COMMAND AND CONTROL IN AMPHIBIOUS OPERATIONS: THE LESSONS OF HISTORY

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ABSTRACT

This paper examines the history of command and control in amphibious operations. It explores a number of case studies in order to identify and illustrate some enduring challenges and to analyse the extent to which alternative approaches to command may have mitigated or exacerbated these. The case studies focus on examples from the Anglo-American experience in the twentieth century, but the aim is to draw conclusions with wider relevance. The paper identifies that three general approaches to command and control developed over the centuries; namely, co-equal command without the appointment of a commander in chief, unified command with one overall commander, and command by one service. The impact of these different systems is explored with reference to operations at Narvik (1940), Guadalcanal (1942), Normandy (1944) and the Falklands/Malvinas (1982). The paper examines the notion of 'paramount interest' and explores how this relates to the current concept of supported and supporting commanders. It concludes by discussing current NATO doctrine and noting the importance of an in-theatre joint commander with the authority and understanding to enable them to control and coordinate the activities of different force elements.

Keywords: Command and Control. Amphibious. Marines. Joint Opeations.

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Amphibious operations are amongst the most difficult of all military activities, requiring the coordination of forces on land, sea and in the air within an environment that is notoriously complex. Success in such operations requires effective co-operation between multiple parties, posing particular challenges for command and control (C2). The commander must balance the competing requirements of a complex force. They must ensure that diverse forces, with various different cultures, practices and procedures, and with different problems, work closely and effectively in support of the common aim. The challenge is significant even in small-scale operations and it tends to increase in proportion to the size and complexity of the task. That point is made in current NATO doctrine for amphibious operations, which states that:

Effective command and control of amphibious operations is complicated by the nature of the operating environment, the integration of disparate forces with different but supporting tasks, and the coordination required in optimizing the use of support forces. Amphibious forces and amphibious operations, no matter their makeup or application, are complex, and inherently collaborative.¹

This paper will examine the issue of command and control in amphibious operations. It will examine a number of historical case studies in order to identify and illustrate some enduring challenges and to analyse the extent to which alternative approaches to command may have mitigated or exacerbated these. The case studies focus on examples from the Anglo-American experience in the twentieth century, but the intention is to draw conclusions with wider relevance.

COMMAND AND CONTROL

The US Department of Defense defines Command and Control (C2) as the "exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission."² Similarly, the Royal Australian Navy has described C2 as "the system that

North Atlantic Treaty Organisation, ATP-08 Vol. 1, Doctrine for Amphibious Operations.
 Edited (D) Version (1). March 2017 [Unclassified] (NATO Standardisation Office, 2017) p. 2-1.
 US Department of Defence, DOD Dictionary of Military and Associated Terms, (Nov, 2018)

p. 43. https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/dictionary.pdf [15 Feb 2019]

empowers designated commanders to exercise lawful authority and direction over assigned forces for the accomplishment of missions and tasks". Command here represents the legal and organisational authority to direct action, control is the exercise of that authority. In essence then, and despite minor differences of definition, command revolves around deciding what needs to be done, control seeks to turn those decisions into appropriate action.

It is almost too obvious to need saying that successful military operations require effective C2. History is full of examples of situations where apparently powerful military forces have been undone by poor decision-making (command) or by a failure to ensure that decisions were acted upon in an appropriate and timely manner (control). Unfortunately, C2 is inherently problematic. As Clausewitz so perceptibly noted, "everything in war is very simple, but the simplest thing is very difficult", posing multiple unexpected challenges for commanders and their staffs, who must coordinate and synchronise the actions of many different actors within an environment characterised by friction.⁵ For this reason Dutch military doctrine identifies C2 as the cement that binds together the various building blocks of military operations. It argues that C2 is one of the most important military functions as it serves to integrate the other functions (such as intelligence, manoeuvre, fire power, force protection etc), enabling military forces to be employed effectively and efficiently. ⁶This is true of all operations, but the challenges increase exponentially in amphibious operations as a result of the complexity of the operating environment and the diversity of the forces employed. Military history provides a depressingly long list of amphibious operations that failed because their commanders could not overcome these challenges.

COMMAND AND CONTROL IN AMPHIBIOUS OPERATIONS

In ancient times there was often little distinction between generals and admirals. At the decisive battle of Actium in 31 BC, for example, the

³ Royal Australian Navy, Australian Maritime Operations 2nd ed. (Sea Power Centre Australia, 2017) p. 23.

⁴For example, see Indian Navy, Navy Strategic Publication 1.1. Indian Maritime Doctrine 2009,(Integrated HQ, Ministry of Defence (Navy); 2015) p. 73.

⁵ Carl von Clausewitz, On War, (Princeton: Princeton University Press, 1984) Book One, Chapter 7, p. 138.

⁶ Netherlands Ministry of Defence, Joint Doctrine Publication No.5. Command and Control, (2012) Chapter 1. file:///C:/Users/Family/Downloads/Joint+Doctrine+Publication+5+Command+and+Control+EN.pdf [12 Feb 2019].

rival commanders were Mark Anthony and Marcus Agrippa. Both were successful generals before they were admirals; they understood both environments. Sixteen hundred years later the distinction between the naval and military professions in Europe was still far from complete. Thus, Charles Howard of Effingham was a cavalry commander on land before he fought and defeated the Spanish Armada in 1588. Robert Blake, one of Britain's most successful admirals, was a colonel in Oliver Cromwell's New Model Army before he was appointed a "General at Sea" in 1649. In such circumstances, where the commander at sea was (or at least had been) a soldier, one might expect the command and control to be easier. A 'general at sea' would have been well-placed to understand both armies and navies, although clearly this could not solve all command issues.

By the eighteenth century the growing professionalisation of western military forces made it increasingly rare for individuals to make the jump from senior command in one service to command in another. It took years at sea to gain the knowledge and experience required to become an admiral. Armies and navies became very distinct separate organisations with their own traditions, and often with a very different way of viewing the world. This might not matter much when they operated apart, but it could be deeply problematic when they combined, as they had to do when conducting large-scale amphibious or expeditionary operations.

Generals and admirals tended to understand war in their own environment, but it was much harder for them to understand fully the business of the other, creating powerful barriers to the achievement of close cooperation. As Mahan wrote, with reference to the failed British expedition to Cartegena (Colombia) in 1741, "[t]he admiral and the general quarrelled as was not uncommon in days when neither had an intelligent comprehension of the other's business". This could be exacerbated by the traditional British system of co-equal command, where there was no overall

⁷ See John D. Grainger, Hellenistic and Roman Naval Warfare, 336BC-31BC, (London: Pen and Sword, 2011).

⁸ Lawrence C. Allin, 'Howard, Charles. Lord Howard of Effingham, Earl of Nottingham (1536-1624)' in Spencer C. Tucker (ed.), 500 Great Military Leaders, (Santa-Barbara, Ca: ABC-Clio, 2015), p. 351.

⁹ John Cresswell, Generals and Admirals. The Story of Amphibious Command, (London: Longmans, Green & Co., 1952) p.19. Alfred Vagts, Landing Operations. Strategy, Psychology, Tactics, Politics, From Antiquity to 1945, (Harrisburg, Pa: Military Service Publishing, 1952) p. 223

 $^{^{10}}$ Alfred Thayer Mahan, The Influence of Sea Power Upon History 1660-1783, (Boston, Ma: Little Brown & Co., 1890) p. 26.

commander in chief. What this meant in practice was that the navy could not get the army to do anything it did not want to do and likewise the army could not force the navy to act. Joint action required the commanders to be able to reach agreement and to cooperate, which left rather a lot to chance.

Co-equal command could cause confusion about exactly who was responsible for what, and when, as was evident during the abortive British raid on Rochefort (France) in 1757. There the general in command was castigated for his failure to land, not least by his naval counterpart, who argued that it was the army's job to decide such matters. In reality, however, evidence from the general's subsequent court martial suggests that his inaction was largely the result of advice tendered to him by the navy. Command relations were clearer in subsequent British campaigns; the army and navy were together responsible for choosing the landing site, the navy was responsible for bringing the army there and for landing them, with the army taking responsibility once the troops were established ashore.¹¹

Disputes between commanders could be the result of personal differences or ambiguous lines of responsibility. They were often caused or exacerbated by the inability of naval and military commanders to recognise the problems facing their counterpart. The author Captain Maryatt appears to have had Cartegena in mind when he wrote that "[t]he army thought the navy might have beaten down the stone ramparts ten feet thick; and the navy wondered why the army had not walked up the same ramparts, which were 30 feet perpendicular".12 In an environment where army and navy commanders had to work together closely and were dependent on each other for the success of a joint operation, but where they also had significant single-service concerns that the other did not fully understand, tension might be expected. Admirals were often reluctant to risk their ships and personnel to support military activities ashore, generals could not succeed without such cooperation. Challenges at sea might demand a pace of operations on land that the army could not match. It might be difficult to persuade an admiral to risk his ships to save the lives of soldiers, or for a general to expend the lives of his men in order to mitigate risk to the maritime force.

Classic examples of successful army-navy cooperation, such as at Quebec (Canada) in 1759 or at Aboukir Bay (Egypt) in 1801, were made easier by the absence of a threat at sea. This made sea control less of an issue,

¹¹ See David Syrett, 'British Amphibious Operations During the Seven Years and American Wars' in Mariner's Mirror, Vol. 58, No. 3 (August, 1972) p. 269-280.

¹² Mahan, Influence of Sea Power, p. 261.

enabling the navy to provide effective support to their colleagues ashore. It also helped that in both these cases the generals, Wolfe (Quebec) and Abercromby (Aboukir Bay), had prior experience of amphibious operations, and they had the time to establish effective working relationships with their naval counterparts. They understood the business at hand.¹³

COMMAND AND CONTROL IN THE TWENTIETH CENTURY

Unfortunately, there is not space here to explore the evolution of amphibious doctrine and equipment from the age of sail to the present, except to note that that development was, in many respects, quite exceptional. This is particularly true when one considers that such operations became even more complex with the addition of airpower and air forces to the command equation. Britain went from a position in 1914 of having devoted very little time and attention to the subject, and having rather a limited understanding of what was required, to having developed, thirty years later, a radical new capability with war winning potential. The evolution of American capabilities and understanding was at least as dramatic. Together they were to undertake the most impressive amphibious operations in all of history during the Second World War. However, with such rapid development it was inevitable that mistakes would be made, including within the field of C2.¹⁴

Speaking very broadly, over the course of the last century there were three general approaches to command and control in amphibious operations. Firstly, there was what the British called 'joint command', which involved coequal commanders from each service cooperating without the appointment of an overall commander-in chief. Secondly, there was 'unified command', where an overall commander in chief would sit above subordinate land, sea and air commanders. Finally, command by one service was an option that was often employed, particularly for operations that employed only sailors and marines. In the latter case the lines of command tended to be simplified, as the senior

¹³ Robert Wilson, History of the British Expedition to Egypt, (London: C. Roworth, 1802). Cresswell, Generals and Admirals, p. 59-84 and 97-103. Vagts, Landing Operations, p.288-302 and 372-387.

¹⁴ For a broad overview see, Jeremy Black, Combined Operations. A Global History of Amphibious and Airborne Warfare, (London: Rowman & Lithfield, 2018).

¹⁵ For a classic discussion of the issue see Cresswell, Generals and Admiral W.H.P Blandy, 'Command Relations in Amphibious Warfare', in United States Naval Institute Proceedings, (June 1951), p. 569-581.

naval officer was usually in charge. However, even this could not always obscure the inconvenient reality that that different force elements could have different priorities and that these could combine to frustrate the commander's intent.

Practice was often informed by the notion of what can be called "paramount interest", a phrase derived from inter-war US doctrine, meaning that the commander whose function and requirements were considered to be of the greater importance would have authority and responsibility at that time. In essence, 'paramount interest' was similar to the modern concept of supported and supporting commanders, as articulated in current US and NATO doctrine. This identifies that the supported commander has authority to control the general direction of the supporting effort, with the proviso that, except in an emergency, no significant decision that affects the supporting commander will be made by the supported commander without prior consultation.¹⁶

Unfortunately, of course, precisely who should have 'paramount interest', and when that should change, has often been a matter of controversy. It is difficult to set precise guidelines in advance; as NATO doctrine identifies, a supporting / supported relationship "must be adaptable and flexible and not rigid, linear, and hierarchical". Even in cases where command is vested in one service, difficult decisions are still required as to whether or not the interests of the landing force, amphibious group or covering group are 'paramount'. The central dilemma is not removed just because everyone wears the same uniform.

As has been noted, the British tended to favour the system of joint command, largely due to the belief that no commander from one service could know enough about the business of the other to impose their wishes on them. Thus, an army commander in chief would have to defer to the navy on issues relating to naval forces and a naval commander in chief would have to defer to the army on military matters. In such circumstances, command would have to be by consensus regardless of whether or not an overall commander was appointed, so there seemed little reason to appoint such a commander and create an unnecessary additional level of command (and bureaucracy).¹⁸

¹⁶ NATO, Doctrine for Amphibious Operations, p. 2-7. Also see NATO, AJP 3.1. Allied Joint Doctrine for Maritime Operations, (April, 2004), Chapter 2. US Joint Chiefs of Staff, JP 3-02: Amphibious Operations, (4 January, 2019) Chapter III.

¹⁷ NATO, Doctrine for Amphibious Operations, p. 2-9.

¹⁸ See John Cresswell, Generals and Admirals, passim

The British recognised that for this to work then commanders would have to be able to enjoy each other's confidence and to work as a team and that to do this they would need a good broad knowledge of the capabilities and limitations of the other services. To put this in modern parlance, they would need to understand the dynamics of joint warfare. In the 1938 British 'Manual of Combined Operations'¹⁹, which laid the basis for the technique adopted by Britain in the Second World War, they noted that commanders from different services would need to be "suited both by temperament and experience to work together". The manual argued that "[t]he interests of the service whose actions will have the greatest effect in the success of a particular phase will be given precedence at that time", but could not offer detailed advice as to what this might mean in practice. Commanders were left to work that out for themselves.²⁰

The equivalent US Navy doctrine, articulated initially in the Tentative Manual of Landing Operations (1934) and later codified into Fleet Training Publication 167 (1938), did not discuss command and control in inter-service operations. Instead it assumed that marines would provide the landing force and that these would come under the authority of the senior naval officer. Unity of command would be provided within a single service environment.²¹ The challenge of C2 in joint operations was studied by the Joint Board of the Army and Navy who, in 1927, published a document entitled 'Joint Action of the Army and the Navy'. This identified two possible choices for inter-service operations; the notion of paramount interest and the idea of unity of command. The former was identified as the approach to be adopted except when ordered otherwise by the President, by the service chiefs or when all commanders on the spot agreed to change.²² The approach was tested in a number of exercises and in 1938 'Joint Action' was revised to remove the idea of paramount interest; the options now were 'unity of command' or 'mutual cooperation'. The latter was rather a woolly concept that provided little guidance to potential commanders. It was unity of command that was adopted during the war, partly because

¹⁹ The British then used the term 'Combined Operations' to refer to what are now called Joint Operations, and often used the term inter-changeably with 'amphibious operations', reflecting their understanding that these were inherently joint in nature.

 $^{^{20}}$ UK National Archives: ADM 186/117. The Manual of Combined Operations, 1938, p. 20-25

²¹ Office of Naval Operations, Division of Fleet Training, FTP 167. Landing Operations Doctrine. United States Navy 1938, (Washington: US Government Printing Office, 1938).

²² The Joint Board of the Army and the Navy, Joint Action of the Army and the Navy, (Washington: US Government Printing Office, 1927).

attempts at less formal joint cooperation failed in the face of inter-service squabbles.²³ The 1945 edition of 'Joint Action' identified unity of command as the appropriate approach and that, broadly, remained the position until the end of the century.²⁴

This paper will now examine, briefly, four case studies of C2 in amphibious operations in order to examine how these different approaches worked in practice.

NARVIK (NORWAY), 1940

Allied operations at Narvik (northern Norway) in 1940 provide a good example of the weaknesses of joint command. The British seemed almost to be trying to make every mistake in the book. In order to retake the town, seized by a German amphibious 'coup de main' in April, they appointed a 67 year old Admiral of the Fleet, Lord Cork, to work as an equal with a man three ranks lower than him and 10 years younger, Major-General Macksey. Neither had much experience of working with the other service or of undertaking amphibious operations.²⁵

Operations were conducted in great haste, with inadequate forces and in response to events on the ground. Mackesy and his staff hastened to the scene in a cruiser, but did not meet Cork until they were in theatre. Cork arriving off Narvik a day after Mackesy, on 15 April, at which point they had to decide what they were going to do. They did not get on. Cork favoured immediate action to eject the Germans, Mackesy was more cautious. Lord Cork could not force the army to act, Mackesy could not convince Cork of the reasons why he felt he could not do so. Eventually London became so frustrated by the lack of action that they abandoned the system of joint command and appointed Lord Cork as the overall commander in chief. This did not actually change much. Cork, who lacked a joint staff, was still

²³ Major Ryan Finn USMC, The Evolution of Current Command Relationships in Amphibious Operations Doctrine, MA Thesis, US Marine Corps University, Quantico (2013) p. 8-15.

²⁴ For an overview see LCdr James J. Henry USN, A Historical Review of the Development of Doctrine for Command Relationships in Amphibious Warfare, Thesis Presented for the Master of Military Art and Science, (Fort Leavenworth: US Army Command & General Staff Course, 2000).

²⁵ Cresswell, General and Admirals, chap. 9. Rear Admiral L.E.H. Maund, Assault from the Sea, (London: Methuen and Co., 1949) p. 24-59. Also see David Brown (ed.), Naval Staff Histories. Naval Operations of the Campaign in Norway. April-June 1940, (London: Frank Cass, 2000) esp. chaps VII and IX. Corelli Barnett, Engage the Enemy More Closely. The Royal Navy in the Second World War, (London: Hodder and Stoughton, 1991) p. 120-124.

dependent on the army for advice and on the goodwill of the army for land operations. Mackesy firmly opposed a direct assault on Narvik, which would have required a heavy and destructive bombardment of the town, and so instead a series of sequential operations brought the allies, rather slowly, closer to the town, which was indeed liberated at the end of May, just in time for it to be abandoned again as the Allies evacuated Norway.²⁶

Command problems were not the only cause of failure, but they certainly contributed to it. Operations that require close inter-service cooperation are not enabled by bickering, mutual recrimination and a lack of joint understanding. To have made things work, with limited forces at hand, the British needed a commander willing and able to take decisions, a staff with experience in the field of amphibious operations and rather more specialist equipment and understanding than was available in 1940. The idea that you can throw a few soldiers on a ship, sail to an objective and then expect everyone to know what to do was, and is, ridiculous.

NORMANDY (FRANCE), 1944

In contrast to the above, the Normandy landings of June 1944 provide a good example of a successful command structure. Operation Overlord was the largest and most complex amphibious operation of all time. It involved over 7,000 ships and craft, 13,000 aircraft and 155,000 troops on 6 June, with one million troops landed in France within a month. Many Allied nations contributed ships, aircraft and troops – with the major contribution being made by the Americans, the British and the Canadians (the latter falling under overall British command). Multinational operations brought a requirement to balance representation in the higher command posts but this was simplified by the fact that there were two dominant parties.²⁷

Fortunately, the operation did not come from nowhere, it was the result of years of planning and preparation and the Allies had had the opportunity to learn their business in a serious of major operations in North Africa, Sicily and Italy. The approach to C2 that they adopted

²⁶ Ibid. Also See Capt. S.W. Roskill, History of the Second World War. The War at Sea. Vol 1. (London: HMSO, 1954) p. 169-204.

²⁷ For a useful overview of the maritime aspects see Barnett, Engage the Enemy More Closely, Chapters 24 & 26. Also see Stuart Griffin, 'Normandy, 1944' in Tristan Lovering (ed.), Amphibious Assault. Manoeuvre from the Sea, (rendlesham: Seafarer Books, 2007) Chapter XXIII.

reflected a mix of US and British practice, with a unified supreme commander standing over subordinate land, sea and air commanders. The command structure placed the American General Eisenhower as the supreme unified commander, with the British Air Chief Marshal Tedder as his Deputy. Admiral Ramsay, General Montgomery and Air Chief Marshal Leigh-Mallory commanded the Naval Expeditionary Force, Air Expeditionary Force and the landing force (21st Army Group) respectively.

The system worked well. Eisenhower proved to be an excellent supreme commander, managing the politics of the role while being available to take key decisions such as supporting Montgomery's assertion that the landing force in the initial plan was too weak. This resulted in the insertion of an additional two beaches to the scheme, which had massive and cascading effects, particularly on the naval plan. Eisenhower also took responsibility for the key decision to postpone the operation on 5 June and to go ahead the following day, despite inclement weather. It can help to have one individual in a position to take such hard decisions.²⁸

Of course, perhaps Eisenhower's greatest achievement was being able to manage a multinational staff with different opinions on some key issues and also some very difficult personalities. Famously, he sent home an American staff officer for calling a colleague a 'British bastard'. It would have been acceptable to call a colleague a 'bastard', but making the matter one of nationality threatened cohesion in the staff and could not be accepted.²⁹ In multi-national operations such things matter.

The second tier of commanders were all British. This reflected an overall political requirement to balance representation amongst the allies. As was usual by this time, the army remained under the orders of the navy while at sea, taking responsibility for themselves once established ashore. It could be noted that whereas Leigh-Mallory was acutely aware that his role was to support the main effort on the ground , the same was less true of Air Marshals Harris and Spaatz (in command of the UK and US Strategic Air Forces) who rather resented the diversion of their assets to this role and sought to minimise the commitment. Ramsay, on the other hand was entirely

²⁸ Rear-Admiral W.S. Chalmers, Full Cycle. The Biography of Admiral Sir Bertram Ramsay, (London: Hodder and Stoughton, 1959) esp. p. 182-207. Gordon, A. Harrison, US Army in World War II. The European Theatre of Operations. Cross-Channel Attack, (Washington, DC: Center of Military History, 1951) p. 105-117. Capt. S.W. Roskill, History of the Second World War. The War at Sea. Vol III. Part II, (London: HMSO, 1961) Chapetrs XIV and XV.
²⁹ Williamson Murray, 'Combined and Joint Warfare During World War Two: the Anglo-American story' in National Institute for Defense Studies (Japan), International Forum on War History 2014: History of Joint and Combined Operations, Tokyo. Sept. 17, 2014. p. 91.

of the view that his role was to support the army and did all that he could to facilitate this, aided, of course, by the limited nature of the threat at sea. The level of support provided by the navy for the army was unprecedented.

Overall, the success of the 'unified commander' approach here might seem to have ended the debate over the relative advantages of joint or unified command. In many senses what was created was a system that incorporated the benefits of both, with each service having its own input into the planning process and commanding at the appropriate stage, under the general supervision of a unified commander able to direct and adjudicate when needed. The British did not learn this lesson immediately, and the 'unified commander' concept was not adopted definitively by them for decades.³⁰ However, the appointment of a unified commander at the operational level is standard practice within NATO countries today.³¹

GUADALCANAL, 1942

Of course, appointing an overall commander cannot remove all problems. The US experience at Guadalcanal in 1942 is interesting in this respect. The plan for Operation Watchtower appointed the US Navy Commander South Pacific, Vice-Admiral Ghormley, in overall command, but he delegated this to Vice Admiral Fletcher, in charge of Task Force 61. The landing force commander, General Vandegrift of 1st Marine Division, was under the command of Vice Admiral Turner, the amphibious force commander, who in turn was under Fletcher. Putting this into modern NATO parlance, the Commander Landing Force (CLF) was under the Commander of the Amphibious Task Force (CATF). This put Vandegrift beneath Turner and on an equal footing with the commanders of the fire support group and the minesweeping group.³²

Operations at Guadalcanal are famous for the decision of Admiral Fletcher to withdraw his aircraft carriers on the evening of 8 August, a day after the first landing, due to the threat posed by Japanese air and naval forces. Fletcher protected his key sea control asset at the expense of exposing

³⁰ Stephen Prince, 'British command and control in the Falklands campaign', in Defense and Security Analysis, Vol 18., No. 4, (2002) p. 335.

³¹ ATP-08, Doctrine for Amphibious Operations, Chapter 2

³² See Jeter A. Isely and Philip A. Crowl, The US Marines and Amphibious War. Its Theory and Practice in the Pacific, (Princeton, NJ: Princeton University Press, 1951. Chapters 4 & 5. Allan R. Millett, Semper Fidelis. The History of the US Marine Corps, (New York, NY: Simon and Schuster, 1991) p. 362-371.

the amphibious group. The withdrawal of the carriers and the subsequent Allied naval defeat at the Battle of Savo Island more or less guaranteed that Turner had to withdraw the transport group on 9 August, leaving the marines marooned ashore without their heavy artillery, without the reserve marine regiment and without much of their ammunition, medical support and logistics. Naturally enough, Vandegrift objected but he was not in a position to make his views count. His was not deemed to be the 'paramount interest'.³³

In contrast to the major landings in Europe, the US Navy here faced a serious threat to control at sea and in the air. In the circumstances Admirals Fletcher and Turner did what came naturally to them, from training and experience, and they prioritised the integrity of their ships. This may well have been the correct decision but it left the troops badly exposed. It opened up the potential for defeat ashore.

Military operations generally involve degrees of risk, some more than others. The question here was how much of that risk should be placed on the ground force in order to reduce the risk being carried by those offshore. It is likely that the commander at sea and the commander ashore will draw different conclusions to that question. Most importantly, for purposes of command and control, it reveals the need for a military voice to be heard when decisions are being taken that impact the land environment. It also raises important questions as to at what point does the landing force commander shift from being supporting to supported. At Guadalcanal Vandegrift remained under Turner's command for the duration of the operation, and Turner meddled in the tactical conduct of the land campaign. After this Vandegrift successfully argued for change, to ensure that the land commander and the amphibious commander were treated as equals during the planning process and to allow for the land commander to exercise command authority over ground operations once the land force was established ashore. This was adopted for subsequent US operations and was incorporated into the 1943 revision of FTP 167.34

³³ Theodore Gatchel, Eagles and Alligators: An Examination of the Command Relationships That Have Existed Between Aircraft Carrier and Amphibious Forces During Amphibious Operations, (Newport, RI: US Naval War College, 1997) p. 5.

³⁴Henry, Historical Review, p. 59.

THE FALKLANDS/MALVINAS CONFLICT, 1982

The Falklands Conflict presents an interesting example of expeditionary warfare featuring amphibious operations conducted in circumstances where control of the sea and the air remained contested. Unsurprisingly, many of the challenges discussed above were evident.

Operational command of British forces was given to the Commander-in-Chief Fleet, Admiral Sir John Fieldhouse. Fieldhouse established a joint command at the existing joint headquarters at Northwood (London). Forces deployed to the South Atlantic were organised into two Task Forces: TF 317 and TF 324. The latter consisted of the nuclear-powered submarines and was controlled by Flag Officer Submarines (Admiral Sir Peter Herbert), based at Northwood. TF 317 was subdivided into three task groups: a Battle Group under Rear Admiral 'Sandy' Woodward; the Amphibious Group under Commodore Mike Clapp; and, the Land Force (No. 3 Commando Brigade, Royal Marines) under Brigadier Julian Thompson. Later, when the land force was expanded to include a second brigade, Major-General Jeremy Moore (originally Fieldhouse's land deputy at Northwood) was flown to the South Atlantic and he took overall command of Land Forces Falkland Islands upon arrival on 30 May. Moore, like Thompson, was a Royal Marine.³⁵

There was a joint 'Commander Task Force' (Fieldhouse) at Northwood but there was no in-theatre operational level commander. This was problematic in two important ways. Firstly, commanding from Northwood, Fieldhouse was distant from the task group commanders. He was also a long way from the realities of the situation in the South Atlantic. He could talk to his subordinates using secure satellite links, and maintained particularly close contact with Woodward, but inevitably he was rather divorced from events in theatre. This impacted on his understanding of the conduct of the campaign. In particular, Fieldhouse believed that Brigadier Thompson was taking too long to break-out of the beach-head at San Carlos; an opinion that may have been encouraged by his conversations with Woodward. Fieldhouse, like Woodward, was a submariner and was not well placed to judge the challenges of a land campaign. Moore, who was better placed to make such judgements, knew Thompson and had faith in his abilities. Unfortunately, Moore was out of touch of both Northwood and Thompson for 8 days in mid-May as he travelled south in the requisitioned liner Queen Elizabeth II, which lacked the secure communications required

³⁵ Prince, 'Command and control', p. 339.

to maintain appropriate contact. On arrival he had to withstand ill-conceived pressure from London to replace the brigadier, but approved of Thompsons actions, particularly once he saw for himself the difficulty of the terrain. More aware of political imperatives than his brigadier had been, he managed the relationship with London very effectively, sending back regular encouraging reports. It helped that, unlike Thompson, he was well known to Fieldhouse and to the War Cabinet. They trusted him.³⁶

Secondly, and perhaps even more problematic, was the confusion that existed regarding lines of authority between the three task group commanders. It did not help that the chain of command changed five times before the structure was settled finally. Apparently, Fieldhouse believed that Clapp, Thompson and Woodward were tactical commanders whose roles would be driven logically by the phases of the campaign; a position reminiscent of the idea of paramount interest.³⁷ Woodward acted as if he was first among equals. This was a natural reflection of his rank and of his control of the key assets necessary for the prosecution of the operation (notably the two aircraft carriers). It also appears to have reflected Fieldhouse's wishes. However, if this was the case the view was not communicated clearly to Clapp or Thompson, who were told that the three were equals.³⁸ The arrangement left room for confusion.

Problems in the relationship between the three task group commanders were evident from their first meeting off Ascension Island on 17 April. Woodward made a poor first impression on Thompson and his staff and this appears to have damaged their faith in him. He showed little interest in listening to their detailed concerns about amphibious planning. He did not act as if they were equals.³⁹ Woodward was a rather difficult personality. Given the challenge that he faced, he had reason to be difficult. Clapp and Thompson believed that he did not really understand amphibious operations and in many respects they were right. That much is evident from his own version of events, where he admits that he did not truly understand

³⁶ See Imperial War Museum (Oral Histories). Catalogue No. 10482, Major General Jeremy Moore (14 Nov. 1988).

³⁷ Lawrence Freedman, Official History of the Falklands Campaign. Vol 2. War and Diplomacy, (London: Routledge, 2007) p. 724.

³⁸ Author's discussion with Major-General Julian Thompson (retd.) and Commodore Michael Clapp (retd.) at Amphibious Command Symposium, HMS Albion (Devonport), 18 Mar. 2019.

³⁹ Julian Thompson, No Picnic. 3 Commando Brigade in the South Atlantic: 1982, 2nd ed. (London: Leo Cooper, 1992) p. 17-18. Michael Clapp and Ewan Southby-Tailyour, Amphibious Assault Falklands. The Battle of San Carlos Water, (London: Leo Cooper, 1996) p. 56-57.

the challenges facing the land forces until he read Thompson's account of the campaign, first published in 1985.⁴⁰

Woodward's memoirs note repeatedly his frustration at the slow pace of the land campaign. By late May he was, by his own account; beginning to experience "a symptom which has afflicted just about every Navy commander involved in an amphibious operation in the history of the world', that of "an unreasonable, obdurate, barely controlled feeling of frustration with your own forces ashore! What the hell are they doing?". ⁴¹He eased his frustration with a series of ill-tempered entries in his diary. Unfortunately, he also sent a number of ill-considered messages to Thompson/Moore regarding the conduct of the land campaign, another symptom common amongst naval commanders involved in amphibious operations through history. In the years that followed Woodward was candid enough to admit that this was a mistake. ⁴²

There were excellent reasons for the slow pace ashore, notably the lack of tactical transport (especially helicopters), lack of artillery, lack of armour, the nature of the terrain, the presence of enemy forces and the rather tenuous state of the logistics. As Thompson later recalled, "there was absolutely no point in rushing out of the beachhead with a packet of sandwiches in one pocket and five rounds of ammunition in the other to engage the enemy, who were some 50 miles away, until we had our logistics ashore".⁴³ This was a point that was inadequately understood in the Battle Group and also in London.

The tension that existed between Woodward and his fellow commanders reflected their personalities, but more importantly it also reflected the very different challenges that they faced. The British were conducting an operation thousands of miles from home, with limited forces and with equipment that was often sub-optimal for the task at hand. They were taking casualties. As Woodward later noted, success required them to make choices about resources and about risk, they had to trade "ships for aircraft, aircraft for soldiers, soldiers for time, and time for ships". Few of the decisions that they made were easy.

 $^{^{40}}$ Admiral Sandy Woodward with Patrick Robinson, One Hundred Days. Memoirs of the Falklands Battle Group Commander, 2^{nd} ed. (London: Harper Collins, 1992) p. 462.

⁴¹ Ibid., p. 300.

⁴² Ibid., p. 426.

⁴³ Andrew Dorman, Michael D. Kandiah & Gillian Staerck (eds.), The Falklands War. CCBH Oral History Programme, (London: Centre for Contemporary British History, 2005) p. 52.

Clapp and Thompson and their staffs had experience of working together in peacetime. They understood each other and were all focused on the problems of conducting an amphibious operation. Woodward had responsibilities that were more wide ranging and included the requirement to ensure the continued survival of the Battle Group in general, and the aircraft carriers in particular. If he had little knowledge and understanding of the problems facing his colleagues, perhaps the same might be said of the amphibious commanders as regards the challenges that he faced. This was probably inevitable. Different force elements face different problems which, for them, are of over-riding importance. What was required was an in-theatre commander able to co-ordinate the activities of the three and adjudicate between them. In the absence of this Woodward himself had to adopt this role in addition to the pressing tactical challenge of managing the Battle Group.

Woodward had to maintain a delicate balance between the survival of the Battle Group and the support that he could provide to the other elements of the Task Force. His personal style did little to win him friends in the Amphibious Group or Land Forces, but it is by no means clear that this was primarily a function of personalities rather than competing priorities. An overall commander on the spot could not have removed these, but might have been in position to take a top down view without being burdened with pressing tactical matters that naturally engulfed the other commanders. That was certainly the position taken by the Royal Navy, who used the Falklands Conflict as a command and control case study in the first edition of their new doctrine publication in the 1990s; identifying there the need for an in-theatre Joint Force Commander.⁴⁴ Such a commander might also have been able to take from the three tactical commanders the burden of having to deal with interference from London, a factor that Thompson identified as a notable burden.⁴⁵

It is significant that these problems occurred amongst commanders who were all from the naval service and all from the same nation. Interservice and multinational operations will inevitably pose additional challenges. The key point is that the British were not operating in a benign maritime environment, they were challenged on every level and, in such circumstances, friction will inevitably develop between the different force

⁴⁴ Woodward, One Hundred Days, p. 428.

⁴⁵ The Royal Navy, BR1806. The Fundamentals of British Maritime Doctrine, (London: HMSO, 1995) Annex B 'The Falklands War' also see Chapter 7 'Command and Control'.

elements and commanders. A robust command structure manages such friction and ensures that the right decisions are taken. One should also emphasise that, despite the tension between them, Woodward, Clapp and Thompson/Moore combined to secure victory in an extremely testing environment. As Stephen Prince has argued, "the command and control performance was impressive".⁴⁶

As a post-script it is worth noting that the command performance of 5 Brigade, the Army unit sent to reinforce 3 Commando Brigade, was less impressive. Indeed, it provides an interesting example of the difficulties of C2 when units lack a basic understanding of the dynamics of joint warfare and of amphibious operations. The brigade commander (Brigadier Tony Wilson) and his subordinates failed to adhere to the appropriate chain of command; failed to keep Clapp and Moore properly informed of their actions; treated scarce amphibious and helicopter assets in a cavalier fashion; ignored advice on the basic principles of amphibious operations; and, through their ill-conceived and unilateral actions, contributed substantially to the loss of 46 lives (with 150 wounded) in an Argentine air attack on two landing ships at Fitzroy on 8 June. In Wilson's defence, the tenuous nature of communications within the Falklands made control extremely difficult; but it was sheer good fortune that his brigade's actions did not result in an even greater loss of life.⁴⁷

IN CONCLUSION

The examples examined above include some (Norway, Normandy) where sea control was largely assured and others (Guadalcanal, Falklands) where control of the maritime battlespace was challenged. In the case of Normandy the navy and tactical air forces did all that they could to support the army, and effective cooperation between the services was a key foundation for success. At Narvik the naval and military commanders argued and achieved little, although it is not abundantly clear that they could have achieved much more given the available forces. At Guadalcanal and during the Falklands conflict the presence of significant enemy forces able to contest control of the maritime battlespace added another dimension,

⁴⁶ Prince, 'British Command and control', p. 344.

 $^{^{47}}$ See Ewan Southby-Tailyour, Reasons in Writing. A Commando's View of the Falklands War, (London: Leo Cooper, 2003) chaps 17 & 18. Also see Duncan Anderson, The Falklands War 1982, (London: Osprey, 2002) p. 58-60.

forcing commanders to make choices as to the degree of risk that could be placed on forces at sea and ashore, and how those risks could be balanced. It is probably inevitable that different force commanders would have very different perspectives on this.

Amphibious operations pose significant challenges for command and control as they require close joint co-operation in a highly complex environment. They are amongst the most demanding of all military operations and mistakes tend to be punished severely. The dynamics of such operations inevitably tend to pull different elements in different directions, effective C2 is required to mitigate this effect.

Experience suggests that the appointment of an overall joint commander represents an important step in terms of facilitating the coordination of different forces, and this is reflected in the practice of many national armed forces and also in organisations such as NATO. It is clear, however, that appointment of a joint commander is not a panacea. It cannot resolve the issue of who should have 'paramount interest', but it does at least make it easier for a decision to be made on the matter.

Until the end of the last century US and NATO doctrine emphasised the importance of a joint commander and placed CLF under the authority of CATF for the duration of an amphibious operation, until land forces were established ashore. It should be remembered, however, that CATF and CLF were given equal status during the planning process.⁴⁸ This reflected the system adopted by the US in World War Two. This approach changed in the 2000s as first the US and then NATO changed their amphibious doctrine to reflect new more flexible approaches to amphibious operations. The American armed forces therefore adopted a 'supporting / supported' relationship for CATF/CLF, under the general authority of a Joint Force Commander. Under this approach an 'establishing directive' provides the specifics of the support relationship, and CATF and CLF will together identify the events and conditions for any shift in the relationship during an operation; in other words, the point at which theirs can be considered the paramount interest.⁴⁹ Figure (i) shows examples of shifts in this relationship, identified in US doctrine, but these are illustrative examples and are not prescriptions.⁵⁰

 ⁴⁸ See JP 3-02. Joint Doctrine for Amphibious Operations, (Washington, DC: Headquarters of the Joint Staff, 1992). ATP 8 (B), Vol. 1. Doctrine for Amphibious Operations, (NATO, 2004).
 ⁴⁹ JP 3-02, Amphibious Operations (2019) chap. III. For further discussion see Major Ryan Finn USMC, The Evolution of Command Relationships in Amphibious Relations Doctrine, Thesis. USMC Command and Staff College, 2013.

⁵⁰ JP-02, Joint Doctrine for Amphibious Operations, (2019) p. III-4.

Mission Supported Commander

Assault CATF, then CLF

Raid with coastal threat CATF, them CLF, then CATF

Inland raid with no coastal threat CLF

Demonstration CATE

Withdrawal CLF, then CATF

Foreign humanitarian assistance CATF or CLF

Figure (i): Examples of shifts in support relationship, given in US doctrine.

NATO now identifies this approach as one of three potential options, with the others being the previous system where CATF had overall responsibility, and a third option (favoured by the Dutch) where CATF and CLF are combined in one commander with an integrated staff.⁵¹

The notion of 'paramount interest', therefore, has re-emerged under the guise of the supported / supporting relationship. Unfortunately, as ever, it is not possible to mandate exactly when CATF moves from being supported to supporting, nor is it possible to provide a definitive guide as to the relative priority between CATF / CLF and the covering forces. The past shows that, unsurprisingly, cooperation and integration is easiest to achieve in situations where control at sea and in the air is relatively assured, and the land force can be supported without too much fear by the maritime and air commanders. In situations where sea control may be challenged in all relevant war-fighting domains it is reasonable to assume that the problem will persist.

Debate on this topic has often focused on the CATF / CLF dynamic, and particularly on the point at which CLF becomes the supported commander. This is important, but the analysis above suggests that it is not everything. In the Falklands Conflict CATF and CLF worked together extremely effectively, which provided a necessary foundation for success, but could not remove wider tensions with the Battle Group. Often the most serious difficulties will not be between CATF and CLF but rather between these and other relevant actors. More fundamentally, the division between CATF and CLF may become less clear in future, when attempts to promote ship-to-objective manoeuvre and sea-basing may blur the environmental boundaries. In a world where the littoral battlespace is treated increasingly

⁵¹ ATP (8), Amphibious Operations (2017) p. 2-7 & 2-8

as a seamless whole, without paying undue attention to the point where the sea laps the shore, the CATF/CLF distinction may not make the same sense that it used to do.⁵² Also, new technology may enable entirely new approaches to C2.⁵³ However, even if this is the case, any such approach will need to cater for the age-old problem of coordinating and synchronising the activities of many different force elements, and balancing priorities that almost inevitably will, at times, clash. In a world where western navies now expect to face anti-access and area denial threats, the challenge is unlikely to diminish. It may continue to be difficult to determine which of the various actors has the 'paramount interest' at a given time.

⁵² For an early insight into this, see Major David Elwing, 'CATF and CLF. Will These Traditional Roles Carry Us Into the 21st Century?', Paper submitted to the Faculty of the US Naval War College, Feb. 1998.

⁵³ For example, see UK MoD Development, Concepts and Doctrine Centre, Joint Concept Note 2/17. The Future of Command and Control, (Sept. 2017). https://assets.publishing. service.gov.uk/government/uploads/system/uploads/attachment_data/file/643245/concepts_ uk_future_c2_jcn_2_17.pdf [22 Feb. 2019]

COMANDO E CONTROLE EM OPERAÇÕES ANFÍBIAS: AS LIÇÕES DA HISTÓRIA

RESUMO

Este artigo examina a história do comando e controle nas operações anfíbias. Explora-se alguns estudos de caso para que se identifique e ilustre alguns desafios persistentes e se analise até que ponto abordagens alternativas ao comando possam ter mitigado ou exarcebado esses desafios. Os estudos de casos focam em exemplos da experiência anglo-americana no século XX, mas o objetivo é tirar conclusões com relevânvias mais amplas. O artigo identifica que três abordagens gerais de comando e controle, desenvolvido ao longo dos séculos, a saber: comando co-igual sem indicação de comandante-em-chefe, comando unificado com comandante geral e o comando por um único serviço. O impacto desses diferentes sistemas é explorado com referências às operações em Narvik (1940), Guadalcanal (1942), Normandia (1944) e as Malvinas (1982). O artigo examina a noção de "interesse supremo" explora como isto se relaciona com o atual conceito de comandante apoiados e apoiadores. O artigo conclui com a discussão da atual doutrina da OTAN e estabelece a importância de um comando conjunto local com a autoridade e o entendimento para capacita-los a controlar e coordenar as atividades de diferentes elementos da forca.

Palavras-chave: Comando e Controle. Anfíbios. Fuzileiros Navais. Operações Conjuntas.

REFERENCES

ADMIRAL SANDY WOODWARD, PATRICK ROBINSON. One Hundred Days: memoirs of the Falklands Battle Group Commander, 2nd ed., London: Harper Collins, 1992, p.462.

ALFRED VAGTS. Landing Operations. Strategy, Psychology, Tactics, Politics, From Antiquity to 1945, Harrisburg, Pa: Military Service Publishing, 1952, p.223.

ALLAN R. MILLETT. Semper Fidelis. The History of the US Marine Corps, New York, NY: Simon and Schuster, 1991, p.362-371.

ALFRED THAYER MAHAN. The Influence of Sea Power Upon History 1660-1783, Boston, Ma: Little Brown & Co., 1890, p.261.

ANDREW DORMAN, MICHAEL D. KANDIAH, GILLIAN STAERCK (eds.). The Falklands War. CCBH Oral History Programme, London: Centre for Contemporary British History, 2005, p.52.

CARL VON CLAUSEWITZ. On War.. Princeton: Princeton University Press, 1984. Book One, Chapter 7, p.138.

CORELLI BARNETT. Engage the Enemy More Closely. The Royal Navy in the Second World War, London: Hodder and Stoughton, 1991, p.120-124.

CRESSWELL. Generals and Admirals and Admiral W.H.P Blandy, 'Command Relations in Amphibious Warfare', in United States Naval Institute Proceedings, June 1951, p.569-581.

DAVID BROWN (ed.). Naval Staff Histories. Naval Operations of the Campaign in Norway. April-June 1940, London: Frank Cass, 2000, esp. chaps VII and IX.

DAVID SYRETT. 'British Amphibious Operations During the Seven Years and American Wars' in Mariner's Mirror. v. 58, n. 3, August, 1972, p.269-280.

EWAN SOUTHBY-TAILYOUR. Reasons in Writing. A Commando's View of the Falklands War, London: Leo Cooper, 2003, chaps 17 - 18.

DUNCAN ANDERSON. The Falklands War 1982, London: Osprey, 2002, p.58-60.

GORDON, A. HARRISON. US Army in World War II. The European Theatre of Operations. Cross-Channel Attack, (Washington, DC: Center of Military History, 1951) p.105-117.

INDIAN NAVY. Navy Strategic Publication 1.1. Indian Maritime Doctrine 2009. Integrated HQ, Ministry of Defence (Navy), 2015, p.73.

JEREMY BLACK. Combined Operations. A Global History of Amphibious and Airborne Warfare, London: Rowman & Lithfield, 2018.

JETER A. ISELY AND PHILIP A. CROWL. The US Marines and Amphibious War. Its Theory and Practice in the Pacific, Princeton, NJ: Princeton University Press, 1951. chaps 4 - 5.

JOHN CRESSWELL. Generals and Admirals. The Story of Amphibious Command, London: Longmans, Green & Co., 1952, p.19.

JOHN D. GRAINGER. Hellenistic and Roman Naval Warfare, 336BC--31BC, London: Pen and Sword, 2011.

JULIAN THOMPSON. No Picnic. 3 Commando Brigade in the South Atlantic: 1982, 2nd ed.

LAWRENCE C. ALLIN. 'Howard, Charles. Lord Howard of Effingham, Earl of Nottingham (1536-1624)' in Spencer C. Tucker (ed.), 500 Great Military Leaders, (Santa-Barbara, Ca: ABC-Clio, 2015), p.351.

LAWRENCE FREEDMAN. Official History of the Falklands Campaign. v. 2. War and Diplomacy, London: Routledge, 2007, p.724.

L.E.H. Maund, Assault from the Sea, London: Methuen and Co., 1949, p.24-59.

MAHAN. Influence of Sea Power, p.261.

MAJOR RYAN FINN USMC. The Evolution of Current Command Relationships in Amphibious Operations Doctrine, MA Thesis, US Marine Corps University, Quantico 2013, p.8-15.

MICHAEL CLAPP, EWAN SOUTHBY-TAILYOUR. Amphibious Assault Falklands. The Battle of San Carlos Water, London: Leo Cooper, 1996, p.56-57.

NETHERLANDS. MINISTRY OF DEFENCE. Joint Doctrine Publication No.5. Command and Control, 2012, chap 1. Available at: file:///C:/Users/Family/Downloads/Joint+Doctrine+Publication+5+Command+and+Control+EN.pdf . Acessed: 12 Feb 2019.

NORTH ATLANTIC TREATY ORGANIZATION., JP 3-02. Joint Doctrine

for Amphibious Operations, Washington, DC: Headquarters of the Joint Staff, 1992. ATP 8 (B), v. 1, 2004.

NORTH ATLANTIC TREATY ORGANIZATION, JP-02, Joint Doctrine for Amphibious Operations, 2019, p. III-4.

NORTH ATLANTIC TREATY ORGANIZATION. Doctrine for amphibious operations. Nato Unclassifield -ATP 08, V.1, March. 2017, Version 1. Available at: https://pt.scribd.com/document/380606501/ATP-8-D-VOL-I--VRS-1-DOCTRINE-FOR-AMPHIBIOUS-pdf. Acessed: 12 Feb 2019.

ROYAL AUSTRALIAN NAVY. Australian Maritime Operations 2nd ed. Sea Power Centre Australia, 2017, p.23.

ROBERT WILSON. History of the British Expedition to Egypt, London: C. Roworth, 1802. Cresswell, Generals and Admirals, p. 59-84, 97-103.

STEPHEN PRINCE. 'British command and control in the Falklands campaign', in Defense and Security Analysis, v. 18., n. 4, 2002, p. 335.

STUART GRIFFIN. 'Normandy, 1944' in Tristan Lovering (ed.), Amphibious Assault. Manoeuvre from the Sea, Rendlesham: Seafarer Books, 2007, chap XXIII.

S.W. ROSKILL. History of the Second World War. The War at Sea. v. 1., London: HMSO, 1954, p.169-300.

S.W. ROSKILL. History of the Second World War. The War at Sea. Vol III. Part II, London: HMSO, 1961, chaps XIV and XV.

VAGTS. Landing Operations, p.288-302, 372-387.

THEODORE GATCHEL. Eagles and Alligators: An Examination of the Command Relationships That Have Existed Between Aircraft Carrier and Amphibious Forces During Amphibious Operations, Newport, RI: US Naval War College, 1997, p.5.

US DEPARTMENT OF DEFENCE. DOD Dictionary of Military and Associated Terms, (Nov, 2018) p. 43. Available at: https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/dictionary.pdf. Acessed: 15 Feb 2019.

UK NATIONAL ARCHIVES. ADM 186/117. The Manual of Combined Operations, 1938, p. 20-25.

W.S. CHALMERS. Full Cycle. The Biography of Admiral Sir Bertram Ramsay, London: Hodder and Stoughton, 1959, esp. p.182-207.

WILLIAMSON MURRAY. Combined and Joint Warfare During World War Two: the Anglo-American story' in National Institute for Defense Studies (Japan), International Forum on War History 2014: History of Joint and Combined Operations, Tokyo. 17 Sept 2014, p. 91.

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