup> Appleman, *Okinawa* (1995), 25-27, 37.

ten-day intervals from forty days prior to the landing and continuing for 210 days, this shipping would provide supply based on projected population at time of arrival.<sup>165</sup> Regulating stations where the shipments would await the call-forward by Tenth Army Synchronization further enhanced synchronization. Planners identified early that shipping needs exceeded capacity and tonnage was reduced for some units while other units were removed from the assault echelon and included in subsequent echelons. Further shortfalls identified in January of 1945 led to requests for additional shipping, reduction in tonnage allocations, and plans for expedited return of assault shipping to transport base development and air units.<sup>166</sup>

ADM Nimitz assessed the rapid development of air and naval bases in the Ryukyus as the primary logistical task of Operation Iceberg.<sup>167</sup> The CINCPAC Base Development for Okinawa plan directed construction of eight airfields on Okinawa with two operational within five days of the landings.<sup>168</sup> Additionally, the plan directed immediate activities to support the assault such as construction of bulk-fuel storage, improvement of waterfront unloading facilities, and rehabilitation and improvement of roads. Further tasks in the base development plan included construction of a seaplane base, an advanced fleet base at Nakagusuku Bay, and port rehabilitation at Naha Bay.<sup>169</sup> Development and anticipated sustainment capacity followed the phasing of the operational plan; capacity was to be built as installations were seized to include

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<sup>165</sup> Appleman, *Okinawa* (1995), 37-38; Tenth Army, *After Action Report of the Ryukyus* (1945), II-IV-5.; US Pacific Fleet and Pacific Oceans Area, "Operation Plan 14-44, *ICEBERG*," Annex D- p 8-12.

<sup>166</sup> Appleman, *Okinawa* (1995), 37; Tenth Army, *After Action Report of the Ryukyus* (1945), 8.

<sup>167</sup> Appleman, *Okinawa* (1995), 38; "Operation Plan 14-44, *ICEBERG*," December 31, 1944, 1.

<sup>168</sup> The remainder of this paragraph draws from the following two sources. The base development plan for Okinawa is detailed under the Island Command Plan. Tenth Army Tentative Operation Plan I-45, Annex 12: Island Command Plan. The plan for development from invasion through the completion of base development is detailed in Appleman, *Okinawa* (1995), 37-39.

<sup>169</sup> Appleman, *Okinawa* (1995), 38-39.

additional beaches, ports, and airfields. Later construction projects on Okinawa aimed to establish sufficient basing and facilities to support further offensive operations to include the invasion of the Japanese home islands.<sup>170</sup>

ADM Nimitz assigned base development in the Ryukyus to LTG Buckner and Tenth Army.<sup>171</sup> LTG Buckner planned to employ his assigned subordinate unit, Island Command Okinawa under MG Wallace, to accomplish both support for the landings and subsequent base development.<sup>172</sup> After completing support of the amphibious operation, Island Command Okinawa was to serve as the administrative and logistical agency for the Tenth Army including responsibilities to garrison and defend seized facilities.<sup>173</sup> Planned transfer of sustainment responsibilities began with the divisions and passed to corps upon landing and establishment ashore of corps' headquarters. Responsibility would then pass from the corps' headquarters to Island Command after landing and establishment ashore of Tenth Army, Island Command Headquarters, and required support units, personnel, and equipment.<sup>174</sup> Organic units were to establish supply dumps immediately inland of the beaches. These dumps were then to transition to the Island Command as divisions and corps established dumps and supply points further forward.

The fifth structured, focused question asks: how did the sustainment plan extend operational reach and prevent culmination? During amphibious operations, Tenth Army

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<sup>170</sup> George C. Marshall, *Biennial Reports of the Chief of Staff of the United States Army to the Secretary of War: 1 July 1939-30 June 1945* (Washington, DC: Center of Military History, 1996), 177-182.

<sup>171</sup> Commander US Pacific Fleet and Pacific Oceans Area, "Operation Plan 14-44, *ICEBERG*," December 31, 1944, 3-4.

<sup>172</sup> Appleman, *Okinawa* (1995), 35, 39.

<sup>173</sup> Tenth Army Tentative Operation Plan I-45, Annex 12: Island Command Plan; Appleman, *Okinawa* (1995), 39.

<sup>174</sup> Appleman, *Okinawa* (1995), 39.

completed unloading of assault shipping by 16 April and subsequent unloading progressed generally on-schedule until 6 May.<sup>175</sup> Failure to capture the port of Naha on schedule caused unloading to fall behind schedule between 7 May and 15 June. LTG Buckner's decision to alter the Phase I capture of southern Okinawa in favor of simultaneously initiating Phase II clearance of northern Okinawa invalidated planning factors for sustainment based on expected availability of improved port facilities.<sup>176</sup> Delays in unloading were amplified by requirements for selective discharge of critical supplies and equipment.<sup>177</sup> Selective unloading was a natural consequence of sound decisions in planning, loading, and execution of combat operations. Cross-loading critical cargo, maximizing use of available cargo capacity considering shipping limitations, and the discrepancy between expectations and the campaign as it occurred contributed to requirements for selective unloading. Effects of selective unloading were amplified by shortages in lighterage and further exacerbated by shifting of lighters to deliver supplies away from Hagushi. Unloading delays resulted in congestion of ships awaiting discharge and presented Japanese air and maritime forces prime targets. Calling-forward ships to match discharge capacity sought to minimize congestion and enhance protection, but requirements for ammunition and other supplies overwhelmed such efforts.<sup>178</sup>

Units advanced using organic transportation assets to draw supplies from Island Command depots and dumps.<sup>179</sup> Subordinate echelons then drew from division and later consolidated forward supply dumps; these forward supply points advanced with the forward units in sequential bounds. At the end of May, heavy rains stressed already inadequate roads beyond

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<sup>175</sup> Appleman, *Okinawa* (1995), 68-83, 405-407.

<sup>176</sup> *Ibid*, 138.

<sup>177</sup> *Ibid*, 405-406.

<sup>178</sup> *Ibid*, 406.

<sup>179</sup> *Ibid*, 406-407.

use.<sup>180</sup> Engineers worked constantly but failed to maintain ground lines of communication in usable condition. III Amphibious Corps and XXIV Corps used unscheduled landing sites, floating ammunition supply vessels, and airdrops of supply to continue their advances.<sup>181</sup>

The initial rapid advance across the island resulted in discrepancy between planning factors and reality. Assault-echelon shipping and ammunition resupplies were built with balanced units of fire across systems and calibers based on POA experiences in anticipation of stubborn resistance. Once XXIV Corps began its advance south and met the Shuri defenses, Tenth Army met unexpected demand for artillery ammunition.<sup>182</sup> Expected to last 40 days, the campaign did not conclude until 82 days after landing. Like close-run ammunition requirements and supply, fuel did not hamper operations but was always in short supply.<sup>183</sup> Delays in construction of bulk storage resulted in time and labor-intensive unloading of fuel in drums and cans. Once bulk storage was constructed, a scheduled tanker did not arrive necessitating supply of Army aviation ashore by naval assets.<sup>184</sup>

Engineer and sustainment efforts ashore initially focused on primary lines of communication, Yonton and Kadena airfields, and bulk-fuel storage.<sup>185</sup> Once initial support of combat operations was complete, engineers and sustainment efforts oriented on airfield and port development. Tenth Army completed detailed reconnaissance of Okinawa and Ie Shima and reported their suitability for substantial airfield development to include B-29 facilities, resulting in abandonment of Phase III objectives on other islands in the Ryukyus in favor of intensive

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<sup>180</sup> Appleman, *Okinawa* (1995), 407.

<sup>181</sup> *Ibid*, 406-409.

<sup>182</sup> *Ibid*, 410-411.

<sup>183</sup> *Ibid*, 410-411.

<sup>184</sup> *Ibid*, 411.

<sup>185</sup> Appleman, *Okinawa* (1995), 419; Tenth Army, *After Action Report of the Ryukyus* (1945), I-0-2,3; II-IX-10,13.

construction on Okinawa and Ie Shima.<sup>186</sup> The JCS approved modification on 26 April and Island Command increased airfield construction from a planned eight to eighteen airstrips on Okinawa and a planned two to four on Ie Shima.<sup>187</sup> This change in scheme freed construction troops, equipment, and materiel but brought with it increased requirements on Okinawa and Ie Shima that offset those benefits.

The sixth structured, focused question asks: How did the sustainment plan account for and mitigate operational risk? Planners identified shipping limitations and shortages early and throughout planning. Allocating available shipping, the sustainment plan balanced requirements for rapid combat employment of troops and systems with needs to maximize use of available cargo space. The result was a blend of combat-loaded equipment and bulk-loaded cargo as duplicate-loading of ships added redundancy to avoid potential loss of mission-essential equipment and supplies. Arranged into assault and follow-on echelons, shipping was tailored to meet anticipated operational requirements. Projecting and tightly managing shipments while prioritizing key equipment and supplies mitigated risks associated with long delays and great distances over which supplies travelled.

Initial landings in the Keramas accepted tactical risks to reduce operational risk; this decision achieved seizure of the islands at low cost, safeguarded the fleet as it supported the Hagushi landings, and provided basing for artillery that similarly supported the Hagushi landings. LTG Buckner later balanced risks in his decision not to perform a landing at the Minotoga beaches in support of his operations to seize southern Okinawa. Presented with the option to land and support one division at Minotoga to potentially avoid the costs of a continued frontal attack against the Shuri defenses, LTG Buckner assessed hazards of supporting a single division across a second set of beaches at the maximum of those beaches' capacity as too severe. Instead, LTG

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<sup>186</sup> Appleman, *Okinawa* (1995), 419.

<sup>187</sup> *Ibid.*, 420.

Buckner prioritized sustainment in his decision and continued Tenth Army's sustainable frontal attack south and accepted the anticipated costs of such action.

## Findings and Analysis

This section presents structured, focused comparison of Allied campaigns for the Philippines and Okinawa in World War II. This comparison consists of two parts. The findings portion of this section will compare the data gathered for each of six research questions. The analysis portion will then apply findings to the five hypotheses. Testing the hypotheses will determine if the thesis is supported.

This first structured-focused question asks: What were the US national political objectives in the Pacific Theater? The research demonstrates that the United States sought the unconditional surrender of Japan within one year of the end of hostilities in Europe. During each campaign, the US additionally sought to maintain surface lines of communication with Australia and New Zealand, to support Chinese Nationalists, and to deny Japanese access to resources through unremitting pressure and severance of sea lines of communication. During the campaign for the Philippines, national objectives included liberation of the Philippines. During the campaign for Okinawa, the war in Europe concluded on 8 May and the PTO gained formal primacy as the Allies prepared to invade the Japanese home islands.

The second structured-focused question asks: What were the US military objectives in the Pacific Theater? The research illustrates linkages between the operational objectives of the two campaigns within the strategy to defeat Japan. Initially, seizure of select islands within the Philippines was to enable further operations to seize positions in either Formosa or on the China coast. Subsequent designation of Luzon as an objective sought to attain the effects of the infeasible Formosa operation. Okinawa and its surrounding islands were sought to establish bases to enhance the naval blockade and strategic bombardment of Japan and basing for the invasion of

the home islands. Each campaign's objectives sought to extend operational reach and tempo through seizure and establishment of basing.

The third structured-focused question asks: What was the campaign plan for the Philippines and Okinawa? The operational approach in each campaign sought to isolate and degrade the objective area through employment of air and maritime forces, enabling amphibious assault to establish ground and air forces ashore. These forces would then dominate locally before movement to subsequent objectives. The campaign plan for the Philippines, throughout iterations of planning, included seizure and establishment of airfields in the southern portion of the archipelago before seizing and establishing additional bases for air, maritime, and land forces on Luzon. At Okinawa, the campaign plan was to seize Okinawa and develop basing while seizing subsequent objectives in the Ryukyus for further basing.

The fourth structured-focused question asks: What was the sustainment plan for the Philippines and Okinawa? Sustainment for each campaign consisted partially of repurposed sustainment plans for cancelled operations. Yap plans were converted in the Philippines and Formosa plans at Okinawa. Each sustainment plan dealt with absolute limitations in shipping that drove prioritization of allocation, loading, and echeloning forces to suit anticipated mission requirements. In each campaign, divisions and corps were initially responsible for their own sustainment until the Field Army relieved them of responsibility. Each sustainment plan similarly employed a designated subordinate headquarters to the field army for sustainment, base development, and management of rear areas.

The fifth structured-focused question asks: How did the sustainment plan extend operational reach and prevent culmination? At Leyte, the sustainment plan extended operational reach and prevented culmination by providing ground forces with required equipment, supplies, and support necessary to continued offensive operations. The Leyte sustainment plan failed to provide suitable support ashore for land-based aviation. While this did not result in culmination, it resulted in failure to extend operational reach as visualized in the campaign plan. Seizure and



establishment of land-based aviation at Mindoro then extended operational reach to support the invasion of Luzon. At Luzon, adequate sustainment enabled Sixth Army to conduct the only continental-style warfare in the PTO in the central plains. At Okinawa, sustainment plans initially sought to prevent culmination in the offense against determined opposition. The plan was sufficiently flexible for adjustment to meet emergent mission requirements. In each campaign, sustainment plans contained sufficient ways and means to provide space for improvisation in sustainment to achieve responsiveness and continuity.

The sixth structured-focused question asks: How did the sustainment plan account for and mitigate operational risk? The sustainment plan for Leyte met minimum requirements to mitigate operational risks to mission and forces. However, failure to act on the unsuitability of Leyte for airfield development created risks to mission and forces. Failure to rapidly establish ground-based aviation allowed the Japanese to reinforce the island and delay future operations while depriving Sixth Army of potential air support. Throughout the Philippines and Okinawa campaigns, sustainment plans prioritized loading of equipment, personnel, and supplies to meet the expected requirements of the mission. In this manner, they mitigated anticipated risks. The same actions created risks by limiting the quantity of vehicles ashore to support combat troops, sometimes getting unusable troops and equipment ashore, and by frustrating selective discharge and rapid offload of required items. A similar relationship of transferred risk in each campaign was the use of lighterage and landing craft to conduct resupply of units at the shoreline at unplanned sites.

This study's first hypothesis asserts that when operational planners prioritize planning and execution of sustainment operations they maximize tempo. The evidence suggests this hypothesis is supported. The construction of airfields in both campaigns enabled increased frequency measured in sorties generated and quantity of engagements. This trend applied to both short-range tactical support and long-range bombing. Similarly, seizure of anchorages and port facilities shortened the travel distance for vessels requiring resupply, repair, or refit. This resulted in increased presence through increased frequency and simultaneity within the area of operations.

Finally, prioritizing the sustainment of ground forces, troops and Marines enabled movement at the maximum speed the tactical situation allowed. Effects of increased air and naval actions enabled through airfield and anchorage development amplified the speed directly enabled by sustainment. Leyte provides a negative example also consistent with this theory. Disregarding the engineer assessments of roads and airfields, GEN MacArthur's persistence in seizing Leyte and the negative outcomes of airfield construction display an instance where not prioritizing sustainment resulted in decreased tempo both within the Philippines but also across the PTO. Seizure of Mindoro and establishment of its airfields displays a renewed prioritization on basing and sustainment that reestablished maximum attainable tempo in the campaign.

It is important to recognize the limitations in the effects on tempo gained by prioritizing sustainment. While such prioritization maximizes tempo, discrepancies between anticipated combat conditions and those encountered can retard tempo even when prioritizing sustainment planning. The loading and sequence of assault and subsequent echelons, prioritized at Leyte for airfield construction and at Okinawa for a protracted, contested advance inland created obstacles and limited sustainment's responsiveness when faced with unexpected conditions.

The second hypothesis asserts that when operational planners prioritize planning and execution of sustainment operations they maximize operational reach. The evidence suggests that this hypothesis is supported. Momentum, protection, and endurance are all enabled by sustainment as assault and subsequent echelons require logistics, personnel support, and medical support throughout operations. The ability to continuously support combat troops' advances through various methods including tracked, amphibious, aerial, rail, contracted, and hand-carry methods throughout both campaigns displays sustainment's relationship to maximizing operational reach. While integration, anticipation, economy, and survivability dominated sustainment planning, discrepancies between expected conditions and realized conditions in each campaign necessitated prioritized responsiveness, simplicity, and continuity through widespread improvisation in execution.

At Leyte, the failure in logistics occurred within general engineering support in failure to rapidly construct airfields due to unsuitable objectives and unattainable plans. The failure to rapidly establish sufficient airfields for ground-based aviation support deprived Allied forces of protection from Japanese air and maritime forces and limited US forces momentum ashore, in the Philippines, and in the PTO. In stark contrast, rapid base development on Mindoro, Luzon, and Okinawa display the same direct relationship where prioritized sustainment resulted in rapid achievement of maximized operational reach.

The third hypothesis asserts that when operational planners prioritize planning, preparation, and execution of sustainment operations they minimize culmination. The evidence suggests that this is supported. The limit of operational reach represents the culmination point. Through prioritizing sustainment, planners enabled maximum operational reach and thus furthered the limits of culmination. First, on Leyte, unsuitable objectives for airfield establishment resulted in failure to extend operational reach. Through continued provision of sustainment, LTG Kreuger's forces prevented culmination at Leyte though operating with reduced protection and momentum. In contrast, protection and momentum were enabled by ground-based aviation on Luzon and at Okinawa while endurance was achieved through the rigorously planned and executed resupply. In execution, resupply of combat troops sometimes required the same varied methods detailed above, especially for sustenance and ammunition.

The fourth hypothesis contends that when operational planners prioritize planning and execution of sustainment they optimize basing. The evidence suggests that this hypothesis is supported. Leyte again provides an example in which basing as an element of sustainment was not prioritized. Contrasting failure to prioritize sustainment and failure to optimize basing on Leyte, planners successfully prioritized sustainment in the campaigns for both Luzon and Okinawa. Seizure of airfields on Mindoro and early establishment of airfields on Luzon directly contributed to seizure of Luzon. Similarly, seizure of the Keramas and early establishment of

bases on Okinawa produced success in the Okinawa campaign while the capture of Ie Shima and base development there and on Okinawa portended future strategic and operational benefits.

The fifth hypothesis asserts that when operational planners prioritize planning and execution of sustainment operations they minimize risk. The evidence suggests that this hypothesis is supported. Failure to prioritize basing in the selection of unsuitable airfields at Leyte, GEN MacArthur's forces faced increased tactical risk to mission and forces. Strategically, prioritization of the other aspects of sustainment at Leyte resulted in neutralization of large portions of Japan's land and air forces in the Philippines and of the Japanese naval forces committed to the battle. Subsequent prioritization of basing at Mindoro provides an example of inverse relationship between sustainment and risk as ground-based aviation helped set conditions for passage through the Visayan and the amphibious assault and Lingayan Gulf. Subsequent base development and prioritization of sustainment on Luzon and the remaining islands of the Philippine archipelago display the same inverse relationship but with positive prioritization and decreased risk.

Okinawa and especially the seizure of islands in the Keremas group display the same inverse relationship between prioritization of sustainment and risk. Seizure of islands in the Keramas by the 77<sup>th</sup> Infantry Division to establish a protected fleet anchorage, basing for corps artillery, and control of the approaches to the Hagushi beaches accepted risk to forces tactically to limit risks to the overall mission and forces. Prioritization of both immediate and resupply sustainment of the assault and subsequent echelons further limited risks to mission and forces.

The evidence from the case studies suggests that all five hypothesis are supported. The evidence further suggests that the effects of prioritizing planning and execution of sustainment upon tempo, operational reach, culmination, basing, and risk are necessarily limited by other environmental and mission variables. Thus the thesis for this study is supported: US forces applied elements of operational art in sustainment of Operation Musketeer and Operation Iceberg

while sustainment planning and execution of these campaigns integrated the elements of basing, tempo, managing culmination, operational reach, and risk.

## Conclusion

The focus of this study was the relationship between campaigns and sustainment asking: did US forces use elements of operational art in sustainment of the campaigns for the Philippines and Okinawa in World War II by prioritizing sustainment planning and execution to achieve desired operational effects and strategic objectives? Using a structured, focused comparison and six research questions, this study established that the US campaigns for the Philippines and Okinawa during World War II supported five hypotheses; when planners prioritize planning and execution of sustainment they maximize tempo, maximize operational reach, minimize culmination, optimize basing, and reduce risk.

Within Operation Musketeer, Leyte provided examples of sufficient sustainment to prevent culmination but failure to maximize tempo, maximize operational reach, optimize basing, and reduce risk because sustainment, and especially basing as part of sustainment, was insufficiently prioritized. Contrasting Leyte are the examples of Mindoro and Luzon within the same campaign as well as the Okinawa campaign. In both campaigns, prioritized sustainment exhibits positive relationships between sustainment and tempo, sustainment and operational reach, as well as sustainment and basing. Prioritization of sustainment and culmination exhibit an inverse relationship in the campaigns. Prioritization of sustainment reduced operational risk in both campaigns. The campaigns studied demonstrate the interconnectedness of campaigns and sustainment.

Planners are the intended audience of this study. Sustainment represents a critical element of campaign planning and execution. The campaigns addressed in this study highlight the tensions inherent in campaign planning. To best prepare for a campaign, planners must balance preparation for anticipated conditions with preparation for the unexpected. Best preparation for

one was sometimes achieved at the expense of the other. Future study to verify the thesis of this study may include additional conflicts in different theaters and periods or for forces on the strategic or operational defense. Such study can provide diversity in strategic and tactical situations and would reinforce or dispute conclusions of this study.

From the conclusions of this study, the author recommends prioritization of sustainment planning during campaign design. Leyte demonstrated an unsound campaign; the operational objectives of airfields were unattainable based upon factors known before operations. Prioritization includes not only additional emphasis, but also the analysis and balancing of capacity, anticipation, and flexibility. As the above cases illustrate, accounting for unknown and unknowable contingencies in sustainment requirements can enhance the likelihood of achieving campaign objectives. Appreciation of potential discrepancies between anticipated conditions and actual conditions enhances ability to adapt to such discrepancies.

The campaigns for the Philippines and Okinawa demonstrate historical precedence for the interrelation between sustainment and campaigning. These campaigns provide an example in Leyte of an instance where sustainment was not prioritized resulting in decreased tempo, decreased operational reach, increase potential for culmination, and increased risk. At Luzon and Okinawa, prioritized sustainment resulted in increased tempo, increased operational reach, decreased potential for culmination, and decreased risk. Planners should prioritize sustainment to capitalize on these relationships and increase the likelihood of success when campaigning.

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