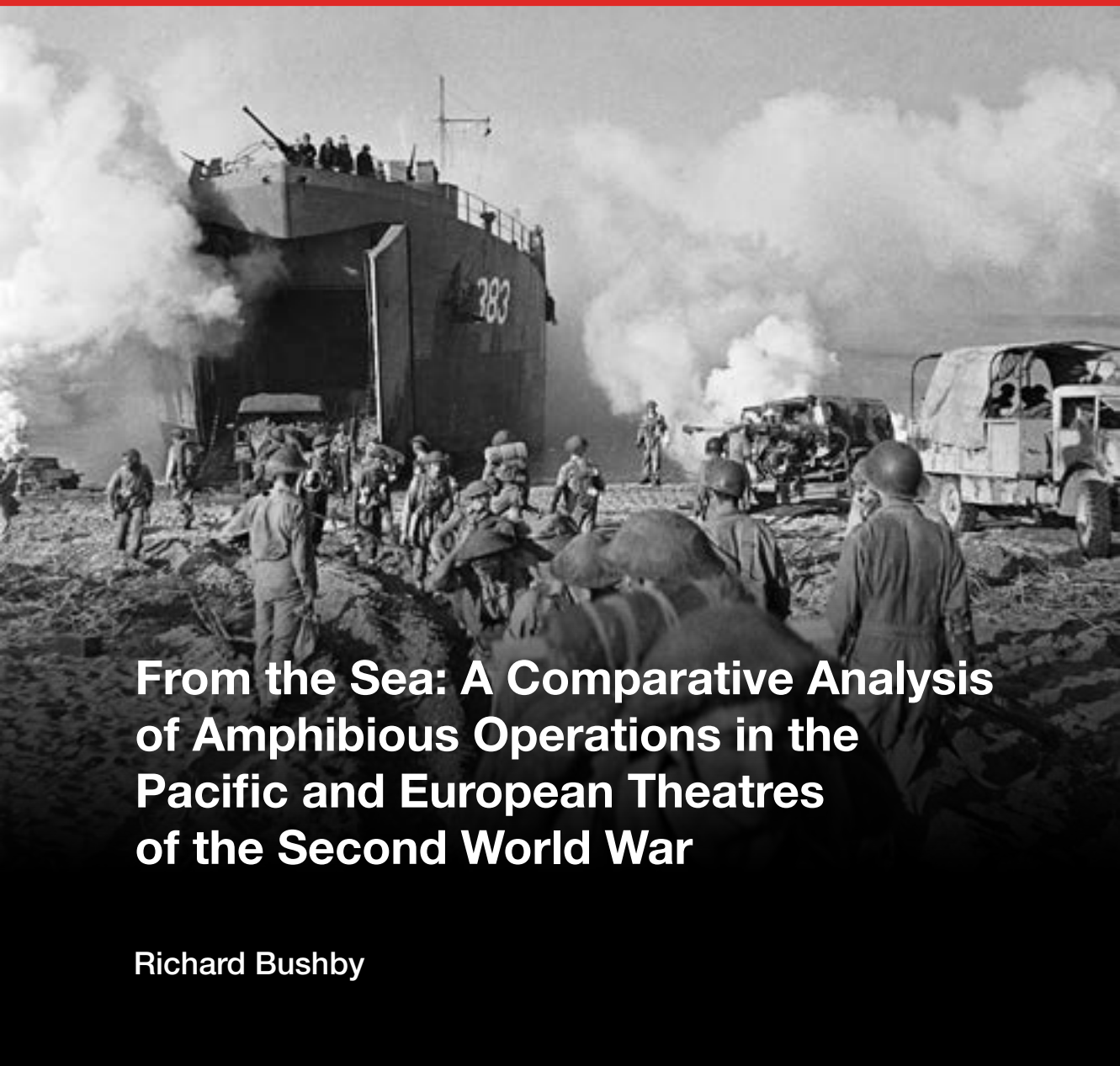




Australian Army Research Centre



From the Sea: A Comparative Analysis of Amphibious Operations in the Pacific and European Theatres of the Second World War

Richard Bushby

Australian Army Occasional Paper No. 23



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Serving the Nation

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Cover image: Salerno, 9 September 1943 (Operation Avalanche): British troops and vehicles from 128 Brigade, 46th Division are unloaded from Landing Ship Tank 383 onto the beaches. (Source: Imperial War Museum NA 6630)

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A wave of 4th Division Marines beginning an attack from the beach at Iwo Jima, 19 February 1945. (Source: National Museum of the U.S. Navy 80-G-304-843)

Introduction

Amphibious operations came of age between mid-1942 and mid-1945 as the armed forces of the Western Allied powers (America, Britain and the Commonwealth) conducted over 40 major amphibious assaults.¹ Assaults occurred in theatres ranging from the beaches of North Africa, Europe and the Mediterranean, to the small coral atolls and islands of the central Pacific. They included actions over the large rugged, jungle-covered landmasses in Solomon Islands, New Guinea and the Philippines. These operations overcame the technical and institutional challenges that bedevilled amphibious operations at Gallipoli during the First World War, and the scale and complexity of the major amphibious landings achieved during that conflict have never been rivalled.²

While the events of the Second World War occurred over 80 years ago, the relevance of amphibious operations endures. Many nations retain amphibious forces within their military structures. The enduring importance of amphibious operations within a broader conception of maritime strategy and national power is a consequence of the draw-down of coalition contributions to the Global War on Terror and the re-emergence of great power competition. British maritime doctrine and the Royal Navy (RN) Future Maritime Operating Concept suggest that current and future patterns of global population distribution will confine the bulk of the world's population, human activity and, in consequence, military operations within the littoral domain.³ Similarly, the United States Marine Corps (USMC) has significantly developed many of its amphibious concepts. This renewal has resulted in the creation of lightly equipped and easily deployable stand-in forces; the development of marine littoral regiments in support of littoral manoeuvre; long-range, land-based maritime strike; and enhanced amphibious logistics, all optimised for operations against a sophisticated peer adversary.⁴

From an Australian perspective, the recently released Australian Defence Strategic Review (DSR) makes clear that the force design priorities of the Australian Defence Force (ADF) must focus on acquiring sufficient anti-access and area denial capabilities to underpin a credible strategy of denial.⁵ The new capabilities required to achieve this objective include sea denial and localised sea control; enhanced all-domain, long-range strike; air and missile defence; expeditionary logistics; and joint command and control.⁶ The review similarly makes clear that the Indo-Pacific is the primary area of military interest for Australian defence planners. The military implications of the region's geography (characterised by a combination of the Australian landmass, large areas of open ocean, densely populated island archipelagos, and small island states) are familiar to anyone with an understanding of Australian military history. For this reason, it is unsurprising that an amphibious-capable combined arms land system is included in the list of core capabilities described above.

History provides a guide as to how Australian and Allied land, naval and air forces of previous generations have met the adaptation challenges involved in designing forces capable of large-scale amphibious operations. But planners must use history cautiously. An understanding of context and detail is required. Absent this context, drawing lessons and observations from historical analysis can be misleading. Allied adaptations, even when confronted with circumstances that are superficially similar, reflect widely varying strategic cultures, operational designs and tactical compromises that are not always immediately apparent. For this reason, a detailed appreciation of the relationship between amphibious techniques and broader concepts of strategy and operational art remains particularly relevant.

The photographs of a group of US Marines raising their flag on the top of Mount Suribachi on Iwo Jima, and groups of soldiers in landing craft or huddled on the beaches of Normandy, provide some of the most iconic images of the Second World War, depicting amphibious assaults in the central Pacific and the European theatres of operations.⁷ While these examples are explicitly American in origin, their visual impact and profile in the popular media have ensured that they are instantly recognisable to a much wider audience. However, the ubiquity of these images disguises the very different evolution of amphibious techniques within and between major theatres of the war, and the radically different strategic and operational outcomes that each sought to achieve.

This paper examines these experiences and posits that amphibious warfare in Europe and the Mediterranean, against German and Italian opponents, constituted entry operations within the context of a continental approach to the strategic prosecution of the war. In contrast, amphibious operations conducted against Japanese forces in the central Pacific were a component of an essentially maritime approach to strategy. By comparing and contrasting amphibious operations in the European and Mediterranean theatres with those conducted in the central Pacific theatre, this study examines the factors that drove these differences in approach. In so doing, it traces the origins of each technique from its strategic conception through operational design to tactical execution, and it examines how these differences manifested in terms of force structures, equipment, training and command methodologies.

In his work on amphibious operations and projection of sea power ashore, Colonel MHH Evans, RM, contrasts two differing definitions of amphibious operations. Specifically, he observes:

An amphibious operation can be described as the delivery of a force of all arms, tactically grouped for combat ashore; landed independently of ports or airfields, and in a hostile or potentially hostile situation.

He also acknowledges that:

An amphibious operation is an attack launched from the sea by naval and landing forces embarked in ships or craft involving a landing on a hostile shore. It normally requires extensive air participation and is characterised by closely integrated efforts of forces trained, organised and equipped for different combatant functions.⁸

Evans suggests that the first of these definitions is consistent with the historical and contemporary current British approach to amphibious operations, while the second, with its greater focus on assault techniques and the employment of firepower, is more consistent with an American approach.⁹ This paper suggests that these modern differences are a legacy of the vastly different types of amphibious warfare experienced by both nations during the Second World War.

While it may have been broadly accurate to distinguish a British style of amphibious operations from an American style at the beginning of the war, by the end of the war this differentiation retained no utility at all. Indeed, perpetuating such a distinction serves only to obscure a broader point. Specifically, both British and American forces adopted similar amphibious warfare techniques within the European theatre. However, by the end of the war the US Navy (USN) in the Pacific had adapted and perfected their techniques to conduct 'storm landings' of a very different style to those conducted in Europe, and the limited RN forces in the Pacific had adapted themselves to conduct 'storm landings' also, albeit in a very limited way compared to the USN. This observation highlights that the differing styles of operations were not driven by any particular characteristic of nationality, but rather by the demands of the theatres in which they were conducted and by the way amphibious operations fitted into a larger whole.

Former USMC officer and amphibious operations historian Joseph Alexander highlights the differences noted above and argues that commanders in the European and Mediterranean theatres waged amphibious warfare very differently to those in the Pacific. Long and often undefended or lightly defended coastlines in North Africa, Italy and France offered opportunities to achieve surprise, placing a premium on deception and speed of execution. Consequently, night landings were common and pre-landing bombardments were limited in order to maximise surprise and to reduce damage to coastal towns and villages that usually abutted the landing sites. Similarly, the open terrain inland from the beaches, and the relatively short distances from land-based airfields, offered potential for vertical envelopment of defences through the use of parachute or glider forces to augment landings. Equally, the absence of fringing coral reefs meant that shallow-draught assault boats could deliver assault forces directly onto the beach.¹⁰ In contrast, the tiny Japanese held atolls within vast expanses of the Pacific Ocean required a different approach. Geography usually dictated a limited number of suitable landing beaches, invalidating opportunities for tactical surprise and deception. The heavily defended beachfronts required extensive pre-landing fire support bombardment. This in turn necessitated daylight assault across fringing coral reefs that prevented the use of traditional assault boats. To solve this tactical dilemma, forces in the Pacific perfected a type of assault that the Japanese defenders came to describe as 'storm landings'.

*Storm landings in the Pacific were a perfection of two unique and interactive forms of warfare: the employment of fast carrier task forces and the execution of long range amphibious assaults against fierce opposition. Storm landings were distinguished by six additional characteristics. They were all dangerous, long range, large scale, self-sustaining assaults executed against defended positions within the protective umbrella of fast carrier task forces.*¹¹

This paper is structured in three parts. The first section will examine the prewar development of amphibious doctrine in Britain and the US, and will analyse how the major combatants conceptualised the strategic utility of amphibious operations, including how they planned to conduct them. It will suggest that both nations examined the utility of amphibious operations as part of a wider debate about strategy and operations, but each came to very different conclusions. The British saw amphibious operations as an activity conducted by combined forces from the three services. Theoretical interest in the concept waxed and waned but, institutionally, amphibious operations suffered from the lack of a clear champion to provide a coherent link between strategy and operations and thus to procurement, capability and training outcomes. In contrast, in the US the role of the USMC in forming the Advanced Base Force within a wider USN structure gave this concept greater institutional and doctrinal impetus for development. Consequently, the USN and USMC entered the war with a body of experience and doctrine that was more firmly linked to a wider strategy than either the US Army or the RN and British Army had been able to achieve.

The second section will examine the strategic conduct of the Second World War and the role amphibious operations played within it. It will take as its starting point the US entry into the war in December 1941. This section will highlight the relationship between resource availability and strategic opportunity, and will demonstrate the linkages from strategic concept through operational design to tactical implementation. It will show why the theatres evolved in the way in which they did, and why the general pattern that was set by prewar examination remained largely extant throughout the Second World War. The third section will examine three critical aspects of operational – and tactical-level practice: command and control, provision of offensive support, and the organisation of manoeuvre forces. This section will provide concrete examples of how strategic and operational designs influenced the tactical-level application of battlefield technique.

Despite the evolution and eventual sophistication of amphibious techniques that the Allied forces achieved by the end of the war, this paper will demonstrate that the occasions when amphibious operations came closest to failure were those where the assaulting forces were compelled to adapt to circumstances for which they had not evolved. This experience points to the way in which efforts to optimise military capability provide clear benefits, but also highlights the ways in which deep specialisation can limit a force's ability to adapt to unanticipated or unfamiliar circumstances. Understanding these limitations and their origins is critical if capabilities are not to be pushed to the point of failure.

The Evolution of Doctrine

Within a military context, doctrine describes the ‘fundamental principles by which the military forces guide their actions in support of objectives’.¹² Doctrine provides specific information on how military functions or operations are to be undertaken. It also offers guidance on prevailing concepts and thought processes that shape the organisation. Furthermore, close comparisons of similar doctrines can reveal insights into differing institutional cultures and priorities that may not otherwise be apparent. For this reason, it is important to understand the evolution of the doctrinal assumptions that Britain and America brought into the Second World War. During the period between the First and Second World Wars, both Britain and America independently developed doctrine for amphibious operations.¹³ This doctrine shared some significant similarities but also many profound differences. A close reading of the histories of these documents offers insights into the different strategic environments that faced each nation. These circumstances in turn shaped perceptions of the utility of amphibious operations and drove institutional differences between the British and American militaries that would ultimately execute the operations.

In both nations, doctrine was influenced profoundly by naval perceptions of what was described as the ‘advanced base problem’ — the issue of capturing and then defending anchorages for the fleet. Despite this similarity, British and American thinking diverged during the late 1920s and throughout the 1930s. This divergence was driven by the interrelationship between finance, strategy and foreign policy. In Britain, an early and promising focus on advanced base operations was degraded by competing strategic priorities, financial constraints and competing service cultures. Consequently, the understanding of advanced base operations evolved from the original narrow maritime focus into more generalised combined operations, the early forebear of modern joint operations. The joint nature of these processes lent British practice a distinct national character. In the US, financial constraints resulted in some similar practical limitations on the development of advanced base operations, but the more narrowly drawn US strategic priorities, combined with a clearer sense of potential threat, lent greater clarity to US thinking. This, when combined with the unique geographic characteristics of the Pacific focus of the USN, meant that advanced base operations remained the preserve of the USN and USMC.

The amphibious doctrine that Britain took to war was contained within the 1938 edition of the *Manual of Combined Operations*, an evolution of the 1920 edition of the *Field Service Regulations* and the 1931 edition of the *Manual of Combined Operations*. The 1931 manual codified the procedures to apply in:

*[t]hose forms of operations where naval military or air forces in combination are co-operating with each other, working independently under their own respective commanders, but with common strategical [sic] objectives.*¹⁴

The clumsy ambiguity of this definition stemmed from the fact that Britain's approach to amphibious operations arose from its review of landing operations in the immediate aftermath of the First World War. The effect was to pull amphibious operations doctrine in two competing directions.

To understand why this occurred, it is worthwhile to briefly review the competing interests. Within the wider history of the RN, landing operations had traditionally been one of the responsibilities of the Royal Marines (RM). In 1924 the Committee on the Corps of Royal Marines was commissioned by the RN to address the functions, strength, organisation, training and equipment of the RM.¹⁵ The committee, chaired by Admiral Sir Charles Madden, recommended three essential tasks that the RM would perform for the fleet:

First, to provide detachments to larger ships capable of manning their share of the gunnery armament;

Second, to provide independent forces to join the Fleet and carry out operations for the seizure and defence of temporary bases and raids on the enemy's coastline;

*Third, to serve as a connecting link between the Navy and the Army and will supply the Army in war with units for special duties for which Naval experience is necessary.*¹⁶

To perform the second and third functions, the Madden Report recommended forming an RM 'striking force' which, while small by army standards, was a larger and better equipped organisation than the traditional ship's marine force and gunnery detachment that existed at the time. Such a force was intended to be 'accustomed to working in cooperation with the fleet' and was considered to be 'superior in operations such as

these [landing operations] to a large mass of troops that were organised and trained only for service in the field and encumbered with equipment necessary for a land campaign'.¹⁷ While lack of funding prevented the implementation of the RM 'striking force' concept, the most serious shortcoming concerned the Navy's plan to staff the force in the event of mobilisation. Specifically, the force was to be drawn from within the personnel in RM depots or from within the fleet. Consequently, the 'striking force' had no standing organisational structure and its capacity to conduct training and maintain or advance doctrinal concepts was thereby severely limited.¹⁸

Without a standing RM organisation capable of examining doctrine and techniques for 'landing operations', the greatest institutional interest was expressed by students of the service staff colleges of the RN, the British Army and the Royal Air Force (RAF). Investigations by the staff colleges noted deficiencies in the existing *Manual of Combined Naval and Military Operations, 1913*, and this prompted both the War Office and the Admiralty to propose a revision of the existing doctrine.¹⁹ The resulting Inter-departmental Committee on Combined Operations examined proposed changes to the Army's *Field Service Regulations Chapter 13*. The resulting definition given to combined operations within *Chapter 13* was:

*Those operations in which more services than one are jointly engaged, the command of each in its own sphere being independent of, though acting in concert with, that of the others.*²⁰

Critical in this definition is the complete absence of anything approaching a single joint commander or supreme commander. The initial staff college reports had advocated some circumstances in which a combined staff should be formed, with the Army Staff College contending:

*A separate staff, working each primarily for their respective services, will never attain the same degree of combined efficiency as will one combined staff.*²¹

The committee did not agree, and insisted that staff arrangements for combined operations 'must correspond to existing systems of separate command for the individual services but working in close cooperation with each other from the outset'.²² Ultimately, *Field Service Regulations Chapter 13 Volume 2* became the authority on combined operations after World War I. It contained most of the recommendations made by the Army Staff College.

While Gallipoli was never mentioned specifically throughout the drafting process, it is evident that several issues were dealt with so authoritatively that the authors could only have been speaking from personal or recent institutional experience.²³ The influence of the Dardanelles campaign had profound but contradictory effects on Britain and the US. For the British, the lessons not only provided a lens through which to view recent operational experience. They also represented a concrete manifestation of a broader debate about British strategy and approach to war during the 1920s and 1930s. By contrast, for the US the lessons were less controversial. This was primarily because the US had not had the bruising experience of failed amphibious operations during the war, but also because debates around amphibious operations were not as closely linked to discussions about military strategy.

Because Britain had no coherent strategic direction or sense of primary threat, amphibious operations were considered to have only a theoretical role in military operations. Consequently, no single service was in a position to invest heavily in associated capability development.²⁴ The British Army remained focused on continental operations in Europe in the event of a major war. If 'landing operations' were a part of this strategy, the Army envisaged landing a sizeable force capable of campaigning on the continent and anticipated that such a landing would occur over a relatively short range with secure ports available soon after landing. At a more practical level, there was an enduring view that amphibious operations would need to rely on speed, secrecy, deception and surprise.²⁵ By contrast to the British Army, the RN had broader horizons, incorporating both the competing demands of a European focus centred on the home and Mediterranean fleets, and a more global focus centred on the Pacific and Far East. However, the Treasury did not agree that the international situation necessitated spending the vast sums required to realise the Navy's ambitions.²⁶

As the spectre of war in Europe loomed ever larger, Britain sensed no compulsion to generate a strategic plan that was comparable to the American War Plan Orange (see below) involving a wide-ranging fleet capable of sustained offensive naval and amphibious actions. Instead, while the RN's attempts to focus on advanced base operations (and the role of the RM within them) benefited from some early conceptual and organisational advances, the idea languished because it could not be grounded within a coherent strategic plan and operational design. The

British Army's and RAF's contributions to doctrinal development reflected stovepiped service perspectives. Consequently, the British approach to amphibious development was marked by a distinct preference for 'landing operations' as a theatre entry component of a larger land campaign, most likely on the continent of Europe. This led to a preference for operations characterised by speed, security, deception and surprise. Service priorities resulted in command and control procedures that would retain single-service command arrangements without a unifying joint or combined command staff. Geographic assessments generally presupposed that landings would be carried out within range of land-based air cover. Informed by army experiences at Gallipoli, this assumption was influenced by tainted confidence in naval gunfire support.

In the US, amphibious doctrinal development was shaped by a different range of factors. US forces had already taken on specific responsibilities for landing forces stemming from the capture of an advanced fleet base at Guantanamo Bay during the Spanish-American War of 1898 and similar achievements in the Philippines and China. The 'assault mission' within the landing force concept thus pre-dated the turn of the 20th century.²⁷ The focus on the 'advanced base problem' led to the development of the Advanced Base School and the first institutionalised attempt to develop specialised doctrine and equipment to aid landing operations. While the theoretical basis of these developments mirrors many aspects of the RN's later efforts in the mid-1920s, the crucial difference was that the USMC formed a standing Advanced Base Force of men and associated supplies and transport shipping on each coast. This more permanent establishment gave the Advanced Base Force the institutional structures to champion doctrine, training and development that were lacking in the RM.²⁸

The end of the First World War caused a shift in power relationships within America's primary region of strategic interest, the Pacific. American war planners had always understood that maintaining sea lines of communication with their bases in the Philippines might necessitate a decisive fleet battle in the Pacific. However, the new paradigm of Japanese control of the former German mandate territories in the Marshall, Caroline and Mariana island chains made this problem more acute. The possibility of Japanese interdiction of the central Pacific from new island bases complicated US naval war planning, and raised the need to reduce or interdict these Japanese outposts between Honolulu and Manila.²⁹

The demands of a naval war in the Pacific outlined in the 'Orange' series of war plans grounded amphibious operations and recapturing advanced bases firmly within a coherent US strategic concept.³⁰ This strategy raised the likelihood that the Marines would need a force capable of executing offensive landings against hostile naval bases for the first time. This realisation was a watershed in US amphibious practice, and one that would profoundly influence US maritime operations in the Second World War.³¹

Despite the fact that US naval strategy lent a stronger conceptual basis to amphibious operations, limited opportunities existed to take practical steps to enhance training and doctrine. The financial parsimony that affected defence expenditure in Britain similarly influenced the USN, and large-scale training opportunities with the fleet were rare. Annual fleet exercises sometimes involved the USMC, and when this occurred they presented the opportunity to experiment with command and control procedures, test new designs for landing craft, and trial a form of amphibious tank—the first prototype of the vehicle that would become the Landing Vehicle Tracked (LVT).³² Most crucially, these exercises allowed the Marines Aviation Group to practise techniques in support of ground forces.³³ This integration built the confidence of Marine officers in the effectiveness of close air support early in the amphibious relationship.³⁴ The deliberate decision to integrate air and marine ground forces stands in contrast to the prevailing attitudes of the RAF and the United States Army Air Force (USAAF)—services that were desperate to demonstrate their independence and develop wholly separate chains of command. Close integration of specially trained close air support air crews tasked to fly in support of marine amphibious landings came to be one of the hallmarks of USMC practice in the Pacific islands, a practice which can trace its origins firmly to the prewar exercises and doctrinal testing activities.³⁵

An endorsed concept for employment of amphibious capabilities, nested within a strong American and USN strategic doctrine for Pacific war, gave the Marines a very firm basis on which to shape doctrine. Shaping Marine doctrine was additionally aided by the work of Marine Lieutenant Colonel Earl 'Pete' Ellis. Ellis's treatise *Advanced Base Operations in Micronesia* was the product of his detailed reconnaissance in the central Pacific conducted during the early 1920s.³⁶ Ellis correctly identified many of the conditions specific to the theatre that would later drive the USN's and USMC's unique approach to amphibious operations. In particular he identified that the vast

size of the Pacific would require a fleet capable of sustained long-range combat with the ability to mount and recover amphibious operations from the open ocean; land forces would need to cross a fringing coral reef that would necessitate specialised assault craft; land combat would be confined to very intense short-duration battles on or near the waterline; and a decision would be reached after a short advance inland without the need for sustained land campaigns.³⁷ In support of this doctrine, he advocated a Navy and Marine team that was expert in the use of naval gunfire and aircraft, supported by specialised techniques for beach marking and control of troops and supplies. Taken collectively, Ellis's assessments offered a profound insight into the complexities of modern amphibious warfare optimised for a specific geographic environment.

The Advanced Base Force would evolve into the Marine Corps Expeditionary Force and eventually, in 1933, the Fleet Marine Force (FMF). Once established, the FMF was finally recognised as an integral part of the fleet, and its principal mission was unequivocally endorsed as opposed (or potentially opposed) landings on hostile shores to establish bases for the fleet.³⁸ This clarity in purpose was the impetus for Marine schools to overhaul their theoretical instruction. It resulted in a three-year course for Marine officers that included instruction in land combat operations at up to brigade level both within a fleet operation and independently; naval landing operations within a fleet operation; and base defence weapons and tactics. This concerted period of theoretical activity led the Marines to examine the lessons from Gallipoli in significant detail. American doctrinal development focused on the use of massed-effect firepower, unity of command and the ability to mass forces quickly during the assault landing phase.³⁹

The resulting doctrine, the *Tentative Manual for Landing Operations*, was published in 1934 and was subsequently republished as *Landing Operations Doctrine, Fleet Tactical Publication 167 (FTP 167)* in 1938.⁴⁰ It noted:

*A landing operation against opposition is, in effect, an assault on an organised or unorganised defensive position modified by substituting initially ships' gunfire for that of light, medium and heavy field artillery, and frequently, carrier based aviation for land based aviation until the latter can be operated from ashore.*⁴¹

In reality, the *Tentative Manual for Landing Operations* was written to address the six key technical and tactical problems that the Marines

identified would commonly arise when troops sought to land on a hostile shore. These challenges were command relationships, naval gunfire support, aerial support, ship-to-shore movement, securing the beachhead, and logistics. These six areas would prove to be among the most problematic for the duration of the war for both the forces in the Pacific and those in Europe. Thus, by the eve of the Second World War, many of the factors were broadly set that would influence US amphibious practice throughout the war. America's vital strategic interests were defined unambiguously as Pacific in focus, supporting strategically coherent US war planning. As a result, the USN was able to develop an operational design optimised for the unique geographic and hydrographic conditions of Pacific war, focused on long-range, self-sustaining maritime operations. The Marines effectively lobbied for a prominent place within that operational design and set to work developing a comprehensive technical understanding of the attendant requirements. Their thinking resulted in a style of amphibious operations focused on firepower, unity of command, and speed in the assault. Their place as an integral element of the fleet was reflected in their command and control arrangements, and the vast size of the Pacific theatre presupposed that operations would need to be launched, sustained and recovered at sea, well beyond the reach of land-based support.

Strategy, Resources and Amphibious Development

Between 1939 and 1945 the Western Allies actually fought four distinctively different amphibious wars. These were the early British raiding operations, General Douglas MacArthur's campaign in the South West Pacific Area (SWPA), the African and European invasions, and the central Pacific drive towards Japan.⁴² Each of these styles of warfare reflected the peculiarities of its specific time and circumstances, particularly the British and American economic capacity to supply the vast quantities of materiel required to wage war simultaneously against both Japan and Germany. Much of this materiel related to the conduct of amphibious operations, and allocating these resources necessitated firm commitment on the strategic prosecution of the war. Understanding the relationship between the strategic prosecution of the war and the operational – and tactical-level manifestations of amphibious practice reveals the way in which operational and tactical techniques flowed directly from strategic circumstances. These relationships set the patterns of practice that would dominate the evolution of amphibious operations for the duration of the conflict. This paper will focus on the latter two, but the relationships between them all require brief examination.

Although raiding operations achieved little to substantively alter the final outcome of the war, they contributed in two concrete ways.⁴³ First, they helped shape the relationship between British and US forces in ways which would flow into later and larger amphibious operations. Second, they provided an environment to test and evaluate amphibious techniques that fed into the larger development of amphibious warfare. As an overall strategy, they represented Britain's early attempts to take offensive action against Germany, and reflected a period when Britain had little capacity to do anything else.⁴⁴ Once the US entered the war after December 1941, this began to change. Nevertheless, large-scale raids such as Dieppe remained a practical, albeit limited, demonstration of the Western Allies' resolve.⁴⁵ Crucially, Britain's experience with raiding demonstrated that neither it nor America would have the forces or the technical preparedness to attempt a forced re-entry into Europe in 1942 or 1943—the course of action preferred by the US Joint Chiefs of Staff.⁴⁶

Raiding raised the Combined Operations Headquarters (COHQ) to prominence. COHQ was initially formed after Dunkirk and became the principal headquarters for:

*technical advice on all aspects of the planning and training for Combined Operations ... for coordinating inter-Service training in this field ... and to study the development of special craft for all forms of Combined Operations varying from small scale raids to a full scale invasion of the Continent.*⁴⁷

The Chief of Combined Operations acted as an advisor to the Chiefs of Staff Committee on combined operations and became the recognised authority on the techniques of seaborne assault.⁴⁸ The COHQ structure eventually became the basis for the Chief of Staff to Supreme Allied Commander (COSSAC) and, in that capacity, was responsible for conducting the first preliminary appreciation of a cross-channel assault into north-west Europe. Much of the combined operations advice that went towards formulating the plan for Operation OVERLORD, and in particular the amphibious landing phase, Operation NEPTUNE, came from this appreciation.⁴⁹

The raiding war also influenced inter-Allied strategic integration. While the US's dominance of Allied strategy would eventually grow in proportion to its relative contribution, the impact of COHQ, including lessons learned during the early phases of the war, ensured that British Army and RN doctrinal preferences remained an important factor in shaping Allied amphibious planning in North Africa and Europe. The lessons of the Dieppe raid drew specific attention to a vast range of specialised techniques that would later figure in the amphibious assaults in subsequent campaigns. In particular, these included the need for specialised fire support techniques for controlling naval gunfire support, the development of specialised close-support naval craft, specially designed tanks, techniques for breaching obstacles on the landing zone, specially trained beach parties to maintain organisation on the beachheads, more reliable radios and, principally, the formation of permanent naval assault forces with specialised training and practice in amphibious techniques.⁵⁰ Further recommendations after Dieppe led the Admiralty to form 'Force J' as a special naval assault force. It would validate amphibious training and eventually prepare 'Force J Fighting Instructions'. These instructions promulgated naval techniques for the management of amphibious assault and were used by the forces involved in Operation NEPTUNE two years later. Most importantly, the experience of

Dieppe convinced Allied planners that attempts to seize a defended port by frontal attack were not viable.⁵¹ This realisation profoundly influenced subsequent planning for Operation OVERLORD.

In the SWPA, amphibious operations were conducted by Allied armies, navies and air forces under the command of General Douglas MacArthur.⁵² MacArthur's campaigns received a lower priority in the allocation of aircraft carriers and fast battleships. Consequently, he was obliged to launch shorter range operations under the cover of land-based aircraft and select objectives that were either undefended or very lightly defended. The large island landmasses of New Guinea and the Philippines offered greater scope to bypass and isolate pockets of Japanese resistance.⁵³ The amphibious campaigns of the SWPA offer an excellent study in the use of amphibious manoeuvre as an operational and tactical technique. Despite this, the relative scale and complexity of amphibious operations in the SWPA make direct comparisons with the two major theatres problematic. Moreover, their campaign design was a product of expediency and necessity rather than being the result of any prewar planning or conscious force design. Consequently, unlike in the European, South, and Central Pacific theatres, it is harder to find evidence of linkages between prewar and wartime strategic concepts and wartime execution in the SWPA. For this reason, operations in the SWPA will not figure in this study except where they serve to illustrate a wider point.⁵⁴

The remaining two styles of amphibious warfare—continental and maritime—aligned with the two major strategic approaches adopted by the Allies, and the fortunes of both were a reflection of the evolution of the strategic conduct of the war more generally. The amphibious operations conducted in North Africa, Sicily, Italy and Normandy in 1942–1944 were an outgrowth of the Allied strategic decision to wage war against Germany first, prior to the defeat of Japan. American army and naval planners exploring strategic options for victory over the Axis powers developed a range of war plans that examined the problem of fighting two wars simultaneously in two widely separated theatres. Various published as War Plan Rainbow 5, Plan Dog and Air War Plans Division 1, these plans all conceded that Germany, as the most dangerous opponent, would receive principal attention, with the Italians and Japanese attacked as opportunities and capabilities developed.⁵⁵ Each plan assumed that offensive campaigns against Germany would be mounted from secure bases in England, with some combination

of strategic bombing and a major ground campaign, but diverged on the relative priorities to be accorded to each.⁵⁶ The resolution of these disagreements was shaped by the state of inter-Allied and inter-service relationships, and by the resources that the Allied powers could bring to bear on the prosecution of the war.

The US Army remained committed to a decisive continental campaign in western Europe at the earliest opportunity, a determination that reflected the belief that France was the battlefield that offered the only option to decisively defeat the German Army.⁵⁷ In the spring of 1942, US planners examining the demands of Plan Bolero (the projected US build-up of forces in Britain) revealed two problems that would bedevil amphibious planning for much of the Second World War. These were the lack of cargo shipping and the lack of landing craft. The Bolero planners estimated that a successful invasion of Europe required a minimum of 600,000 men and supporting air elements. The US Army estimated that 890,000 troops would be trained and ready by April 1943 but that available shipping could only support 252,000. Additionally, the number of required landing craft totaled over 4,000, an undreamed-of quantity in 1942. Even though landing craft manufacturing underwent a massive increase, the lead times required for the US industrial base to reach operating capacity meant that such production numbers could not be achieved until 1944.⁵⁸ The issue of landing craft availability, in particular, stemmed from the conscious decision to prioritise aluminium production for the strategic bomber force. US industrial capacity in 1942 was not able to resource both simultaneously, and this illustrates the requirement for even industrial superpowers to practise strategic prioritisation when engaged in a global war. The amphibious landings in North Africa (Operation TORCH) were thus a precursor to subsequent decisions made at the Casablanca Conference in January 1943 to commit to landings in Sicily and Italy. These decisions reflected a pattern of Anglo-American compromises that was driven by the availability of forces and the materiel demands of the war. Consequently, Allied planners were obliged to fight campaigns where and how they could rather than how they ideally would have wished.

RN planners, in particular Admiral Bertram Ramsay and his staff, contributed much of the planning advice used by the US in their preparations.⁵⁹ Operations TORCH, HUSKY and AVALANCHE were characterised by four similarities. First, they involved large-scale landing of ground forces

configured to transition quickly from amphibious assault to land campaign. Second, each blended both carrier aircraft and land-based air support into their bombing and air support plans. Third, each employed short-duration naval gunfire bombardments designed to maintain surprise in lieu of the days-long destructive bombardments common in other theatres. Finally, each employed landing sites in lightly defended locations and was supported by relatively short lines of communication to secure port facilities. These characteristics were all consistent with prewar British doctrinal practice but were adopted by both British and American forces because they best suited the nature and objectives of the theatres in which they were used.

War Plan Rainbow 5 committed the US to devote its energies to defeating Germany in the decisive theatre. The USN's pre-eminent task was protection of transatlantic shipping to permit a build-up of forces prior to a continental invasion of Europe.⁶⁰ This strategy envisaged a limited war in the Pacific, for at least two years, in the hope that relatively small-scale actions could exploit Japanese economic vulnerability.⁶¹ After the launch of a transpacific counterattack to gain advanced bases for air and sea control, victory would be achieved by reducing Japan's war economy to exhaustion through blockade and air bombardment, allowing the bypassing and neutralisation of much of Japan's formidable land forces.⁶² It was a fundamentally maritime strategy. Many historians have been unkind to the War Plan Orange/Rainbow series, claiming accurately that the US had nothing like the offensive capability required to execute these plans at the commencement of the war. These criticisms suggest that the plans represented a 'building plan' for the USN designed to win budget appropriations rather than a strategic blueprint calibrated to real-world conditions for the conduct of the Pacific war.⁶³

Calibrating these real-world conditions was the principal task of the Chief of Naval Operations, Admiral Ernest King. US concerns over strategy in the Pacific were brought into sharp relief at the Arcadia Conference in December–January 1941–1942. While both sides remained committed to the 'Germany first' principle, differences with Britain in interpretation over the relative importance of operations in the Pacific established a theme that ran through Allied strategic planning for the duration of the war.⁶⁴ Admiral King was, both by personal inclination and by service orientation, predisposed to commence offensive operations in the Pacific at the earliest opportunity. The USN's principal concern was to ensure that 'Germany

first' was not interpreted as 'Germany only'.⁶⁵ This was the strategic origin of Allied operations in the Solomon Islands in August 1942. Guadalcanal's importance lies in the fact that, however rudimentary the amphibious assault was by later standards, it came just eight months after the attacks on Pearl Harbor. Guadalcanal was the final operation in the 'offensive-defensive' phase of the Pacific war, signalling the commencement of an American counterattack in the Pacific that the Japanese had not anticipated was possible until late 1943 or 1944.⁶⁶

The speed with which the USN's central Pacific counteroffensive commenced was only possible due to the US's massive industrial capacity—a capacity that allowed it to almost discard the plan to stand on the defensive for two years prior to launching offensive operations, a concession won at the Casablanca Conference in January 1943. Prior to Casablanca the European theatre received 85 per cent of the allocation of amphibious platforms emerging from US shipyards and factories.⁶⁷ After Casablanca, the Pacific's share of resource allocation doubled, and then increased again later in 1943 in accordance with decisions concerning amphibious assaults planned for the European and Pacific theatres reached at the Trident and Quebec conferences in May and August 1943. Ultimately these decisions demonstrated that US industry was capable of resourcing the 'near paradox of unwavering commitment to Europe first and an almost equal measure of expenditure in the Pacific'.⁶⁸

Amphibious Practice, Operational Art and Tactical Method

Different strategic designs for the war in the two theatres drove differing approaches to the operational utility of amphibious operations. In Europe, the operational design was dominated by the necessity to defeat the German Army in the field, an objective only achievable by decisive land operations. By contrast, in the Pacific, the storm landing capability gave the Americans the ability to generate operational-level tempo to which their Japanese opponents could not respond.⁶⁹ The decision to launch the attack on the Marianas in June 1944 illustrates how abruptly the Pacific war changed. The US 5th Fleet captured the Gilbert and Marshall islands in less than 100 days, an achievement undreamed of in 1942.⁷⁰ Admiral King, appreciating the fundamental change in circumstances this represented, ordered the Commander of the US Pacific Fleet, Admiral Chester Nimitz, to launch the next phase of the attack towards the Marianas rather than at the Japanese base at Truk as the initial US war plans had envisaged. King understood that land-based aircraft operating out of newly captured bases in the Gilberts could suppress and bypass Truk, rendering it isolated and irrelevant. The decision offered the chance to shorten the war at a stroke, placing the Japanese home islands within range of US B-29 bombers and provoking a decisive fleet battle with Japan's Combined Fleet in the Philippine Sea.⁷¹ In weeks, the US military advanced 2,000 miles towards the Japanese home islands. If the acme of operational art is the ability to choose where and how to give battle so as to link tactics most efficiently to strategy, then storm landings created the opportunity for genuine operational thinking within Pacific maritime strategy.

In 1943, even outspoken advocates of the central Pacific campaign admitted serious concerns over the risk that the campaign entailed, expressing doubts about whether any US campaign could exist beyond the protective umbrella of land-based aircraft and at extended ranges beyond fixed repair and replenishment facilities. Successful execution of storm landings in 1943–1944 finally validated the doctrine, demonstrating the US capacity to wield combat power of unparalleled scale. Throughout the first 27 months of the war, Nimitz had been obliged 'to safeguard his carrier fleet as if they were the crown jewels'. In the Marianas, Admiral Marc Mitscher,

Commander of the Fast Carrier Task Group (TF58), commanded a force of 15 carriers, seven fast battleships, 21 cruisers and 69 destroyers. TF58 was but one of several similar-sized task forces. A fleet of this scale allowed the Americans to conduct operations simultaneously rather than sequentially, adding to the tempo they could achieve. As the British were to discover in 1944–1945, ‘the scale and rate of the USN’s operations were of an order of magnitude greater than anything the RN had previously contemplated’.⁷² All of the US platforms were essential to the long-range, large-scale, self-sustaining amphibious assaults conducted under the protective umbrella of carrier-based aircraft that characterised storm landings.

This tempo allowed the US to consistently attack objectives before the defence could be fully prepared. Japan’s Ambassador to the United States at the time of the attack on Pearl Harbor, Admiral Kichisaburo Nomura, acknowledged to his interrogators after the war that ‘everywhere you attacked before the defence was ready. You came far more quickly than we expected’.⁷³ The incomplete defensive work reflected the interrelationship between the various components of the Pacific operational design, the blockade of Japan and the wider campaign in the central Pacific. The US submarine force imposed devastating losses on Japanese cargo shipping, destroying thousands of tonnes of steel, cement, heavy guns and tanks, and thousands of men destined for the islands of the outer defensive sphere of the empire.⁷⁴

The operational design employed in the two theatres also reflected a fundamental difference in the nature of the enemies the Allied combatants faced. In Europe, the main threat to an amphibious landing was a ground-based counterattack force, especially one that was heavily equipped with tanks. During the invasions in North Africa and the Mediterranean, the Luftwaffe and Italian navy retained the capability to threaten lodgement from the air and sea, but by Normandy the situation in the air and on the sea had turned decisively in favour of the Allies. At Normandy, limited attacks by the Luftwaffe and Kriegsmarine were attempted, but Allied air and naval superiority ensured that ‘the bridge of ships carrying the allied armies and their material strength from Britain were never seriously disrupted’.⁷⁵

The Normandy planners estimated that the leading elements of two motorised divisions could begin arriving at the beachhead by D+7 hours.⁷⁶ Compromising the secrecy of the landing was potentially disastrous, but planning was complicated by the fact that the German Atlantic Wall

defences were more complex and sophisticated than those experienced elsewhere in the European theatre. In response, planners needed to develop a hybrid tactical plan that maintained speed and surprise while providing enough fire support to overcome the defences on the beaches. Omaha Beach, in particular, required a storm landing but the wider operational plan necessitated a European-style theatre entry assault.

Tactically, the threat in the Pacific was of a fundamentally different nature. Japan was only capable of making local counterattacks with infantry and limited numbers of tanks. The USN's enormous maritime capability allowed it to besiege Pacific objectives by sea and air power and isolated from reinforcements. Where the Pacific navies were most vulnerable was by counterattack from the air and sea by the Japanese Combined Fleet. Japan's air and maritime forces retained considerable power until the late stages of the war, and once the central Pacific campaign came within range of land-based air power at Iwo Jima and Okinawa, fleet action was supplemented with conventional and Kamikaze air attack. This too drove many of the tactical choices applied in the Pacific. In Europe, German defenders fought tenaciously but generally not suicidally. By contrast, in the Pacific, battles that commenced with storm landings would continue until all the Japanese defending garrison either were killed or committed suicide. Japanese defensive tenacity flowed, in part, from a deliberate operational technique intended to prolong ground fighting in order to expose the American fleet to air and sea attack. The Japanese hoped that if the cost of the Pacific campaign could be made impossibly high then the Allies would retreat from their uncompromising position of unconditional surrender. This drove the development of Japan's 'Fukkaku' tactics—the use of underground, honeycombed defence—the high point of which came at Okinawa. On Okinawa, the Japanese finally acknowledged the futility of attempting to defend the water's edge in the face of US naval firepower and withdrew inland to pre-prepared defensive positions on the Shuri line.⁷⁷

Allied experiences at Normandy, Iwo Jima and Okinawa suggest that each style of amphibious operation may have approached breaking point. The Normandy landings were the ultimate example of a theatre entry assault. While the landings were ultimately successful, they came closest to failure where local tactical conditions approached those necessitating a Pacific-style storm landing. This occurred most notably at Omaha Beach, and problems with the allocation and control of offensive support,

command relationships, unit structures and equipment occasioned greatest contemporary and subsequent historical criticism. Similarly, in the Pacific, the tenets of storm landing came under greatest stress where local tactical conditions began to approximate larger scale land campaigns. Taken collectively, this section will examine command and control, offensive support and structural refinement. While not the only examples, these three aspects provide the best exemplars of the differences in evolution of tactical practice between the theatres.

To achieve efficient command and control, US forces assigned to the Pacific and European theatres adopted very different systems and structures, broadly summarised as unity of command and mutual cooperation. Unity of command was the doctrinal model for command of amphibious operations set out in the *Tentative Landing Manual* and subsequently adopted in the USN's *FTP 167*.⁷⁸ It was therefore natural that this command model was followed in the Pacific theatre where the USN and USMC forces predominated both numerically and in terms of senior command appointments. The model held amphibious operations to be a wholly naval matter, decidedly not joint in nature, and therefore to be under the command of a Navy commander.⁷⁹

At Guadalcanal, disagreements between the overall commander of the operation, US Admiral Frank Fletcher, and the Marine landing force commander, Major General Alexander Vandegrift, demonstrated that *FTP 167*'s doctrine of unity of command required revision. The principal lessons of Guadalcanal were twofold. First, it revealed that the unity of command invested in Fletcher did not guarantee unity of effort. Fletcher perceived his primary concern to be the safety of his carriers, not the amphibious mission that Rear Admiral Turner, the amphibious force commander, and Vandegrift were focused on. As Japanese sea and air attacks intensified, Fletcher chose to withdraw his carriers, forcing Turner to withdraw the now exposed amphibious shipping and abandon the marines ashore.⁸⁰ The second lesson was that the landing force commander required a greater voice in planning the operation in order to advocate the requirements of combat ashore.⁸¹ At Guadalcanal, Vandegrift struggled to prevent Turner meddling in his affairs and attempting to reconfigure the landing force and divert them to subsequent missions. Since the landing force remained under Turner's full control, he had the authority to do so.⁸²

By Tarawa in 1943, Commander US 5th Fleet Admiral Raymond Spruance consistently demonstrated the importance of assigning sufficient support to the marines ashore.⁸³ In part, this emphasis reflected the vastly greater fleet that Spruance commanded—a fleet that now allowed him to resource several competing priorities simultaneously. It also reflected the Navy's deepening maturity and understanding of the vital role played by amphibious operations within a wider Pacific strategy. Additionally, by Tarawa the USN acknowledged that the landing force commander had unique priorities that demanded a commensurate role in planning.⁸⁴ The resulting compromise designated the landing force commander to be *coequal during planning* in order to give the ground commander appropriate input to the plan, but *subordinate during execution*.⁸⁵ The uneasy ambiguity that resulted from this definition relied on Navy and Marine organisations that were familiar with one another. The staff of the Amphibious Fleet, Pacific Forces and V Amphibious Corps USMC would plan and execute every storm landing in the Pacific until Okinawa in 1945, developing a huge depth of practical experience and mutual understanding that eased the practical difficulties of unified command.

As the war progressed and the size of ground objectives and the forces assigned to attack them grew, the doctrine of unified command came under increased pressure. The issue that demanded greatest appreciation was when and how to transfer command to forces ashore. The *Tentative Landing Manual* and *FTP 167* outlined procedures for this evolution but gave it relatively little discussion, consistent with the perception that amphibious operations would not involve sustained land combat. This assumption was rebutted at Okinawa, where sustained land combat exposed the tension. At Okinawa, the land force had expanded to the size of a field army, three times larger than at Iwo Jima, and had been commanded for the first time by an Army officer, Lieutenant General Simon Bolivar Buckner.⁸⁶ Despite this, it was not a traditional land campaign. It remained a storm landing, albeit on a vast scale, reliant on logistic sustainment and offensive support from the sea.

Buckner's tactical methods were appreciably slower and more deliberate than those of Marine commanders such as Lieutenant General Holland Smith, and they came under enormous criticism from naval commanders who believed that the slow land campaign exposed their ships to unnecessary losses at sea.⁸⁷ Spruance and Turner pressed Buckner to accelerate his advance. Nimitz was concerned enough to fly out from Pearl Harbor to express his dismay over the fact that 'he was losing a ship and a

half each day' in the waters around Okinawa.⁸⁸ This tension was heightened by Buckner's reluctance to employ subsidiary amphibious attacks to turn the flank of the Japanese Shuri defensive line. His reluctance stemmed in part from wariness, common to many senior Army officers, about employing forces too distant from his main effort—the major institutional lesson the US Army drew from Anzio. Eventually Buckner relented and the Marines planned and executed a division amphibious assault within 36 hours to capture the Oroku Peninsula and open the port of Naha.⁸⁹ The division's ability to plan and conduct this assault in such a short space of time is testimony to the USMC and USN staffs' planning ability by this stage of the war. It would stand in sharp contrast to operational methods in the European theatre.

In Europe, command and control during amphibious operations followed the doctrine of mutual cooperation between coequal commanders. This arrangement flowed principally from the fact that forces assigned to conduct and support amphibious landings were drawn from the US and Commonwealth armies and air forces, not the USN.⁹⁰ Consequently, operations in Europe would conform more closely to the tactics envisaged by *Joint Action of the Army and Navy* and the *Field Service Regulations* rather than the *Tentative Landing Manual* and *FTP 167*. The component command arrangement in Europe was designed to provide command arrangements that would outlast the amphibious phase of the operation and retain utility for the duration of the campaign that inevitably followed.⁹¹ This gave the services greater ability to determine their own priorities. As a consequence, issues such as gaining air support for major land operations, and decisions over the rate of logistics flow across the Normandy beaches, required a level of consultation and cooperation that was not required in the Pacific.⁹² These command arrangements were also influenced by the British raiding experience and highlight the continuing role played by COHQ. The Combined Commanders remained reliant on COSSAC to provide institutional cohesion and to assist in blending the differing service perspectives and cultures.⁹³ They were not a true joint headquarters in the way that would be understood in a modern sense. Indeed, the effectiveness of this construct reduced after Operation NEPTUNE was completed.

Montgomery's failure to rapidly clear the Scheldt Estuary in order to open the port at Antwerp is arguably the best example of the consequences of the service component-centric command structure.⁹⁴ His 21st Army Group Headquarters was a traditionally structured land force headquarters

with no specialised amphibious planners. In contrast, the specialised planners of COHQ had no large-scale forces available to them. COHQ retained command of some of the Special Service Units (specifically RM and Army Commandos and supporting landing craft), but no division-sized formations.⁹⁵ The absence of a coherent headquarters capable of rapidly planning and executing short-notice combined operations—like those undertaken by the USN and USMC at Okinawa—may explain, in part, why tactical-level amphibious manoeuvre did not feature in the European campaign in the way that it did in the central Pacific and SWPA.⁹⁶ Ultimately, the command and control arrangements that were applied in the European theatre reflected the compromise that each service needed to make in order to adapt to roles and tasks that were outside what they perceived to be their primary purpose. It was a fundamentally different outlook on the primacy of amphibious operations as a warfighting discipline.⁹⁷ This sense of compromise would profoundly influence the way in which supporting effects such as air and naval gunfire support were arranged.

Critics of the plan developed for Omaha Beach are particularly pointed on this subject. Adrian Lewis alleges that ‘the fire support plan for the Normandy invasion failed at Omaha’ and that Omaha ‘shows conclusively that the planners of the Normandy invasion violated their own doctrine and by doing so rejected the cumulative body of knowledge gained in amphibious warfare since the Gallipoli campaign’.⁹⁸ Further, Ralston suggests that the plan developed for Omaha revealed fundamental incompatibilities in ‘the British preference for tactical surprise versus the American preference for overwhelming firepower’.⁹⁹ This study suggests that, while the fire support arrangements at Omaha did indeed fail, these failures need to be appreciated alongside the wider factors that drove amphibious planning for the Normandy landings. It is correct to suggest that the plan for Normandy required planners to reconcile two almost irreconcilable styles of amphibious warfare, but it is completely wrong to ascribe them to particular national preferences or doctrinal practice. As Ralston notes:

In the end, the H-Hour decision came down not only to the issue of providing adequate time to clear the obstacles on the beach but also to a compromise related to a number of different strategic, operational and tactical factors. Low tide landings would have simplified the task of the combat engineers and Naval Combat

*Demolitions Units, but then the infantry would have taken heavy casualties charging unprotected across a flat beach for a half a mile or more. The landing craft from the initial waves would also have been stranded and have to wait for the tide to come in before they could retract from the beach. A landing at high tide would have completely deprived the combat engineers and NCDU of the opportunity to clear the obstacles. To land much earlier than an early morning high tide deprived the Navy and Air Force of enough daylight to conduct preliminary bombardment. To land on a falling tide meant the Allies would not have two full high tides for the off load and build up. To wildly stagger H Hour for each of the beaches would mean losing the element of surprise at some of the beaches.*¹⁰⁰

At Normandy, Admiral Ramsay remained firmly of the belief that:

*naval gunfire neutralises rather than destroys ... therefore ... with our existing weapons the aim of the assault fire plan should be to put down as heavy a barrage of HE [High Explosive] fire as possible, with the object of demoralising the defenders rather than to rely on aimed fire with the object of destruction.*¹⁰¹

Ramsay's thinking was consistent with both British and American prewar doctrine and practice, but was strongly opposed by several USN officers who were familiar with the experiences of the Pacific. After Tarawa, the USN conducted a thorough review of the naval bombardment and discovered that, despite its unprecedented scale and ferocity, it had scant effect on Japanese defences on the beach.¹⁰² In response the USN's approach was to use neutralisation fire during the pre-assault phase to suppress enemy infantry, but to precede this with several days of 'prolonged, deliberate, destructive pinpoint fire against known or suspected difficult targets'.¹⁰³

The Allied Naval Commander Expeditionary Forces planners examined USN experiences in the Pacific but cautioned against drawing too many lessons from them due to the different environmental and operational circumstances that existed.¹⁰⁴ Firstly, despite the scale of NEPTUNE, it did not have the ships allocated to replicate a Pacific-style barrage and provide screening forces against German surface forces simultaneously. Secondly, Ramsay did not have the time available to conduct the methodical destruction of enemy strong points apportioned to his Pacific counterparts without risking the arrival of a German land-based counterattack against the beachheads.

The decision to preference neutralising fire and surprise rather than a time-consuming destructive fire plan was supported by Eisenhower, Montgomery and Bradley, thus providing both inter-service and multinational unanimity.¹⁰⁵ Ramsay's logic was therefore difficult to fault given the constraints he was forced to contend with. In response to these irreconcilable challenges, planners resorted to air power as an alternative means of support.

In lieu of heavy naval gunfire support, the NEPTUNE planners incorporated a massive USAAF bombing raid into the pre-assault fire plan. Bombing appeared to offer the promise of significant destruction of both coastal batteries and beach obstacles in a very short period of time, thus alleviating the risk to operational security. Ultimately the raid did not achieve the desired effect, and the reasons for its failure are another example of strategic and operational factors cascading into tactical practice. The need for daylight to achieve accurate bombing necessitated timing the raid immediately before the first waves of the assault craft landed. While the air forces' claims of a precision bombing capability proved wildly optimistic, their inaccuracy was unsurprising given that they employed an untested technique (radar-guided precision bombing) in a discipline (close air support) that neither the RAF nor the USAAF considered their principal role.¹⁰⁶ The failure of pre-assault bombing illuminates the consequences of giving component commanders the authority to select the way in which their forces provide support to the wider plan.

Writing after Operation HUSKY, the Commander of Allied Amphibious Forces for the invasion of Sicily, US Admiral Kent Hewitt, noted:

*The weakest link in the joint planning of the US forces was the almost complete lack of participation by the Air Force. Thus the Naval and Military commanders sailed for the assault with almost no knowledge of what the Air Force would do in the initial assault or thereafter.*¹⁰⁷

By Normandy, the situation had improved significantly, with fighter direction officers embarked in ships collocated with naval and military commanders. Despite this, Rear Admiral Kirk, the Commander Western Naval Taskforce, still lamented the complex arrangements for command and control of tactical aircraft supporting the invasion, noting:

Operational control was exercised by the Commander Advanced Allied Expeditionary Air Force at Headquarters, Uxbridge through the Combined Operations Room and Combined Control Centre,

Uxbridge. Requests for air support originating on the continent [or at sea] were transmitted directly to 21st Army Group Operations Room at Uxbridge by the Air Support Party attached. All requests were filtered in the 21st Army Group Operations Room and passed to the Air Force Combined Operations Room for action.¹⁰⁸

This system worked, but it resulted in long delays between requests for air support and the arrival of aircraft. Compared to the direct control that USN commanders were accustomed to exercising over tactical aircraft supporting the fleet in the Pacific, the system appeared unnecessarily complex and inefficient. These problems resulted from the strategic decision (codified in Rainbow 5, noted above) to vest the ground war and air war with equal importance.¹⁰⁹ As a result, both RAF and USAAF commanders maintained an almost obsessive desire to demonstrate the independent strategic utility of their respective forces, a tendency enhanced by command and control arrangements that were intended to outlast the amphibious operation. While this single-mindedness allowed them to prioritise resources to support a range of competing demands, it came at the cost of responsive and immediate air support for amphibious operations. Given the role amphibious operations played within a larger whole it was an inevitable compromise, but it is arguably fortunate that it was not tested by the Luftwaffe with the same determination as the Japanese navy and air force displayed.

Disagreement around the relative importance of support to ground forces (battlefield interdiction and close air support) vice independent strategic bombing was reflected in the types of missions that air forces prioritised.¹¹⁰ The RAF's technical ability to provide close air support and interdiction of Axis lines of communication was outstanding, primarily due to its experiences in North Africa. Nevertheless, the services' desire to perform the role was heavily dependent on the personalities of its senior leadership.¹¹¹ Operation TRANSPORTATION, the plan to interdict the movement of Axis armoured reinforcements to the invasion beachheads, demonstrates the influence of individual opinion.

Eisenhower's deputy, Air Chief Marshal Tedder, was the main proponent of the plan. In February, Air Marshal Harris of Bomber Command and General Spaatz of the Eighth Air Force received warning that preparations for Overlord would require their heavy squadrons to be diverted from the strategic bombing offensive against Germany. Harris, who believed obsessively that his bomber force was

*on the point of bringing Germany to its knees, objected strenuously. He wanted his aircraft to continue smashing German cities to rubble, insisting that there should be only minimum diversions from the task of reducing the enemy's material power to resist the invasion.*¹¹²

Questions around the effectiveness of air interdiction lay at the heart of German disagreements over the most effective tactical response to the Normandy invasion. Rommel's experience with Allied air power in North Africa convinced him that German tactical reserves needed to be sited close to the beachheads if they were to have any chance of defeating the invaders. Others, including his superior Generaloberst Heinz Guderian, maintained that a massive Panzer reserve held in the forests north of Paris, poised to counterattack once the Allied main effort was revealed, would be more effective. Ultimately Rommel was proved correct. A Panzer regiment commencing a counterattack from Caen on the morning of the Allied invasion started its move at 0800 with 104 Mk IV tanks. It arrived in the battle area late that afternoon with fewer than 60 serviceable vehicles after a long road march on routes exposed to fighter bomber attack.¹¹³

It is difficult to explain why Montgomery, a commander who had seen the effectiveness of RAF close support firsthand in North Africa, did not allow the invasion plan to be shaped more completely by it. Had the Combined Commanders placed greater faith in the air forces' ability to interdict German reserves, it would have cut the Gordian knot of H-Hour, tide and fire support timings at a stroke. A potential explanation, and one worthy of further examination by historians, may be that the acrimonious and internecine RAF and USAAF opposition to Operation TRANSPORTATION did not leave Montgomery (and other senior naval and military commanders) with sufficient faith that it would be properly supported and implemented. He could reasonably count on support for a single massive bombing raid on the morning of H-Hour, but arguably not on the prolonged diversion of resources required to fully implement TRANSPORTATION. Guaranteed control over theatre air resources would have alleviated the attendant risks, but the mutual cooperation model did not place this option within his gift.

The Pacific model eased the problem of command and control in two ways. The maritime nature of the campaign greatly reduced the requirement for USAAF land-based heavy bomber forces. This meant that aircraft supporting amphibious operations were dedicated solely to providing air defence for the fleet, maritime strike against enemy shipping, or close air support for land

forces ashore. All of these roles were performed by naval or marine aircraft that were under the command of the naval task force commander. This approach gave naval air operations an unmatched level of responsiveness, ultimately demonstrated by the finely judged strike launched by the Commander of Fast Carrier Task Force 58, Admiral Marc Mitscher, during the Battle for the Philippine Sea in June 1944.

Close air support did not fare as well until late in the war. As early as the initial drafts of the *Tentative Landing Manual*, Marine doctrine called for close air support provided by specialised Marine aviation units to be used in lieu of artillery. Despite this, Bougainville would represent the last time Marine tactical aircraft provided direct support to a landing force until the attack on Peleliu 10 months later. The striking distances involved in the Pacific exceeded the range of marine land-based fighters, and it would take nearly a year until Marine squadrons assigned to CVE and CV carriers would support a major amphibious assault.¹¹⁴ The USN resisted embarking Marine squadrons on Navy carriers, preferring instead to assign naval fighter squadrons. Naval command and control was optimised for fleet defence, and requests for support from ground units could take up to an hour to fulfil, by which time the tactical situation on the ground had often completely changed. Marines contended that naval pilots simply did not understand close air support; nor were they trained to properly assess and understand the ground situation from the air.¹¹⁵ By Peleliu, the USN had built sufficient fleet carriers and escort carriers to embark Marine squadrons on their own dedicated escort carriers, and at Iwo Jima integration of close air support with naval and artillery fire support became truly effective. By Okinawa, target information centres (TICs) were established from the level of the 10th Army to that of the battalion, and each TIC provided a centralised target information and weapons assignment system that was responsive to both assigned targets and unplanned targets. These capabilities were matched with component liaison officers from air, naval gunfire support and artillery to assign the most effective fire support resource to the target.¹¹⁶

Fire support coordination processes were just one of several examples of the way in which land unit structures and processes were varied to suit the different conditions of the European and Pacific theatres. In April 1942, General Marshall and Admiral King agreed that 'the divisions of the US Army would be assigned to undertake the amphibious assault role in Europe while Marine amphibious operations would be confined to the Pacific'.¹¹⁷ This

decision came in response to a disagreement over whether to make several Army divisions lighter and organised specifically for amphibious operations. The Army and War Department refused, arguing that 'an amphibious operation is only the opening phase of a larger ground campaign'.¹¹⁸ Eisenhower contended that 'all Army divisions should be capable of conducting operations for the larger scale ground war expected in Europe, while a select few Army divisions should be made familiar with details of amphibious operations'.¹¹⁹ This fundamental difference of opinion was reflected in the ways in which Marine and Army divisions were structured and optimised for the amphibious role. It was also reflected in the ways in which tanks were used in support of assaults, the number of specialised landing craft their divisions contained, and the type and quantity of infantry weapons they carried.

Landing tanks quickly and early in support of ground forces was frequently decisive in determining how quickly soldiers and marines could establish a foothold on the shore of an enemy-held coast. How and when tanks got ashore was determined by what they were expected to do once they got there. By May 1944, the Marine Corps had revised its divisional structure for the third time during the Pacific war. The F Series division was smaller and lighter than the Guadalcanal era division, but possessed greater lethality and a better capacity to be combat-loaded onto Navy shipping.¹²⁰ Its increased lethality came in part from 46 M4 Sherman tanks, now included in every division.¹²¹ In the Pacific, the role of tanks was unambiguously to provide intimate direct-fire support to the assaulting infantry. Absent the requirement for large-scale decisive land manoeuvre, Marine divisions could optimise their tank structures to achieve this more focused task. Because of this role clarity, the Marines developed some of the most effective tank–infantry cooperation drills of the war.¹²²

By comparison, tank–infantry cooperation within the US Army in Europe was beset by chronic defects that persisted for the duration of the war. Armoured force officers frequently exhibited a distaste for working with infantry, insisting that shock action and mobility in a decisive breakout was armour's unique contribution to the battlefield, not that of a mobile pillbox.¹²³ Consequently they resisted attempts to standardise tank–infantry cooperation drills. This partly explains the US Army's reluctance to embrace 'Hobart's funnies' or the Duplex Drive (DD) floating tanks designed specifically for D-Day. All commanders agreed that the fire support they

provided was excellent, but disagreed on whether the effort and risk involved in floating and swimming them ashore provided a sufficiently dependable and mature capability on which to base a plan. Ultimately, opinions on the utility of DD tanks were mixed after D-Day.¹²⁴ When they got ashore they were excellent, but at Omaha, 27 of the 32 tanks that were launched sank, seemingly validating at least some of the scepticism.¹²⁵

In assessing the decisions made over keeping divisional structures general or more specialised, once again balance and understanding of the wider issues is required. Infantry divisions possessed neither organic tank nor tank destroyer battalions, and attaching tanks from armoured divisions never met the level of communications and tactical interoperability that tank–infantry cooperation required.¹²⁶ For this reason, some US commanders felt that putting tanks into the assault divisions would force them to alter their organic structures too greatly to achieve a minor part of a larger operation. Infantry divisions had none of the organic maintenance, supply and logistic infrastructure to support tanks, and reorganising them risked creating bespoke divisions specifically for D-Day, with all the attendant difficulties that this would present for the later land campaign. This was exactly the circumstance that Eisenhower had cautioned against. To many US officers, the solution was to allow the infantry to assault, capture and defend the beachhead, and then allow armoured divisions to come ashore as coherent units in follow-on waves to consolidate and prepare for the breakout. Montgomery's projections envisaged exactly this scenario: eight divisions ashore by the end of D-Day, 12 divisions ashore by D+2, and 18 divisions ashore by the end of the first week.¹²⁷

The second major difference between Army and Marine divisional structures was in the allocation of LVTs. At Guadalcanal they had been used to ferry logistics to troops ashore, but operations at Tarawa demonstrated the utility of these vehicles in the assault.¹²⁸ The Marines employed 87 LVTs at Tarawa but by Okinawa their number had exploded to 872. LVTs provided a perfect solution to the problem of delivering troops from transport shipping, through the line of departure, and directly onto the beach under armoured protection. The LVTs' .50 calibre machine guns could continue to support the troops once ashore, and assaults from Saipan onwards were also supported by LVT-A variants that mounted a 75 mm gun. Each Marine division included a battalion of LVTs to carry its assault waves, and these vehicles were operated by Marines from the division they supported. Ultimately, LVTs were one of the key capabilities that made storm landings

possible.

Used in very limited numbers, LVTs did not feature at Normandy in any significant way. A likely explanation is that the tensions between optimisation and generalisation in amphibious practice re-emerged. Despite their numerous advantages, LVTs were not well suited to travelling large distances over land, and mechanically they were not particularly reliable. In the Pacific, where inland combat distances were short and where broken vehicles could be recovered to shipboard workshops for maintenance, these drawbacks generally made little difference. In Europe, however, this situation was different. Once ashore, vehicles and equipment stayed ashore and prepared for the land campaign to follow. It is probable that the Army was reluctant to restructure some of its divisions to adopt a vehicle variant that would impose a significant manning and training liability while providing limited operational utility. In the Pacific, by contrast, where Marine and Army units engaged in prolonged ground combat over longer distances (as occurred for the first time at Guam and Tinian), the USMC suffered from a lack of organic transport within their divisional structures. The Marines deliberately chose to reduce the divisional allocation of trucks in favour of LVTs to make the division easier to combat-load onto shipping. The tracked LVTs were useful as an assault craft and to carry small quantities of supplies or casualties over short distances across rough ground. As combat moved inland, Marine units found that the lack of large numbers of wheeled trucks that could carry sizeable quantities of supplies over large distances made supporting their artillery batteries with ammunition progressively more difficult.¹²⁹

Finally, the evolution of infantry small arms and supporting weapons demonstrated the tensions present in efforts to simultaneously optimise and specialise capabilities. In comparison with US Army divisions in both Europe and the Pacific, USMC divisional structures became optimised for close-range battles of annihilation with huge increases in the amount of short-range automatic fire and high explosive they could produce. Specifically, the Series F division evolved to include 243 portable flamethrowers (increased from zero in 1942); 306 12-gauge shotguns (increased from zero); 117 60 mm mortars (increased from 63); 853 Browning automatic rifles (increased from 513); and 12 105 mm self-propelled howitzers for use in the direct-fire siege gun role against Japanese cave emplacements.¹³⁰ These infantry weapons would be supplemented by tanks and tank-mounted flamethrowers that were joined together to form a highly effective combined

arms team.¹³¹ This approach was unique to the Marines and stemmed from their ability to narrowly focus on a specific style of combat that was optimised for a particular geography and enemy. US Army divisions retained a far more generalist structure for the war's duration.

Operation DOWNFALL: the Collision of Operational Art and Tactical Techniques

Operation DOWNFALL, the planned two-phased invasion of Japan, was staggering in its dimensions. Over 5 million men and 2,700 amphibious ships were preparing to execute the two largest amphibious landings in history. Operation OLYMPIC would attack Kyushu with 14 divisions in the amphibious assault while Operation CORONET would attack Honshu with 25 divisions in the assault. The forces used for OLYMPIC would come from within existing formations in the Pacific, while many of those projected for use in CORONET would be transferred from Europe or elsewhere within the Allied sphere. Alexander has described this undertaking as a collision course and, in the sense that he was predicting a final confrontation between the armed forces of the Allied powers and Japan, he was correct.¹³² Yet in a wider sense during DOWNFALL the two different styles of amphibious techniques were also on a collision course. The experiences of the Allied forces in Normandy, Iwo Jima and Okinawa offered glimpses that the highly evolved operational and tactical amphibious practices of the two major theatres had reached the limits of their development. Operation DOWNFALL would have required a storm landing of unprecedented scale, yet also a large-scale land campaign of equally significant proportions and duration. The competing priorities prompted disagreements over the major issues of strategy, operations and tactics.

Early in the planning, previously suppressed tensions over strategy re-emerged. Marshall continued to believe that the only way to force an unconditional surrender was to invade and occupy the home islands, a concept consistent with the Clausewitzian institutional thinking of the US Army. By contrast, the senior leadership of both the Navy and the Air Force maintained faith that the air and sea blockade might eventually compel Japan's capitulation.¹³³ The war's final act also required coordination with Allied forces from Britain and the Commonwealth to a greater degree than had occurred previously in the central Pacific. The operational design that MacArthur eventually selected involved occupying the southern third of Kyushu in order to prepare air bases to support the invasion of Honshu.¹³⁴ The plan was strongly reminiscent of MacArthur's operations on Leyte in the SWPA. While operationally brilliant, deliberately allowing Japanese forces to

remain in the greater two-thirds of the island was of concern to the Navy, who were obliged to project and sustain the invasion force under threat from the greatest number of Kamikaze and other suicide techniques yet witnessed.

Further tensions between the two approaches emerged. A series of bitter exchanges between the Joint Chiefs in early 1945 over command and control resulted in an uneasy compromise. For the first time in the central Pacific war, the command arrangements abandoned the principle of unity of command. MacArthur would lead the planning, but with his landing force placed under the temporary command of the naval amphibious commander during the amphibious phase (unless some unspecified emergency occurred that necessitated his resumption of full command).¹³⁵ The plan placed the strategic bomber forces under the command of a newly created and coequal air commander, and made them available to either MacArthur or Nimitz on request.¹³⁶ This system was a faint echo of the component command arrangements that MacArthur and Admiral Dan Barbey employed in the SWPA, blended with the European coequal and the Pacific unity of command models. In another aspect more reflective of European theatre entry operations, the plan employed support from land-based bombers to interdict the mountain passes through which Japanese reinforcements had to move. Contesting the landing were three entire Japanese field armies, which, while limited by lack of fuel and ammunition, retained considerably more capacity for operational mobility than most Japanese forces had displayed in the central Pacific war to date.¹³⁷

Given the fact that DOWNFALL was cancelled prior to its execution, any detailed analysis of it is fundamentally ahistorical, but the disagreements attending the operation's preliminary planning bear out the arguments that this study has sought to demonstrate. While there was never any real prospect that Japanese forces would prevail on Kyushu or Honshu,¹³⁸ it seems improbable that the Allies could have executed another hybrid operational plan without significant friction. It seems more likely that executing the greatest storm landing of the war, in combination with one of the war's most violent land campaigns anticipated, was an irreconcilable challenge.

Conclusion

It is fair to say that between 1942 and 1945 the Allies developed two highly sophisticated styles of amphibious warfare—styles that evolved in response to the strategic objectives that existed in the major theatres of the war. In both theatres, strategic options were initially constrained by resource availability, and in Europe this situation was compounded by the demands of coalition warfare to a degree unmatched in the Pacific.¹³⁹ This resulted in Allied forces undertaking a series of amphibious operations in North Africa and the Mediterranean—operations that reinforced prewar doctrinal thinking and produced a continental operational design that, in turn, shaped specific tactical practices of command and control, offensive support, and unit structures and capabilities. In the Pacific, the alleviation of resource constraints allowed the war to be prosecuted with greater efficiency and fidelity to prewar doctrine and strategic thinking but over distances and at a scale unimaginable to prewar thinking.¹⁴⁰ Ultimately each was successful in the environment for which it was designed, yet where and how frictions occurred sounds a cautionary note for modern militaries.

Attempting a comparative analysis that traces the evolution of amphibious warfare from strategic concept to tactical practices is complicated by the fact that there is relatively little literature on this subject. Certainly there is a vast scholarship dealing with the strategy and operational conduct of each theatre individually, and an equally vast literature that examines the tactical experiences of amphibious operations. Nevertheless, there is relatively little that compares and contrasts strategy against tactics, and virtually none that attempts to trace operational trends through the Second World War. Given the vibrant debate over future strategic directions in major Western nations, this is an area that is worthy of far greater historical attention. The experiences of the Allied forces between 1942 and 1945 continue to resonate strongly with contemporary military organisations. Therefore, understanding the ways in which coherent national strategy shapes military doctrines, capability and ultimately operational and tactical practice remains essential. This is because understanding these processes positions modern militaries not only to better understand the development of their own capabilities but also to identify where their limitations may lie.

For the contemporary Australian Army, neither of the two approaches to amphibious operations described above is likely to offer a precise template for future force design or operations, despite the requirement for an expanded focus on combined arms amphibious manoeuvre. Instead, the future Australian Army will need to understand and draw judiciously on elements of both approaches, while simultaneously considering the relevance of field capabilities that were unknown to the militaries of the Second World War. While the strategic geography of the Pacific theatre more closely aligns with what the ADF now describes as its primary area of military interest, the vast expanses of the mid-Pacific, and the enormous contributions of naval power required to dominate them, are less likely to align with the need for the Australian Army to project and sustain forces into the 'inner arc' of islands surrounding Australia's immediate approaches.

The Pacific region features relatively large and heavily forested landmasses that required large-scale land forces to effectively control. In this sense, Australian military strategy for dealing with threats in this domain is likely to draw most heavily on the history of North African and European campaigns. Despite this, the purpose for which battles are likely to be fought is maritime in character, and will require the future Australian Army to understand its role in sea denial and localised sea control. Introducing into service capabilities like long-range anti-ship missiles and sophisticated air defence missiles—especially when paired with capable land-based surveillance and targeting systems—will challenge traditional paradigms of land combat. The tensions inherent in issues of command and control, joint integration, and land sustainment from the maritime environment, which were familiar to previous generations of land planners participating in amphibious operations, will re-emerge as the land force develops genuine cross-domain capabilities for the first time in generations. Similarly, consideration will need to turn to the role of fires (especially long-range, cross-domain fires) in the Army's operating concept. The land force's traditional conception of 'fires enabling manoeuvre' may become inverted as the purpose of land manoeuvre increasingly shifts towards enabling fires (albeit long-range, anti-air and maritime fires). Reimagining a core role for the land force as seizing, clearing and holding terrain in order to emplace and secure missile-firing batteries is a new spin on a very old concept of advanced forces basing and maritime gunnery that would have been instinctively familiar to Second World War era planners.

Conversely, for the Australian Army, General Marshall and General Eisenhower's warning of the dangers of over-specialisation continue to resonate. The Army remains the nation's only land force, and must remain capable of executing the full range of land power missions that the government could demand. While contributing to a maritime-centric campaign for archipelagic sea control is unambiguously the most important task, it is also, if history is a guide, the least likely. Unlike many allies and partners, the Australian Army cannot specialise deeply, secure in the knowledge that another force or segment of a force is available to cover alternative contingencies or to supplement it with key capabilities to cover force design gaps. The Army must therefore be positioned to generate the amphibious-capable combined arms land system demanded by the DSR, yet adaptable enough to quickly meet the demands of other potential contingencies. It is perhaps fitting to quote a concluding insight on this topic by the Commandant of the USMC, who recently noted that he was designing 'a force *capable* of executing our concepts, not a force *exclusively tailored* to them'.¹⁴¹ Australia's land force faces different challenges and some different drivers for change, but must make equally finely balanced and judicious investments in capability, training focus, command and control systems, and a host of other issues. The lessons of history offer plenty of markers to help guide this transformation. But, as always, it is only by understanding context and details that keen observers can generate genuine insights.

About the Author

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