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The Defence of Great Britain in 1940: A Study in Joint Operations

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ABSTRACT

In the summer of 1940, as Germany prepared for a sea and airborne assault across the Channel, Great Britain faced the greatest challenge to its national security in over a century. If Germany had achieved air superiority and launched Operation SEA LION, the defence of Great Britain would have been a joint campaign involving a well-coordinated, concerted effort by all three Services.

The paper examines the defence of Great Britain as a case study in joint command and control, specifically Britain's joint planning and operations capability at the strategic and operational levels. A number of key terms are first clarified and defined, and a brief overview of the strategic situation is provided. The British strategic and operational level joint command and control structure and its planning and operations capability in the summer of 1940 are examined, along with the level of joint cooperation and inter-operability that existed between the three Services at that time, from both a staff and command perspective. The paper then outlines Germany's plans for Operation SEA LION, and analyzes Great Britain's preparedness for an amphibious/airborne invasion in 1940, by reviewing the strategic level direction and guidance, the strategic level joint and inter-agency plans and in particular the subordinate operational level plans and operations.

As the paper demonstrates, by August 1940 the British had established a level of capability in joint planning and inter-operability that would have enabled them to successfully coordinate and conduct joint operations to defeat Operation SEA LION. The command and control structures at the strategic and operational levels were well-established and experienced, and the staffs had demonstrated that they were capable of functioning in a joint environment in the context of a campaign of national survival.

CONTENTS

Introduction

In the summer of 1940, Great Britain faced the greatest challenge to its national security in over a century. France, its primary ally on the continent, had been defeated in a rapid campaign and was occupied by the powerful military forces of Nazi Germany. In addition, the harbours, airfields and national resources of Norway, Denmark and the Low Countries were under German control, leaving Britain isolated and protected from direct attack only by the English Channel.

While Germany prepared for Operation SEA LION, its intended sea and airborne assault across the Channel, Britain hastily prepared its military forces and its people to face that invasion. Devastated by the defeat of the British Expeditionary Force (BEF) in Belgium and France, and left extremely short of vehicles and equipment after the evacuation from Dunkirk, the British Army needed time to recover its strength and to prepare adequate land defences for the coastline, ports and vital points of the nation. The Royal Navy was postured to counter any German attempt to launch an invasion force across the Channel, while at the same time endeavouring to contain German surface raiders and defend Britain's vital shipping lanes from the growing U-boat threat. Having rapidly reconstituted its strength after the campaign on the continent in May and June, the Royal Air Force's Fighter Command was still below strength in pilots and aircraft. Nevertheless, it would be the front line of defence against the *Luftwaffe's* attempt to gain air superiority over the Channel and the south of England, the key pre-condition for an invasion of the British Isles.

By late-September 1940, Fighter Command had narrowly managed to thwart the *Luftwaffe,* and as a result Hitler was forced to postpone and ultimately cancel Operation

SEA LION. The successful conclusion of what became known as the Battle of Britain meant that the full resources available for the defence of Great Britain had not been called upon to conduct operations in that role. Both the Army and the Royal Navy were better prepared for this contingency by late-August 1940; however, had Germany achieved air superiority by early-September and pressed on with Operation SEA LION, it would likely have required all of Britain's military and civil defence resources to defeat the invasion. Like the invasion itself, the defence of Great Britain would have had to have been a joint endeavour in order to ensure victory, as only a well-coordinated, concerted effort by all of the Services would have enabled the British to succeed. Although we will never know for certain what the result would have been had this occurred, one can reasonably argue that by September 1940 Great Britain had established a level of capability in joint planning and inter-operability that would have enabled it to successfully coordinate and conduct joint operations to defeat Operation SEA LION.

Treating the defence of Great Britain in the summer of 1940 as a case study, this paper will examine Britain's capability for joint operations at the end of the first year of the Second World War. In order to do so, it will first be necessary to clarify the definitions of a number of key terms, particularly those whose meaning and usage has changed since 1940. A brief overview of the strategic situation in Europe in the summer of 1940, with specific focus on the state of Britain's military forces and defences following the fall of France will then help to set the scene.

The paper will then describe Great Britain's joint planning and operations capability at that time at the strategic and operational levels, as well as the command structures and the relationships at both of these levels. This will in turn provide an

insight into the degree of cooperation and inter-operability that existed, and identify any friction or rivalry that may have impacted on the effectiveness of joint planning and/or operations. Based on this background and an outline of Germany's plan for Operation SEA LION, the paper will analyze Great Britain's preparedness to defeat an amphibious/ airborne invasion in 1940, given its strategic level direction and joint plans and its subordinate operational level plans, in order to demonstrate that it had sufficient planning and inter-operability capabilities to coordinate and conduct joint operations to counter an invasion of this magnitude.

TERMINOLOGY

Before proceeding with this case study, it is essential to clarify a number of key terms that will be used throughout this paper, to ensure common understanding of their specific meanings. This is particularly important given that the current definitions of the fundamental terms 'joint' and 'combined' differ from those in use in 1940. In addition, the operational level of war or command was not commonly recognized in Western militaries during the Second World War.

In the Allied lexicon of the 1940s, the terms "joint" and "combined" were both used in reference to the combination of forces or elements from more than one service, i.e. 'Combined' Operations and 'Joint' Planning Committee. These terms are now recognized as having distinct meanings in the modern military lexicon. Joint refers to, "… activities, operations, organizations, etc in which elements of more than one service

of the same nation participate."[1] NATO defines combined as, "… activities, operations, organizations, etc between two or more forces or agencies of two or more allies."[2]

While the strategic and tactical levels of war and command have been commonly used terms for some time, the operational level was not officially recognized in Western militaries until the second half of the 20th Century. The strategic level is further sub-divided into its political and military realms. The political-strategic level sets goals, establishes policies and provides direction to the military-strategic level.[3] In addition to advising the political-strategic leadership on security and military issues, the military-strategic level defines military objectives and develops, maintains and directs the employment of military capabilities in order to create the conditions for operational success. The coordination of activities with other Government departments also occurs at the military-strategic level. At the other end of the scale, the tactical level is oriented on the conduct of operations and the execution of tactical tasks. Tactical commanders manoeuvre and employ combat elements to achieve assigned military objectives.

The operational level is now widely understood to be the level between strategic and tactical, and CF doctrine formally defines it as, "… the level at which campaigns and major operations are planned, conducted and sustained to accomplish strategic objectives

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[1]Department of National Defence, B-GJ-005-300/FP-000 *Canadian Forces Operations* (Ottawa: DND Canada, 2007), GL-6.

[2]Department of National Defence, *Canadian Forces Operations*, GL-3. This definition is also used by NATO in AAP-6.

[3] Department of National Defence, A-PA-005-000/AP-004 *Leadership in the Canadian Forces: Conceptual Foundations* (Ottawa: DND Canada, 2005), 11-12.

within theatres or areas of operations."[4] At this level, commanders define military objectives that are in accordance with the direction received from the strategic level, and focus on the planning and conduct of campaigns to achieve these objectives, through the conduct of both joint and combined operations. As the link between the other two levels of command, it may vary in terms of its depth and its specific position between them, and may often appear to closely resemble either the strategic or the tactical level of command as a result. It can expand or contract in either direction as necessary.

A strong grasp of these terms is essential, as the paper will focus on joint capabilities at the strategic and operational levels of the British command structure; therefore, one must have a clear appreciation for the role that individuals and organizations should play at both levels. In addition, as the boundary between the two can often become blurred, an understanding of their distinct functions as well as their relationship to one another can assist in defining that boundary. Before examining these capabilities at the strategic level, it is essential to appreciate the strategic context of the situation facing Great Britain in the summer of 1940.

STRATEGIC OVERVIEW – JUNE-JULY 1940

"*Personally I feel happier now that we have no allies to be polite to & to pamper.*"[5]
(King George VI to his mother on June 27th, 1940)

The fall of France in June 1940 left Great Britain with no allies in Europe, and facing a coastline dominated by Germany and its substantial military might. Despite the

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[4]Department of National Defence, *Canadian Forces Operations*, 1-5.

[5]John Terraine, *The Right of the Line: The Royal Air Force in the European War 1939-1945* (Ware, Hertfordshire: Wordsworth Editions Limited, 1997), 169.

successful evacuation of a significant portion of the BEF from Belgium and France: "The Army had lost nearly 1200 field and heavy guns, 1350 anti-aircraft and anti-tank guns, 6400 anti-tank rifles, 11,000 machine guns, 75,000 motor vehicles and almost every tank it possessed, as well as vast quantities of ammunition."[6] The RAF had also suffered serious losses during the campaign, including 453 Spitfire and Hurricane fighters and 362 pilots.[7] The Royal Navy's Home Fleet had been heavily engaged in the Norwegian campaign, and along with the ships of the Navy's Shore Commands, had played an instrumental role in the evacuation of the BEF from the continent. These actions, along with the commitment of ships to the Battle of the Atlantic, had severely stretched the Royal Navy's strength. To further exacerbate Britain's situation, the entry of Italy into the war, combined with the loss of France, had considerably weakened its position in the Mediterranean and the Middle East. The requirement to defend these vital lines of communication would further extend Britain's scarce military resources at this critical point in the war.

At home, Fighter Command's defensive campaign would be supported by an extensive early warning system based on radar and observers, linked by a well-established communications network; however, Britain's land defences remained wholly inadequate by June 1940. The preparation of defensive positions and obstacles along the coast and inland was only just taking shape by this time. The return of the BEF without its weapons, equipment and vehicles had only served to worsen the Army's critical shortfalls in these areas. In addition, the Army's formations in Britain were not

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[6]Arthur Bryant, *The Turn of the Tide, 1939-1943* (London: Collins, 1957), 188.

[7]Terraine, *The Right of the Line…*, 170.

adequately prepared to face a German assault, "… the shortage of trained men and equipment is appalling … There are masses of men in uniform, but they are mostly untrained…".[8]

The odds certainly seemed to be against Britain, as was expressed by the French High Command just prior to their surrender, "… within three weeks her neck would be "wrung like a chicken's"."[9] Not surprisingly Germany's leadership shared this view, and Hitler was certain that Britain would quickly accept a negotiated surrender, thus securing his western flank in Europe. Nevertheless, Prime Minister Churchill recognized that the RAF, RN and Army were still capable forces, and would be supported in their defence of Great Britain by the considerable obstacle of the English Channel. Although there were those in Britain who may have supported a negotiated peace with Germany, Churchill remained undaunted, and his personal influence during this critical period was instrumental. As Basil Liddell Hart explained, "Churchill's inspiring speeches helped to correct the depression of Dunkirk, and supplied the tonic the islanders wanted. They were exhilarated by his challenging note, and did not pause to ask whether it was strategically warranted."[10] In addition to rallying the nation, Churchill was personally involved in many aspects of its defensive preparations. Seeking support from the United States, he persuaded President Roosevelt to assist despite resistance from the US Army.[11]

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[8]Bryant, *The Turn of the Tide*..., 189.

[9]*Ibid.,* 189.

[10]Terraine, *The Right of the Line*..., 169.

[11]Bryant, *The Turn of the Tide*..., 192. The US Army, "…released from its First World War reserves half a million rifles, 80,000 machine and tommy-guns, 900 75-mm. field-guns, and enough ammunition for them to meet a few weeks' fighting. They were hurried to the eastern seaboard, loaded onto waiting British ships and reached England during July."

Fortunately, the President chose to overrule the objections of his Service Chiefs, who wanted to preserve US military resources in the event that Britain fell.

Across the Channel, the Germans were also recovering from their campaign against France and the Low Countries. Despite the rapid and overwhelming success of their operations, losses in men and equipment had been significant, particularly when considered along with the naval losses incurred during the Norwegian campaign in April and May. As it became clear to Germany that Britain was resolved to continue the war, this recovery became a reconstitution, which entailed not only replacing the aircraft and personnel that had been lost, but re-orienting their forces to conduct the campaign against Britain. *Reichsmarshall* Göring issued a *Luftwaffe* Directive on June 30th that ordered his forces in the West to be prepared to commence operations to defeat the RAF in order, "… to create the conditions necessary for a successful campaign against the enemy's war industry and supply lines…".[12] Subsequently, on July 16th, Hitler issued his Directive #16, which ordered that preparations be made for the invasion of England, Operation SEA LION.[13] The scene was thus set for a struggle that would force both adversaries to rely heavily on their ability to plan and execute joint operations, and for which neither was adequately prepared at the outset.

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[12]Terraine, *The Right of the Line…*, 172.

[13]J.R.M. Butler, *Grand Strategy: Volume II, September 1939 – June 1941* (London: Her Majesty's Stationery Office, 1957), 270.

BRITISH JOINT PLANNING AND OPERATIONS CAPABILITY – STRATEGIC LEVEL

"We shall not stop fighting till freedom, for ourselves and others, is secured." [14]
(British Foreign Secretary's reply to Germany's final call for peace, July 22nd, 1940)

Winston Churchill's pivotal role in the leadership of Great Britain during the Second World War is well known, and as indicated above, it was never more important than in the summer of 1940; therefore, any analysis of British joint capabilities during that period must begin with an examination of his central position within Britain's leadership. Soon after succeeding Neville Chamberlain as Prime Minister on May 10th, Churchill also took on the appointment of Minister of Defence, a position not traditionally established in the British Government.[15] While significant, this in itself did not fundamentally alter the balance of power within the government, as in wartime the Prime Minister was expected to assume the lead role, through the War Cabinet, in the strategic-level direction of military operations. More noteworthy in actual terms were the accompanying structural changes that provided the Prime Minister with the ability to more effectively exercise command and control over all aspects of Britain's war effort.

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[14]Bryant, *The Turn of the Tide*..., 272.

[15]Lord Ismay, *The Memoirs of General the Lord Ismay* (London: William Heinemann Ltd., 1960), 158. When the three separate Service Ministries were merged under the Ministry of Defence in 1964, the position of Minister of Defence was replaced by the Secretary of State for Defence, or Defence Secretary as it is more commonly known.

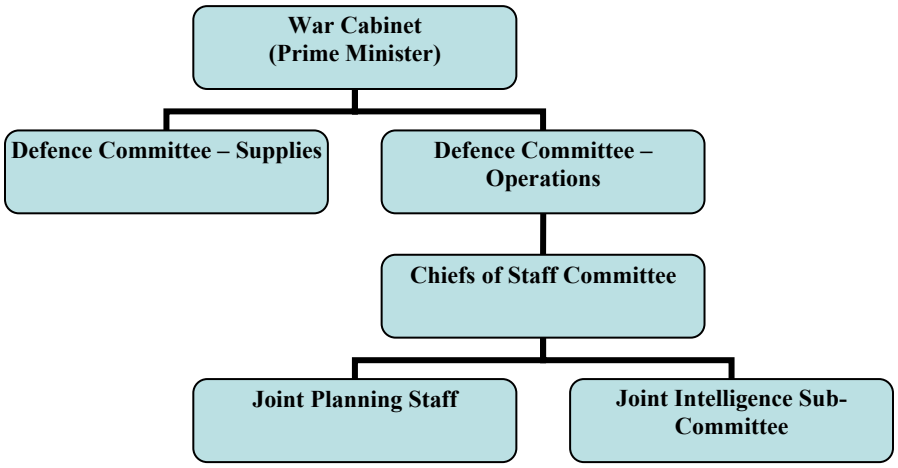

Figure 1 – Strategic Command Structure - 1940

The War Cabinet had been formed by Prime Minister Chamberlain in September 1939, based on the model first used by Prime Minister Lloyd George during the First World War, superseding both the Cabinet itself and the Committee on Imperial Defence, which will be described below.[16] Its role was to assist the Prime Minister with establishing national strategy and policies and providing direction to the military-strategic level of command. The War Cabinet consisted of only eight members, in addition to the Prime Minister, rather than 22 in the full Cabinet; however, other Ministers would be invited to attend meetings of the War Cabinet for specific discussions.[17] When Churchill became Prime Minister in May, he reduced the War Cabinet to a total of five members, with only Neville Chamberlain and Lord Halifax (Foreign Secretary) remaining from the original group, the former in the position of Lord President. Two leaders from the

[16]Butler, *Grand Strategy: Volume II…*, 4-6.

[17]*Ibid*., 5. In September 1939, the War Cabinet included, in addition to the Prime Minister: the Chancellor of the Exchequer, the Foreign Secretary, the Lord Privy Seal, the Minister for the Co-ordination of Defence, the three Service Ministers and Lord Hankey, Minister without Portfolio.

opposition Labour Party were added, creating th

One example of Churchill's relationship with his military subordinates that illustrates this point is his clash with the head of Fighter Command, Air Chief Marshal Sir Hugh Dowding, in May 1940, over the reinforcement of RAF fighter strength in France. Although it was becoming evident that France was likely to fall and that Britain would soon be facing Germany alone, Churchill was under enormous political pressure from the French government to provide any possible assistance to their defence. When this decision was being considered at the political-strategic level by the British Government, Dowding became directly engaged with Churchill to persuade him not to order the allocation of additional fighter squadrons to operations on the continent, and was successful in convincing him not to do so.

The Military Wing of the War Cabinet Secretariat became his ministerial staff to support him in his new role as the Minister of Defence. In this new organization Churchill's principal military adviser, General Ismay, became his Chief of Staff (as head of the Office of the Minister of Defence). His duties were essentially the same as they had been since the beginning of the war, staff coordination and support to the minister; however, he was also responsible to ensure, "… liaison between the various Service committees and the numerous other bodies concerned with every aspect of the war effort."[21] Churchill also assigned General Ismay to be his representative on the Chiefs of Staff Committee, a body described in more detail below. This effectively meant that he remained the Head of the Chiefs of Staff Secretariat, primarily responsible for assisting in drafting reports and preparing statements for review by the War Cabinet (see below). In addition, he was responsible for the War Room, Britain's strategic operations centre

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[21]Butler, *Grand Strategy: Volume II…*, 248.

within the Ministry of Defence. It had been established based on pre-war recommendations by the Chiefs of Staff Committee, as a Joint Operational-Intelligence Centre, located under the War Cabinet offices.[22]

In response to concerns arising from the conduct of the Boer War, the British government had established the Committee on Imperial Defence (CID) in 1904.[23] This committee, which consisted of those ministers involved in defence issues, was responsible for advising the Cabinet on all defence-related matters, as well as examining potential defence concerns on the Cabinet's behalf. The committee was suspended during the First World War, when its responsibilities were assumed by the War Cabinet; however, in 1919 it was re-instituted in its original role.

One of the sub-committees that was subsequently formed under it to deal with specific areas and issues was the Chiefs of Staff Sub-Committee, established in 1924.[24] The Prime Minister, as chairman of the CID, was also the *ex officio* chair of this sub-committee, which consisted of the three Service Chiefs (the First Sea Lord, the Chief of the Imperial General Staff (CIGS) and the Chief of the Air Staff). Each of these individuals was responsible to provide advice regarding their respective Service, but more notably this group was "… charged with the collective responsibility for advising His Majesty's Government on defence policy as a whole."[25]

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[22]N.H. Gibbs, "Grand Strategy: Volume 1: Rearmament Policy," in *History of the Second World War: United Kingdom Military Series*, ed. J.R.M. Butler (London: Her Majesty's Stationery Office, 1976), 770-771.

[23]Ismay, *The Memoirs of...*, 45-46.

[24]*Ibid*., 50-51.

[25]*Ibid*., 108.

With the establishment of the War Cabinet in September 1939, the CID was once again suspended, and as a result the Chiefs of Staff Committee reported directly to the War Cabinet. Unfortunately, this was found to be impractical, so in October 1939 the Standing Ministerial Committee on Military Co-ordination was created to focus on defence issues and to act as the link between the War Cabinet and the Chiefs of Staff Committee. As outlined above, Churchill subsequently replaced this group with the Defence Committee.

The Chiefs of Staff Committee faced its first real wartime challenge with the Norwegian campaign in April 1940, but did not perform as the effective 'Battle Headquarters' that had been envisaged. Rather than coordinating and directing the actions of the three Services, the Chiefs acted independently and issued direction with no inter-Service consultation.[26] The lessons learned from this experience were quickly identified and the shortfalls were addressed, so that it, "… developed in course of time into the most efficient Battle Headquarters in our history."[27] This development process began during the campaign in France and Belgium, and was hastened by the imminent threat of German attack following the withdrawal of the BEF in early June.

By virtue of their central role at the military strategic level, the daily 'battle rhythm' for the Chiefs of Staff Committee was quite demanding. The Chiefs normally met each morning, first on their own and then with the Minister, dealing with a wide variety of issues, from short term problems to long term planning. This was then followed by their attendance at a meeting of the War Cabinet. The Defence Committee

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[26]*Ibid*., 111-112.

[27]*Ibid*., 112.

(Operations) normally met in the afternoon or evening. Throughout the day the staff, under General Ismay, supported the Prime Minister, keeping him current, "… in home defence, in British and enemy munitions production, in foreign and Free French affairs, and in Secret Service activities."[28]

This routine was frequently affected by the tempo of activity during the summer and fall of 1940, as the British government and military leadership reacted to daily events and to developments in the ongoing campaign. On September 7th, for example, the Chiefs of Staff were informed that the Germans were moving invasion barges to the Channel ports and concentrating their dive-bombers near the Straits of Dover. Based on this, as well as on information from captured German agents, they believed that an invasion was imminent. As a result, in the midst of heavy air attacks on London, they met at 5.20 p.m., and ordered the Home Forces to be brought to instant readiness by issuing an 'Invasion imminent' message at 8:07 that evening.[29]

It was soon recognized that the Chiefs of Staff were faced with a considerable workload, so Vice-Chiefs were appointed to assume the bulk of their departmental duties. Nevertheless, the scope of their responsibilities remained quite wide, from current operations to future plans and policies regarding military problems around the globe. Although efforts were made to assign as many of these duties as possible to the Vice-Chiefs so that the Chiefs of Staff could focus on major strategic issues, this was not entirely successful; thus, there was no noteworthy change in their overall workload.

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[28]Butler, *Grand Strategy: Volume II…*, 249.

[29]Basil Collier, *The Battle of Britain* (London: B.T. Batsford Ltd, 1962), 169.

To alleviate this problem to some degree, the Chiefs of Staff would normally refer questions to the Joint Planning Sub-Committee, which was made up of the Directors of Plans of the three Services. In situations where a detailed examination of a specific project was required, an *ad hoc* Inter-Service Planning Staff would be nominated by the Joint Planners, and augmented with external assistance as necessary. The Chiefs of Staff Committee would review their reports, and if they could not take action themselves, they would brief the Minister or Cabinet as appropriate. The Joint Intelligence Sub-Committee, which reported directly to the Cabinet and Chiefs of Staff Committee, would also provide advice to the Joint Planning Staff, and the two organizations would occasionally submit joint reports.

If the Prime Minister or Parliament initiated a proposal for a military operation, the Chiefs of Staff Committee would examine it to decide if it was, "… practicable and desirable from a military point of view …".[30] If they determined that it did not meet these criteria, they would then have to present a negative response to Churchill, which would normally result in a lengthy discussion; however, if they held to their position, they would win out, "Not once during the whole war did he overrule his military advisers on a purely military question."[31] If their response was positive, they would task the Joint Planning Staff to prepare an outline plan that would identify the overall concept of operations, the resources required and the date when it could be conducted. Their study would subsequently be reviewed by the Chiefs of Staff, the Prime Minister and the

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[30]*Ibid*., 164.

[31]*Ibid*., 164-165. One example was the Prime Minister's proposal for an attack on Norway in 1941. When the Chiefs of Staff Committee disagreed with him, he did not persist with the issue any further.

Defence Committee. Once the plan was finalized, the War Cabinet would be informed and their approval requested. At that stage, a commander would be appointed, provided with a staff, and directed to proceed with detailed planning and preparations.

The Joint Planning Staff and Joint Intelligence Committee had both originated in the 1930s, and by the start of the war had become integral elements of Britain's strategic level command and control structure. The latter was first established in 1936, and three years later it consisted of the heads of intelligence from all three Services, as well as a representative from the Foreign Office, providing an, "… institutional structure [that] was loose enough to provide great scope for independent thought, but rigid enough to ensure strong connections existed with the wider intelligence infrastructure."[32] Prior to the outbreak of hostilities in 1939, this intelligence structure was contributing effectively to the coordination of intelligence between the three Services and other government departments, which ensured, for example, "… that all exploitable information derived from Luftwaffe wireless chatter, regardless of the department collecting it, would reach the Air Ministry."[33]

Complementing the improved information sharing that resulted from this institutional development within the intelligence organization was the adoption of technological advancements to enhance information gathering capabilities. Developments in radar and photographic reconnaissance were important examples; however, signals intelligence was the key element, using military means to gather information, and linking it into the Government Code and Cypher School at Bletchley

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[32]Samir Puri, "The Role of Intelligence in Deciding the Battle of Britain," *Intelligence and National Security* 21, no. 3 (June 2006): 428.

[33]*Ibid.*, 429.

Park.[34] These technological efforts also contributed to the breaking of Germany's Enigma code, which would provide critical intelligence throughout the war.

Although the British intelligence system experienced some problems during the crises of 1938 and the Norwegian and French campaigns in 1940, they learned from their mistakes and took measures to overcome them. For instance, sub-committees were formed under the Joint Intelligence Committee to enhance its capability to deal with critical issues. Among these was the Invasion Warning Sub-Committee, a joint group formed in May 1940 to review all information regarding the enemy's invasion intentions.[35] After the fall of France, the Joint Planning Staff and the Joint Intelligence Committee were reorganized and expanded:

> This enabled intensive study to be simultaneously devoted to a large number of different plans. It also ensured the closest co-operation, not only between the Service Departments themselves, but also between those Departments and the Civilian Departments particularly involved in war planning, such as War Transport, Home Security and Economic Warfare.[36]

This reorganization continued in August 1940, when Churchill submitted a request to the War Cabinet to have the Joint Planning Committee report directly to him as the Minister of Defence, rather than reporting to the Chiefs of Staff. This request was approved, and on August 24th he issued direction to General Ismay to institute the required changes.[37] While this certainly provided Churchill with a more direct link to

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[34]*Ibid.,* 429.

[35]Peter Fleming, *Invasion 1940* (London: Rupert Hart-Davis, 1957), 171.

[36]*Ibid.,* 161.

[37]Winston Churchill, *The Second World War: Their Finest Hour* (Boston: Houghton-Mifflin, 1949), 249-250.

this key element of the strategic level staff, it did not fundamentally alter the relationship between the Joint Planning Committee and the remainder of the staffs at that level.

The Chiefs of Staff did not identify any grave concerns with the change, with the exception of the CIGS, Field-Marshal Sir John Dill, who was concerned that the Joint Planning Committee would be providing the Prime Minister with military advice outside of the formal chain of command. On August 31st, Churchill wrote to the Secretary of State for War, Anthony Eden to reassure Field-Marshal Dill that there would be no change to the advisory role of the Chiefs of Staff to the War Cabinet or the Prime Minister/Minister of Defence. Churchill confirmed that the Joint Planning Committee's role was, "… merely to work out plans in accordance with direction which I shall give. The advice as to whether these plans or any variants of them should be adopted will rest as at present with the Chiefs of Staff."[38] He also reinforced the essential role of the Defence Committee, "I feel sure that I can count upon you and the other two Service Ministers to help me in giving a vigorous and positive direction to the conduct of the war …"[39]

In addition to this permanent planning organization, Churchill also established and chaired *ad hoc* committees whenever he wanted to focus on a specific aspect of the war effort. These committees discussed, "… strategy, tactics, co-ordination, command, equipment and scientific devices …", and were dissolved when they had achieved their aim.[40] An example of these was the Invasion Conferences, chaired by Churchill through

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[38]*Ibid.,* 250.

[39]*Ibid.*, 250-251.

[40]Ismay, *The Memoirs of...*, 161.

the summer and fall of 1940, with the Chiefs of Staff and all Commanders-in-Chief.[41] At one of the earliest meetings, the Royal Navy indicated that in the event of an invasion, the Home Fleet's capital ships would not be able to operate off of the south-east coast or in the English Channel. Although everyone expected Churchill to react strongly to this, he smiled and said:

> … that he never took much notice of what the Royal Navy said that they would, or would not, do in advance of an event, since they invariably undertook the apparently impossible without a moment's hesitation whenever the situation so demanded … he had not a shadow of a doubt that if the Germans invaded the south coast of Britain we would see every available battleship storming through the Straits of Dover.[42]

Clearly, by the summer of 1940 the structures and processes required at the strategic level to effectively link Britain's political and military leadership had been firmly established. This also included cooperation between Britain's civil and military authorities, which was facilitated at the Cabinet level through the Ministry of Home Security, under the Home Office. As the Department responsible for Civil Defence in Great Britain, this Ministry was also engaged with the War Cabinet and the Defence Committee, and thus interacted directly with the military at the strategic level through the Chiefs of Staff, as part of their mutual involvement in both of these organizations.[43] As will be outlined below, at the operational level this relationship was even closer.

One other organization at the strategic level should be mentioned as this point – the Special Operations Executive (SOE). In early July 1940, Lieutenant-General A.G.B.

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[41] *Ibid.*, 188. "The Army had only one – the Commander-in-Chief, Home Forces; the Navy had five Commanders-in-Chief – the Home Fleet, the Nore, Portsmouth, Plymouth and Western Approaches; and the Royal Air Force had three – the Commanders-in-Chief of Bomber, Fighter and Coastal Commands."

[42] *Ibid.*, 189.

[43] Butler, *Grand Strategy: Volume II…*, 272.

Bourne, the first Director of Combined Operations, suggested to the Chiefs of Staff Committee that there was considerable overlap between government departments and agencies that were focused on subversive activities in German-occupied countries. He recommended that a single Cabinet Minister should be appointed to coordinate these groups. The Chiefs of Staff had also identified this issue, and July 1st had appointed the head of the Ministry of Economic Warfare, Mr. Hugh Dalton, to head, "… a new organisation formed to co-ordinate all action, by way of subversion and sabotage, against the enemy overseas." [44] The Cabinet approved this new organization and its terms of reference on July 22nd, and the Vice-Chiefs met with Mr. Dalton in August to ensure that there was good coordination between them, as the SOE would deal with, "… offensive subversive activities which did not involve the use of officers or men wearing uniform."[45] It was agreed that he would maintain contact with the military side, to ensure that the 'irregular' activity was synchronized with the overall plan, and would consult with the Chiefs of Staff Committee as necessary.

Clearly, at the strategic level British joint planning and operations capability was centred on Winston Churchill, in his role as Minister of Defence, supported by both the Defence Committees of the War Cabinet and the Chiefs of Staff Committee. Major policy questions were referred to the War Cabinet itself, which retained executive authority. If it was necessary to take action in an emergency without prior approval, Churchill would do so and then brief the War Cabinet at the earliest opportunity. Within this structure, the three Service Ministers were still answerable to Parliament as the heads

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[44] *Ibid.,* 261.

[45] *Ibid.,* 261.

of their respective departments, and remained focused on their organization and administration. In addition, as members of the Defence Committee, they were responsible to the Minister of Defence for the development and execution of joint military strategy.

Likewise, the Service Chiefs retained their responsibilities as the military leaders of their respective services, and as the principal advisors on matters involving their individual services; however, as members of the Chiefs of Staff Committee, they were "… charged with the collective responsibility for advising His Majesty's Government on defence policy as a whole."[46] This committee, acting as the joint 'Battle Headquarters' at the strategic level, was responsible not only for strategic military planning (supported by the Joint Planning and Joint Intelligence Committees), but also for operations, through the War Room, Britain's joint operations centre.

It has been acknowledged that this joint structure, headed by Churchill in his dual role as Prime Minister and Minister of Defence, and supported by the capabilities of the key individuals within it, was a highly effective combination.[47] Even so, there were concerns at the time that although it was capable of strong centralized command and control at the strategic level, it would have been unable to provide effective joint coordination in the event of an invasion. As Air Chief Marshall Cyril Newall, the Chief of the Air Staff expressed, "… the present system on which the war is fought by committees, conferences and conversations on the telephone is far too slow and cumbrous

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[46]Ismay, *The Memoirs of…*, 108.

[47]Butler, *Grand Strategy: Volume II…*, 249.

to meet a situation in which we shall be fighting for our lives against direct assault …".[48] His recommendation, as was subsequently discussed at the Invasion Conferences, was that if an invasion occurred, a 'Super Commander' should be appointed to command all military and civil defence forces assigned to the Defence of Great Britain. This individual would report directly to the Prime Minister, rather than through the Chiefs of Staff, and would be provided with a small joint staff. His headquarters (HQ) would have to be linked to those of the other operational Commanders-in-Chief, who would remain responsible for the conduct of their respective operations.[49]

It was widely accepted that in such a crisis Churchill would have without doubt filled this apparent void at the strategic level in his role as the Minister of Defence, and used the Chiefs of Staff Committee as his joint 'Battle Headquarters' (supported by War Room as the strategic level command and control centre). Like the Chief of the Air Staff, however, some remained apprehensive, including General Sir Alan Brooke, the Commander-in-Chief, Home Forces: "… there was no form of combined [joint] command over the three Services … had an invasion developed I fear that Churchill would have attempted as Defence Minister to co-ordinate the actions of these various commands."[50] Nevertheless, no action was taken to address these concerns, which may have been fortunate, because as General Ismay identified:

> … it is difficult to see how any military figure could have performed the duties of Generalissimo not only of all those Fighting Services, but also of the civilian population which would be inextricably involved. The large number of political and domestic issues that would arise could not have been decided by anybody

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[48]*Ibid.,* 273.

[49]*Ibid.,* 273.

[50]Field Marshal Lord Alanbrooke, *War Diaries, 1939-1945: Field Marshal Lord Alanbrooke*, ed. Alex Danchev and Daniel Todman (London: Weidenfeld & Nicolson, 2001), 96.

except the War Cabinet. Thank God no decision on this problem had to be taken, but it seems likely that, if the worst had come to the worst, the Supreme Command over the whole field would have been exercised by the Chiefs of Staff under the direct and continuous supervision of the Prime Minister.[51]

Problems would have undoubtedly been encountered with this

likely that if faced with a military problem he would have deferred to his subordinate military commanders rather than impose his own solution.

In addition, it is important to bear in mind that had Germany launched Operation SEA LION, the defence of Great Britain against this attack would have been a campaign within the overall strategic framework of a war of national survival. While strategic level command and control would have been a crucial element in the success or failure of this campaign as identified above, the operational level of command would have played the decisive role once active operations commenced. As will become evident from the following examination of the operational level structures, there was considerable joint command and control capacity at that critical level. As the subsequent analysis Britain's joint planning and inter-operability capabilities will show, the two levels of command must be considered together in the context of a campaign.

BRITISH JOINT PLANNING AND OPERATIONS CAPABILITY – OPERATIONAL LEVEL

"Which side is the War Office on?"
"'I'm afraid I don't know for certain,' he replied. 'At the beginning of the war we thought that they were on ours, but now we are not at all sure."[52]
(Royal Navy Lieutenant's response to a request for directions at Whitehall from a visiting New Zealand Army Major)

At the operational level the defence of Great Britain in 1940 was firmly centred on the key operational commands within the three Services: the Army's Home Forces (which included the Home Guard and Auxiliary Units), the RAF's Fighter, Bomber and Coastal Commands and the Royal Navy's Home Fleet and Shore Commands. In addition

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[52]*Ibid.*, 112.

to these operational elements of the three Services, the Directorate of Combined Operations, formed in June 1940 to oversee offensive joint operations on the continent, also functioned at the operational level, and offers some insight into joint planning and operations capabilities at that point of the war; however, because of its offensive role, it would not likely have played a major role in the defence of Britain. In order to better understand how these elements participated in the planning and conduct of joint operations, it is necessary to first review the overall organization and function of each, in particular their command and control structures, as well as their respective defensive preparations, before examining how they interacted to create joint effects.

The British Army's total strength had not increased appreciably from its original 33 divisions at the outbreak of war by the time the BEF returned from France and Belgium in June 1940.[53] At that point, although several formations and units were still deployed overseas, particularly in the Middle East, the majority of the Army's strength was concentrated in Britain, primarily under Home Forces. As of May 1940, the regionally-based commands within Home Forces (less Scottish Command) were established as Army HQs, with corps HQs subordinate to them. Formations in Northern Ireland/Iceland remained under the War Office, vice the Commander-in-Chief Home Forces.

Although the return of the bulk of the BEF had essentially added 12 divisions to Home Forces for the defence of Britain, it had also served to amplify the Army's already

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[53]David French, *Raising Churchill's Army: The British Army and the War against Germany, 1919-1945* (Oxford: Oxford University Press, 2000), 187.

significant training and resource problems.[54] Not only did it have sufficient equipment for only two of its divisions, Home Forces was also faced with significant deficiencies in both collective and individual training. The latter had been specifically impacted by an increase in recruit intake in the summer of 1940. Having controlled recruiting between September 1939 and May 1940 in order to balance the manpower needs of the Army with both its own individual training capacity and the manpower requirements of industry, the Army took in 324,000 men between June and August, placing a considerable strain on its training establishments. In terms of collective training in Home Forces, by early-June, "Of the sixteen divisions, two had done no divisional training, five had done very little, and nine had reached a standard described as "fair"."[55] The Chiefs of Staff Committee's assessment at the end of May was that, "Should the Germans succeed in establishing a force with its vehicles in this country, our Army forces have not got the offensive power to drive it out."[56]

Fortunately, the resource situation improved over the next three months, with significant increases in the numbers of tanks, field guns and anti-tank guns by early-September, enabling Home Forces to equip 12 of its 27 divisions to a satisfactory level.[57] Nevertheless, the training status remained a concern, as half of the divisions had undergone minimal collective training:

> Troops intended to serve as mobile brigade groups were of good quality, but lacked experience of *Blitzkrieg* tactics; and unrehearsed arrangements for bomber,

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[54]Fleming, *Invasion 1940...*, 198-199. There were huge shortfalls in equipment, Anti-Tank guns, Bren guns, mortars, vehicles, tanks and artillery.

[55]*Ibid.,* 198.

[56]*Ibid.,* 197.

[57]Basil Collier, *The Defence of the United Kingdom* (London: Her Majesty's Stationery Office, 1957), 219. "Four divisions were fully equipped, eight fairly well equipped …"

fighter and training aircraft to share in a joint-service effort against the invader would doubtless have come up against many difficulties in practice.[58]

When General Brooke returned to Britain with the BEF in June 1940, he was appointed to command Home Forces' Southern Command. This considerable area, shown in Figure 2 below, was defended by a Corps HQ, one Regular division and two Territorial Army divisions. His initial impressions of Southern Command were not

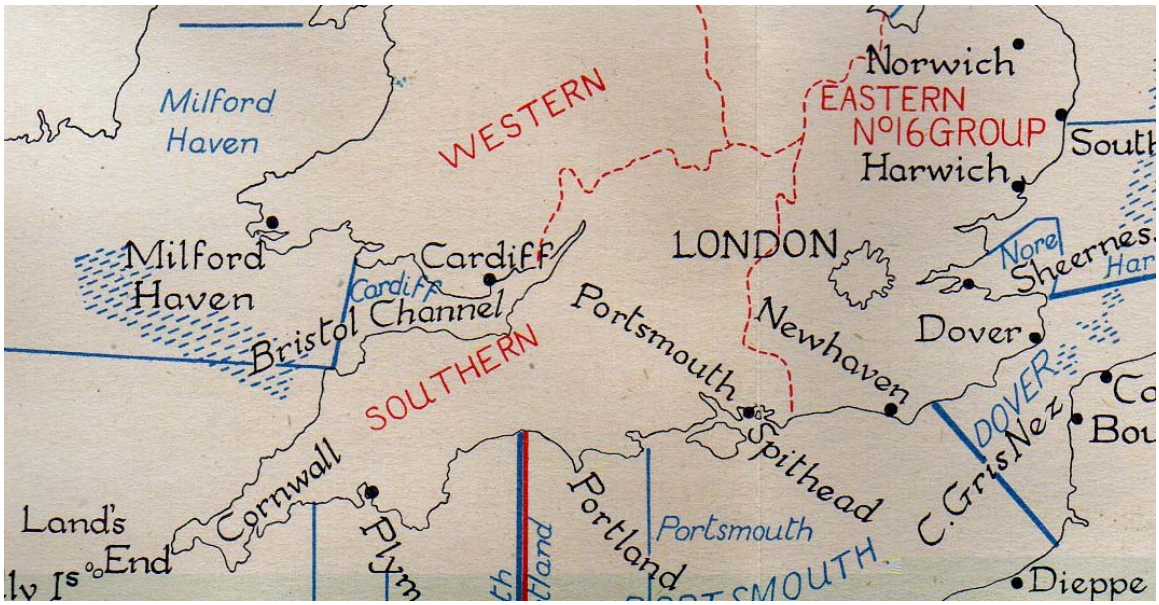

Figure 2 – Home Forces Commands

Source: Collier, *The Defence of the United Kingdom*, Map 9.

favourable, particularly in terms of the shortfalls in training and equipment, "… the Command had a long way to go to be put on a war-footing … There are masses of men in uniform, but they are mostly untrained: why, I cannot think after ten months of war."[59] He was also concerned about the development of the coastal defences, but was principally focused on the establishment of a mobile reserve within his area of

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[58]*Ibid.,* 219.

[59]Bryant, *The Turn of the Tide*…, 189.

responsibility. He identified these problems to General HQ, Home Forces, and requested a second Corps HQ, another division and some armoured units to reinforce his command.

On July 19th, the same day as Hitler's final peace offer, General Brooke was appointed Commander-in-Chief, Home Forces, replacing General Edmund Ironside.[60] Having had nearly a month in Southern Command to gain an appreciation for the state of defensive preparations in Home Forces, General Brooke made immediate changes. He was specifically concerned with the existing defensive plans, which were focused on strong resistance along the coastline, supported by successive linear defences designed to hold the enemy until a central reserve could be moved into position for a massive counterattack. These plans did not provide for adequate reserves at the Army (regional command) level to conduct counterattacks on the landings before they could penetrate the coastal defences.

General Brooke had determined that an invasion could only be defeated through immediate counter-attacks against the landings, supported by heavy air-attacks on the landing sites, to push the Germans back before they could consolidate, thus he wanted,

> … a light line of defence along the beaches, to hamper and delay landings to the maximum, and in rear highly mobile forces trained to immediate aggressive action intended to concentrate and attack any landings before they had time to become too well established.[61]

As a result, he immediately re-positioned his operational reserve farther south, closer to the likely landing areas on the south and east coasts of England. In addition, to create the local reserves required for tactical level counterattacks, he ordered that the defensive lines

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[60]Henry Wills, *Pillboxes: A Study of UK Defences in 1940* (Trowbridge, UK: Leo Cooper in association with Secker and Warburg, 1985), 13.

[61]Bryant, *The Turn of the Tide*…, 198.

being established in depth across the country be limited to the development of strongpoints at major road-junctions and communications nodes. Rather than being permanently garrisoned, these would instead be defended by whatever forces were available. He found that the obstacles being placed on routes in/out of villages and towns would hamper his own mobility, particularly that of his reserves, so he stopped work on them, and ordered the removal of as many of the existing ones as possible. To augment the surveillance and early warning provided by RAF and RN patrols, Home Forces established its own screen of coastguards and coast-watchers.

The Army essentially possessed its own integral air support in the form of the eleven Air Co-operation Squadrons of the RAF's No. 22 Group.[62] These squadrons were assigned under Operational Control of the Army to provide tactical reconnaissance support, while the RAF retained responsibility for their administration.[63] The Group had deployed a number of its squadrons forward with the BEF in 1939, and by the summer of 1940 it had re-constituted in Britain in preparation for supporting Home Forces operations. While the Air Co-operation Squadrons would fulfill an important role in enhancing the Army's reconnaissance capacity, they represented a limited capability in relation to the actual air support that Home Forces would require to conduct operations against a German beachhead.

An important asset available to the Commander-in-Chief, Home Forces, was the Home Guard. This organization had originated with a call for Local Defence Volunteers (LDV) on May 14th, 1940 that attracted over 250,000 volunteers within a week, the vast

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[62]Collier, *The Defence of...,* 200.

[63]*Ibid.,* 36.

majority of whom were former servicemen.[64] Unfortunately, there were no weapons or uniforms immediately available, nor was there an established chain of command within which to organize the groups of volunteers. This latter issue was quickly rectified, as Lords Lieutenant in the counties selected local commanders, in consultation with the senior military commander in their area, and retired officers were appointed as Area, Zone and Group organizers.[65] The provision of uniforms and weapons was a longer-term problem; however, the arrival of rifles from the US in July considerably improved the situation.

The LDV was initially limited to company-strength units, based on towns and villages; however, larger cities eventually had battalion-sized organizations, controlled by Zone HQs. On May 30th General HQ, Home Forces, passed administrative responsibilities for the LDV to the War Office, but retained operational control.[66] As part of Home Forces, its role was to provide a framework of defended localities, based on villages and townships that would restrict the movement of enemy forces and limit their ability to consolidate once they had landed. In due course, "… mobile detachments equipped with motor-cars, motor-cycles and bicycles were formed among the younger men."[67]

The LDV were renamed the Home Guard on July 31st, by which time the organization had grown to nearly half a million.[68] The Home Guard was a significant

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[64]Fleming, *Invasion 1940...*, 199.

[65]*Ibid*., 199.

[66]*Ibid*., 200. The War Office appointed a Director-General and assigned a staff to support him in the administration of the LDV (Home Guard).

[67]Collier, *The Defence of...,* 220.

asset in guarding static points, which Home Forces would have otherwise had to garrison with Army troops. This would have further restricted their ability to conduct training, which, as we have seen, was already a critical deficiency.

Another element available to General Brooke in the event of an invasion were the Auxiliary Units, which were formed in 1940 to act as a resistance organization behind enemy lines, overseen by a small staff at General HQ, Home Forces. They originated from an initial proposal to have small groups of selected Home Guard members, led by Army officers and trained and equipped to inflict damage and casualties on an occupying force while operating from secure hide-outs, "… stocked with rations, blankets, cooking-stoves and so on, as well as with explosives, sabotage equipment and wireless sets."[69] By the summer of 1940, 20 units of approximately 15 men each had been formed across the country, operating within the framework of three special Home Guard Battalions created to cover the Auxiliary Units' activities.[70] Within each Auxiliary Unit's area of operation there would also be small Home Guard 'cells' whose members had received specific training in sabotage techniques and explosives in order to act as partisans once their areas were overrun.[71]

During the summer of 1940 the Auxiliary Units detachments conducted reconnaissance of likely enemy HQs locations within their areas, as good targets for potential attacks. Despite their preparations and training, their main challenge in operations would have been communications, and coordinated action between units

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[68]*Ibid*., 200.

[69]Fleming, *Invasion 1940...*, 270.

[70]*Ibid.*, 271.

[71]*Ibid.,* 271.

would have been virtually impossible. As with most Home Forces' elements, the Auxiliary Units suffered from a lack of equipment; however, as Churchill wrote to the Secretary of State for War in September 1940, "… these units … should, in the event of an invasion, prove a useful addition to the regular forces."[72]

Upon invasion, all Army formations in the United Kingdom, less Anti-Aircraft Command (which was assigned under Operational Control of Fighter Command) and some specific formations like the Free French, would be under the Commander-in-Chief, Home Forces, General Brooke.[73] The employment of Liaison Officers at key HQs, and the attachment of senior naval and RAF officers to General HQ, Home Forces, "… kept the Commander-in-Chief, Home Forces, in touch with the sister-services …"[74] In fact, General HQ, Home Forces, had a Combined Central Operations Room (CCOR), "… where the Army defence plans were coordinated with those of the Navy and the RAF …".[75] Given his central role in this potential campaign, Commander-in-Chief, Home Forces had direct access to the government, with an Advanced HQ near the Cabinet War Room. This would enable close coordination and consultation between him and his staff and the Chiefs of Staff Committee.

Like Home Forces, the three operational commands within the RAF in Britain – Fighter, Bomber and Coastal Commands – all had a role to play in the defence of Great Britain in 1940. As history has shown, it was Fighter Command that would bear the

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[72]*Ibid.,* 270.

[73]Collier, *The Defence of...,* 145.

[74]*Ibid*., 145.

[75]Charles Carrington, *Soldier at Bomber Command* (London: Leo Cooper, 1987), 17. Carrington himself acted in a liaison role between, "… the War Office, the Air Ministry and GHQ [Home Forces] …".

brunt of the *Luftwaffe's* assault between July and September, which was aimed at achieving air superiority over southern England as a pre-condition for Operation SEA LION. Nevertheless, each of these three commands would be part of the overall defensive effort; therefore, it is necessary to examine each of them in turn to and identify their contribution to the joint effort in the summer of 1940.

Although by July 1940 Fighter Command had recovered somewhat from the losses incurred during the campaign in France and Belgium, there were still shortfalls in its 52 fighter squadrons, particularly in pilots.[76] This was alleviated to a certain degree by the transfer of pilots from the Royal Navy and the other RAF Commands.[77] Aircraft were still not available in the required numbers, and priority of defence production went to the aircraft industry, as "If this could not be kept in continuous and large-scale production, the defeat of the fighter force was only a matter of time."[78] The Civilian Repair Organization, set up in 1938 under the Air Ministry and subsequently transferred to the Ministry of Aircraft Production in May 1940, made a major contribution to this effort, and in conjunction with the RAF's salvage units and repair depots was repairing 160 aircraft per week by July.[79] Adding to the strain was the requirement to extend

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[76]Terraine, *The Right of the Line…*, 174. Fighter Command started the battle on July 7th 197 of 1456 pilots short. Of the 52 squadrons available at that time, "… 19 squadrons were equipped with Spitfires, 25 with Hurricanes, two with Defiants and six with Blenheims."

[77]*Ibid.,* 193. In addition to the loan of two fighter squadrons, the Royal Navy's Fleet Air Arm transferred 58 pilots to Fighter Command. In addition, 20 pilots were loaned by Bomber Command, three Blenheim squadrons were transferred from Coastal Command and 12 pilots were loaned from Air Cooperation. As the battle progressed, pilots from the Commonwealth, Belgium, Holland, France, Czechoslovakia, Poland and the US helped to form new squadrons and replace pilots in existing squadrons.

[78]T.C.G. James, "The Battle of Britain," in *Royal Air Force Official Histories*, ed. Sebastian Cox (London: Frank Cass, 2000), 14.

[79]Terraine, *The Right of the Line…*, 190-191. In the second half of 1940 repaired aircraft represented 35% of the aircraft issued to fighter squadrons.

Fighter Command's defensive coverage to the south-west of England, given that the Luftwaffe could conduct air attacks from airfields in France. This process began in July, and by mid-August No. 10 Group had assumed command of the fighter squadrons in its area, supported by an expanded radar chain and newly-established Observer Corps locations.[80]

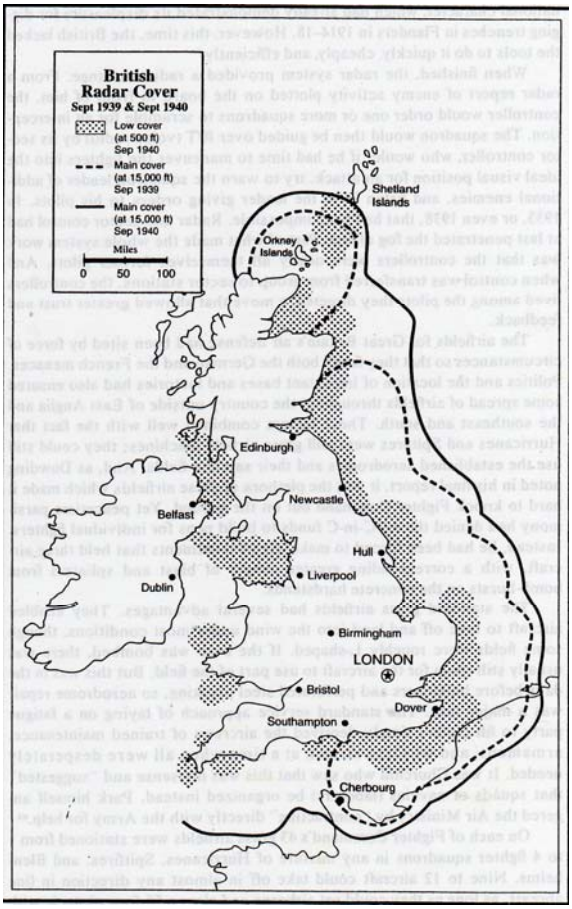

Figure 3 – Radar Cover: 1939-1940

Source: Higham, *The Royal Air Force and the Battle of Britain*, 156.

Fortunately for Britain, Fighter Command's 'Dowding System', based on a well-balanced command and control capability, supported by a multi-tiered early warning

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[80]James, *The Battle of...,* 5.

organization enabled by technological advances in radar, and a very effective signals intelligence system, all linked together by multiple communications networks, would enable it to fight on its own terms to the maximum extent possible.[81] Created under the leadership of Air Chief Marshal Dowding, this system enabled Fighter Command to receive advance warning of German attacks, primarily from the combination of the radar network and the Observer Corps, and then coordinate its response through its comprehensive command and control network.[82]

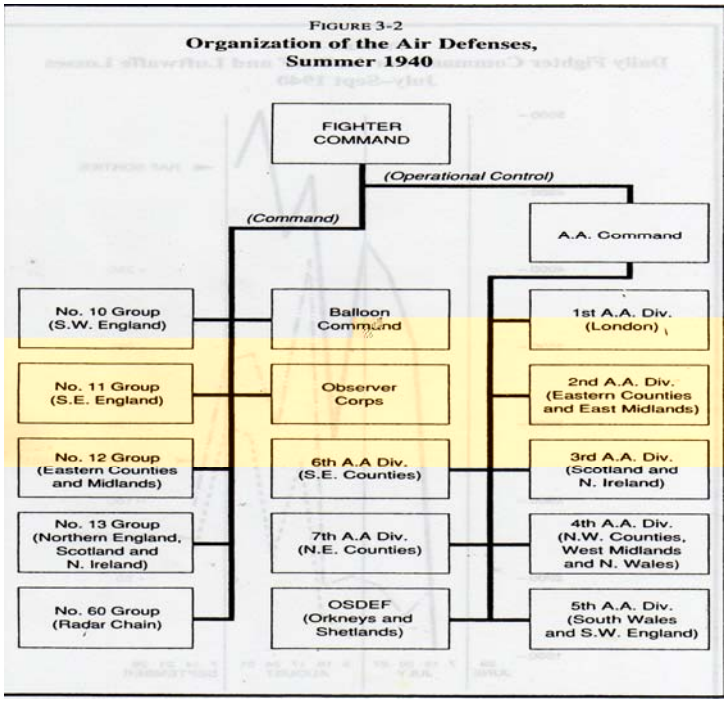

Figure 4 – Fighter Command, Summer 1940

Source: Higham, *The Royal Air Force and the Battle of Britain*, 122.

Figure 4 shows the organization of Fighter Command in the summer of 1940, which included Balloon Command and the Royal Observer Corps, both of which were

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[81]Terraine, *The Right of the Line…*, 177. The "Y" Service was the RAF's radio intercept system, which by the summer of 1940 was providing outstanding signals intelligence.

[82]*Ibid.*, 175.

separate RAF operational commands that were assigned to Dowding's command. The diagram also shows that Anti-Aircraft Command, an Army operational level formation, had been placed under the Operational Control of Fighter Command. In fact, the necessity for a strong association between these commands had been recognized when Anti-Aircraft Command was established in 1939, and as a result their headquarters were co-located on the same grounds. With this command structure, "Dowding was the overall operational commander of all the means that were available for the defence of the country in the air."[83]

Within the Fighter Command structure, the Group HQs were in communication with their subordinate Sector HQs, not only providing direction, but sending and receiving a constant flow of information regarding incoming raids and current engagements. The close relationship with Anti-Aircraft Command was also reflected at the Group level, with Division HQs co-located with the Group HQs of Nos. 11, 12 and 13 Groups.[84] In turn, each Sector HQ commanded a series of airfields and fighter squadrons, and was linked to the Observer Corps Centre, Anti-Aircraft Command units and Balloon Command units in its area. The key individuals in the Operations Rooms at the Sector HQs were the Sector Controllers, who had executive authority over their squadrons when they were not directly engaged in combat.[85] At the centre of the entire system was Fighter Command HQ at Bentley Priory, which was linked to all of the

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[83]Robert Wright, *The Man Who Won the Battle of Britain* (New York: Charles Scribner's Sons, 1969), 83.

[84]James, *The Battle of...,* 8.

[85]Terraine, *The Right of the Line…*, 180.

Group HQs, as well as to the HQs of both No. 60 Group (radar) and the Observer Corps. As the heart of the 'Dowding System'; the Fighter Command Operations Room was:

> … the only place where the whole battle … could be – and was – centrally controlled. And there sat Dowding, with General Pile of AA [Anti-Aircraft] Command, the Commandant of the Observer Corps, liaison officers from Bomber and Coastal Commands, the Admiralty, the War Office and the Ministry of Home Security: the chief brain-cell of the defence of Great Britain.[86]

Although the air battle over southern England in August and September would push Fighter Command almost to the limit of its personnel and equipment resources, the 'Dowding System' allowed it to counter the *Luftwaffe* very effectively. The strong centralized control of the Command's assets also allowed Dowding to rotate squadrons between Groups to spread the workload more evenly, and to reinforce No. 11 Group as required, particularly with squadrons from No. 12 Group.[87] This, in turn, supported his effort to retain fighter strength in the event that the situation worsened and the *Luftwaffe* was able to gain limited air superiority over the southern coast.

For its part, Bomber Command was organized in five Groups, as it had been when the war began, with a total of fifteen medium and twenty heavy bomber squadrons.[88] As noted above, at the operational level the Command was closely linked into the defensive battle through its representatives in the Fighter Command Operations Room, enabling it to maintain situational awareness as well as a close relationship with the other operational

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[86]*Ibid.*, 180.

[87]Murray, *The Battle of Britain…,* 13.

[88]Butler, *Grand Strategy: Volume II…*, 283. The medium squadrons were equipped with Battles and Blenheims, while the heavy squadrons were based on Wellingtons, Whitleys and Hampdens.

commands engaged in the campaign. In addition, its own Operations Room was in direct contact with General HQ, Home Forces.[89]

In the summer of 1940, Bomber Command remained focused on its strategic role as part of the British war effort against Germany, as it would throughout the war. Nevertheless, the threat of invasion necessitated a re-orientation onto the operational imperative of preventing, or if necessary, defeating Operation SEA LION. As a result, although strategic attacks on German industrial targets were to continue throughout this period, they were also linked to Britain's immediate operational objectives, with the aircraft industry becoming a primary target for this effort.[90] More significantly, as the invasion threat increased, Bomber Command would become more involved in air strikes on German air bases to attrite *Luftwaffe* strength and attacks on ports of embarkation in order to destroy any shipping that was being pre-positioned for the invasion.

Coastal Command's primary role had been confirmed by the Air Ministry in December 1937 as, "… 'trade-protection, reconnaissance and co-operation with the Royal Navy'."[91] It was subsequently organized on a geographical basis and its Group HQs were located, "… where naval, air and possibly also army commanders could control their respective forces from joint operations rooms with the help of integrated staffs."[92] This co-location was, of course, primarily focused on maintaining a close relationship with the Royal Navy's operational level HQs; therefore, these joint HQs will

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[89]Carrington, *Soldier at…,* 13. A radio link was established between these two HQs as a back up in case all other means of communications broke down during an invasion.

[90]Collier, *The Defence of…,* 139.

[91]*Ibid.,* 56.

[92]*Ibid.,* 57.

be described in more detail below. The Commander-in-Chief Coastal Command, as an operational commander, had a direct link to the strategic level as, "… 'chief adviser to the Admiralty and Air Ministry on all home air operations involving naval co-operation', the Commander-in-Chief occupied a position of exceptional responsibility towards his own service and towards the navy."[93]

Coastal Command's maritime patrol responsibilities were expanded in the summer of 1940 to include not only the coverage of all sea approaches to the British Isles, but also detailed reconnaissance of German-controlled ports, in order to detect invasion preparations as far in advance as possible. In addition to reconnaissance, attacks on shipping were conducted as part of the overall effort to destroy German invasion transports and barges. Coastal Command had approximately 16 squadrons to carry out these tasks; however, the reconnaissance responsibilities were supported, "… by the Photographic Reconnaissance Unit, which revealed to skilled interpreters the waxing and waning strength of the craft assembled for invasion."[94] This unit also received and analyzed air photographs provided by Bomber Command.

As it had since the beginning of the war, in the summer of 1940 the Royal Navy provided Britain with a clear advantage in naval power over the German *Kriegsmarine*.[95] Although both had suffered losses during the Norwegian Campaign in April and May, the Royal Navy's operational fleets in home waters – the Home Fleet (stationed in Scapa Flow) and the four Shore Commands: Western Approaches (Plymouth), Portsmouth,

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[93]*Ibid.,* 58.

[94]Butler, *Grand Strategy: Volume II…*, 283.

[95]Collier, *The Defence of…,* 135-136.

Nore (Chatham) and Coast of Scotland (Rosyth) – far outmatched the *Kriegsmarine* in strength.[96]

Nevertheless, the challenges facing these five operational commands had been amplified by the German occupation of Norway and France, as their primary tasks of blockading the *Kriegsmarine* in the North Sea, protecting merchant shipping in the Western Approaches (Eastern Atlantic) and countering an invasion across the Channel became much more difficult as Germany gained access to ports beyond the North Sea. The occupation of Norway had made the first task significantly more demanding, as it enabled German merchant raiders to stage through Norwegian waters and ports before moving into the Atlantic, meaning that the Home Fleet had to patrol a much larger area. The fall of France had enabled the Germans to dominate the Straits of Dover, primarily with coastal guns and aircraft, which soon forced the Royal Navy to withdraw its destroyer flotilla in Dover to Portsmouth.[97] This forced the British to reduce, and at times abandon, the passage of critical shipping through the Straits, and complicated the Navy's ability to carry out its task of countering an invasion.

By May 1940, the Admiralty had developed an initial plan for the disposition of its operational fleets to best meet its three primary tasks, and as its ship strength improved over the next three months, the plan evolved to match capabilities to tasks.[98] The Home Fleet's heavy ships (battleships and cruisers, supported by an aircraft carrier) would

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[96]Antony Preston, *An Illustrated History of the Navies of World War II* (London: Hamlyn, 1976), 68-69. The *Kriegsmarine* had lost one heavy cruiser, two light cruisers and 10 destroyers in the Norwegian campaign, and a number of ships, including its two battle-cruisers were under repair. As a result, even by August 1940, there were only three cruisers and six destroyers available for active duty.

[97]Collier, *The Defence of...,* 132.

[98]*Ibid.,* 136-138.

remain in Scapa Flow until the threat of invasion became critical, at which time some ships would be deployed further south to be able to react more quickly to counter any German heavy ships (battle-cruisers and heavy cruisers) attempting to support the invasion. The fleets of the Shore Commands were based on destroyer flotillas, supported by all available cruisers and any smaller vessels not assigned to convoy escort tasks. These would be the primary striking force to attack German invasion shipping in the Channel once Operation SEA LION was launched. Unfortunately, the withdrawal of destroyers and escort vessels from their anti-submarine tasks in the Western Approaches led to significant increases in shipping losses to U-boats, which were also benefiting from their ability to stage from French Atlantic ports.[99]

From a command and control perspective, the five operational Naval Commands were located as outlined above, and Coastal Command Group HQs were co-located with three of them – Western Approaches Command (Plymouth), Nore Command (Chatham) and Coast of Scotland Command (Rosyth). While it was not possible to co-locate with the Home Forces' regional HQs at that point, Liaison Officers were employed to ensure close coordination. These joint HQs had been established prior to the war as 'Area Combined HQs', and this command system was successfully exercised in a coastal defence and trade protection context in 1938 using the initial HQs in Rosyth and Chatham.[100] The combination of, "… the Area Combined Headquarters, and the special status of the Commander-in-Chief, Coastal Command, as air advisor to the Admiralty,

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[99]Captain S.W. Roskill, *The War at Sea, 1939-1945: Volume I: The Defensive*, in History of the Second World War: United Kingdom Military Series, ed. By J.R.M. Butler (London: Her Majesty's Stationery Office, 1954), 253. British shipping losses from all causes over the period March-May 1940 totalled 553,688 tons, but from June-September the total was 1,818,259 tons.

[100]Collier, *The Defence of...,* 57-58. As was outlined earlier under terminology, the term 'Combined' in this case is used in accordance with its common usage at that time.

provided links between the naval and air branches of maritime defence."[101] In fact, this concept was extended to the tactical level, as Fortress Combined HQs (subsequently re-named Combined Defence HQs), "… were established at the Forth, the Tyne, Harwich and the Thames and Medway to control local defences...".[102]

Looking beyond the operational HQs of the three Services, as outlined earlier, the Directorate of Combined Operations would not have played a major part in the defence of Britain, although it may have been employed to conduct raids against any German-occupied areas of the country if Operation SEA LION had succeeded in establishing a beachhead. When Lieutenant-General Bourne was appointed to lead the new organization in June 1940, he took command of six Independent Companies (Army) as well as the Inter-Service Training and Development Centres (ISTDC), and became the Chiefs of Staff Committee's adviser on Combined Operations.[103] The first of these centres had been formed in 1938, to develop concepts on amphibious and airborne operations, but had been disbanded when the war began.

He soon submitted his plan for the concept of operations, organization and equipment of the new Directorate, which was approved by the Chiefs of Staff on June 20th.[104] In addition to raids, his concept of operations included operations to seize or

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[101]*Ibid.,* 145.

[102]*Ibid.,* 57.

[103]Butler, *Grand Strategy: Volume II…*, 259.

[104]*Ibid.*, 259. "On June 20 the Chiefs of Staff gave general approval to Bourne's scheme for the organisation and equipment of the Directorate of Combined Operations, as it was now renamed. Among his naval requirements he asked for four ships to serve as landing-craft carriers and depot ships, for a total (including the vessels already ordered) of some 200 landing-craft, and 100 motor boats. On the Army side he envisaged 10 Independent Companies, including several composed of Allied troops, each about 200 men, and ten Commandos of 500 men each. On the Air side a parachute training centre was to be formed at once, and enough Whitley bombers adapted to carry 720 fully armed men and 60,000 lb. of stores."

secure points of importance. For these, "… proposals would be received from the Joint Planning and Inter-Service Planning Staffs, who would have submitted drafts of directives to the Chiefs of Staff for approval."[105] Thus, working at the operational level, with his small inter-Service staff planning and conducting joint operations, Lieutenant-General Bourne and his successor, Admiral of the Fleet Sir Roger Keyes, were directly linked to the strategic level through the Chiefs of Staff Committee, and worked in close cooperation with the Joint Planning Staff.

As was outlined above, cooperation between Britain's civil and military authorities at the strategic level was facilitated through the Ministry of Home Security, which, as the Department responsible for Civil Defence in Great Britain, was engaged with the War Cabinet and the Defence Committee, and interacted directly with the military at the strategic level through the Chiefs of Staff. In order to establish a solid link between the civil and military authorities at the operational level, based on recommendations from the Chiefs of Staff Committee, and in consultation with the Ministry of Home Security, the Home Defence Executive (HDE) was formed under the Commander-in-Chief, Home Forces in May 1940.

Its mandate, as outlined in the Chiefs of Staff Committee's Directive, covered specific, "… aspects of the problem – such as the security of communications, the preparation of demolition plans, the evacuation of the civil population, the combating of

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[105] *Ibid*., 260. In addition to these larger operations, Lieutenant-General Bourne, envisaged two types of raids, "… small raids intended to compel the enemy to disperse his resources and maintain defence along his entire coastline; [and] demolition raids, which would normally be carried out by somewhat larger forces …".

Fifth Column activities …".[106] It incorporated the commanders of Bomber, Fighter and Coastal Commands of the RAF, as well as representatives from the Admiralty, the Air Ministry, "… and the operational staff of the Ministry of Home Security, as the Department concerned with Civil Defence."[107]

The HDE was responsible to the Chiefs of Staff Committee, while its members remained responsible to their own ministers. This arrangement would ensure that plans to counter a seaborne or airborne attack would be coordinated by the Commander-in-Chief (Home Forces) in cooperation with the key leadership of all military and civil defence forces across the country. It was quickly realized that the HDE required ittlegary tg 0.00l scer

Chief Home Forces, supported by his own staff augmented by senior representatives from the other Services, as well as Sir Findlater Stewart as the chief Civil Staff Officer, "… would occupy an Advanced Headquarters in the Cabinet War Room and would have direct access to the Prime Minister."[110] Until that time, the HDE would continue to perform its coordination role at the operational level.

By June, Sir Findlater Stewart had assumed a very active leading role in the HDE, acting as the link between Home Forces and other government departments engaged in defence activities. He was instrumental in the coordination of new arrangements for the evacuation of civilians, particularly for those who would remain in place until ordered to withdraw under control of the local military and civil authorities.[111] Below the national level, civil authority was exercised through the network of Regional Commissioners across the country, each responsible to the Minister of Home Security for one of the twelve regions. These crucial local representatives of the central government were supported by staffs that included officers from each of the three Services, thus providing, "… in each area [region] a single civil authority to which the local military commanders could refer."[112]

Clearly, while each of the operational commands within the Army, RAF and RN continued to function within the traditional chain of command in their respective Services, by the summer of 1940 joint headquarters had been established at the operational level to enable these elements to plan and conduct operations in the defence

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[110]*Ibid*., 273-274.

[111]Collier, *The Defence of*..., 144-145.

[112]Butler, *Grand Strategy: Volume II*..., 274.

of Great Britain that would employ forces from all three Services, as well as civilian resources. Fighter Command HQ, the Area Combined HQs and General HQ, Home Forces (which also incorporated inter-agency capabilities through the inclusion of the HDE), definitely provided these commanders with the means to plan, coordinate and conduct joint operations.

The key issue in the event of an invasion would have been that each of these joint HQs was responsible for a reasonably specific aspect of the campaign, based on the traditional roles of the respective Services; therefore, there was no central joint HQ at the operational level that could exercise absolute control over all resources at that level. Under the pressure of a campaign on British soil, if these HQs had proven unable to coordinate their efforts through their existing command and liaison relationships, this situation would probably have led to one of two outcomes: the assumption of operational level command and control by the Prime Minister/Minister of Defence, through his existing strategic staff, or the establishment of a single joint HQ under one of the key operational commanders.

In the latter case, the most likely option would have been to consolidate command and control under General Brooke, Commander-in-Chief, Home Forces, as at that point in the campaign, with a German beachhead established in southern England, the main effort at the operational level would undoubtedly have been centred on him as the supported commander. His joint HQ, particularly with its Advanced HQ co-located with the War Room, was very well-situated to act as an effective operational level joint HQ for this aspect of the campaign. In this situation the strategic level joint HQ, centred on the Chiefs of Staff Committee and the Defence Committee (Operations) and under

Churchill's leadership, could have continued to provide the direction and guidance required by the three Services and their subordinate operational level commanders.

HQ structures aside, inter-service cooperation would certainly have played a crucial role in this campaign, particularly under these circumstances. Before examining British joint capabilities within the specific context of its potential response to Operation SEA LION, it is useful to consider the level of cooperation that existed between the three Services at that point in the war.

During the inter-war period, relations between the Army and the RAF had been indifferent, and despite Britain's commitment to an expeditionary deployment as of 1939, and the requirement for air support for that expeditionary force, relations had not improved by the time the Second World War began.[113] Although the Army had a close link with its Army Co-operation Squadrons, there was minimal contact with either Fighter or Bomber Command, and very little training with low-level air support.[114] During the campaign in Belgium and France in the spring of 1940, the BEF included an air component; however, the Advanced Air Striking Force (AASF), which was also deployed to the continent, was employed in a strategic bombing role directly under Bomber Command.[115]

Although relations between these two Services were still somewhat strained after Dunkirk, the recognition of the absolute requirement for air support to land operations,

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[113]Brian Bond, *British Military Policy between the Two World Wars* (Oxford: Clarendon Press, 1980), 321.

[114]*Ibid.,* 322-323.

[115]*Ibid.,* 326. The BEF deployed in 1939 "… with the very modest air support of the Air Component, consisting of two bomber reconnaissance squadrons, six Army co-operation squadrons, four fighter squadrons, and two flights of a headquarters communications squadron." The AASF was composed of medium bombers, but "… was not to collaborate with land forces …".

combined with the personal intervention of General Brooke, resulted in a gradual improvement in this situation. Brooke placed a high priority on, "…air co-operation with ground troops. His experiences in France had made him a fanatic about this. He maintained the closest relations with Fighter Command …".[116] In addition to this increased emphasis on training, Brooke was also engaged with Fighter Command in the coordination of defensive preparations, and in early August he met with Dowding to arrange for the transfer of Bofors anti-aircraft guns from Fighter Command.[117] By that time he had also established a positive relationship with Bomber Command, and met with the Deputy Chief of the Air Staff, Air Vice-Marshal William Sholto Douglas to coordinate, "…details of Bomber Command co-operation in the event of an invasion."[118] While the RAF continued to maintain a firm stance on the command and control of air assets, there was sufficient flexibility to provide some direct air support beyond the integral reconnaissance support provided by its Army Co-operation squadrons; thus, Commander-in-Chief, Home Forces had, "two medium-bomber squadrons held at his direct disposal …".[119]

Brooke's interaction with the RN was also initially somewhat confrontational, as he felt that the Navy was primarily concerned that his deployment plan provide for the defence of their installations, "… Had I listened to these criticisms I should have had to employ practically the whole of my forces solely for the defence of naval bases …".[120]

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[116]Bryant, *The Turn of the Tide…*, 236.

[117]Alanbrooke, *War Diaries…,* 97.

[118]*Ibid.*, 100.

[119]Collier, *The Defence of…*, 131.

As with the relations between the Army and the RAF, this relationship improved over time, and a more cooperative approach to joint defence preparations became more prevalent. In June, for example, when the Army found itself short of coastal defence artillery troops while it was endeavouring to deploy 46 batteries of new coastal defence guns, the RN was able to man half of them with Navy and Royal Marine personnel until the Army could fully man the batteries later in the summer.[121] At the command level, the relationship also improved, and on July 10th Brooke met with Admiral Sir Martin Nasmith, Commander-in-Chief of Plymouth and Western Approaches Command to discuss defence problems in that area.[122]

The full transfer of the Fleet Air Arm to the RN in 1937 had removed a significant obstruction from the relationship between the RAF and the RN.[123] Although a degree of inter-service rivalry undoubtedly continued to exist between these two Services when the Second World War began, it certainly did not preclude cooperation between the Navy and Bomber Command in the targeting of German invasion shipping throughout the summer and fall of 1940. This joint effort was very successful, particularly during September when the Germans began to concentrate their invasion barges and transports in preparation for Operation SEA LION.[124] From Fighter Command's perspective, the commander's intent in terms of support to the RN was clear, "… 'so far as I am concerned,' he wrote, 'I have no desire other than to afford every possible assistance and

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[120]Bryant, *The Turn of the Tide…*, 202.

[121]Collier, *The Defence of…*, 131.

[122]Alanbrooke, *War Diaries…,* 91.

[123]Collier, *The Defence of…*, 56.

[124]*Ibid.,* 225.

protection to the Navy because I realise that, invasion or no invasion, we lose the war if we lose command of the sea.'"[125]

There is no doubt that inter-service rivalry, leadership personalities and unavoidable command, control and communications problems would have impacted on the ability of the strategic and operational level HQs within the three Services to achieve the full extent of cooperation and coordination necessary in the event of an invasion. Nevertheless, the joint HQs that had been established by Home Forces, Fighter Command and the RN's operational fleet commands, supported by the communications linkages that had been developed between them, provided a highly effective foundation for the planning, coordination and conduct of joint operations at that level. Likewise, at the strategic level, the joint HQ, centred on the Chiefs of Staff Committee and the Defence Committee (Operations) and led by Churchill, was closely linked to the political-strategic level as represented by the War Cabinet. This joint HQ, supported by the War Room, Britain's strategic operations centre, was capable of providing the direction and guidance required by the three Services, and more importantly their subordinate operational level joint HQs, to enable them to successfully coordinate and execute joint operations. Following a brief outline of Germany's plan for Operation SEA LION, these capabilities will be further analyzed in the context of British preparedness for that contingency.

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[125]Wright, *The Man Who Won…,* 133.

OPERATION SEA LION – THE GERMAN PLAN

"A defensively and utterly determined enemy faces us and dominates the sea-area which we must use. Forty divisions will be required; the most difficult part will be the continued reinforcement of material and stores …[The prerequisites are] … complete mastery of the air and the creation of a sealed corridor across the Straits of Dover by means of minefields and long-range batteries on the French coast."[126]
(Adolf Hitler, July 21st, 1940)

While the campaign in France was still in its early stages, Adolf Hitler met with Grand-Admiral Erich Raeder, commander of the *Kriegsmarine*, and briefly discussed the prospect of conducting an amphibious landing against Britain.[127] While the details of this discussion are not known, approximately three weeks later on June 14th, General Wilhelm Keitel, Chief of the Supreme Command of the Armed Forces (*Oberkommando der Wehrmacht*, or *OKW*), issued a directive stating that upon the collapse of France, "… the task of the Army in this war will be essentially fulfilled … The Navy and the Luftwaffe must be reorganised so that after the defeat of France the war against England will be continued by sea and air."[128] Germany's leaders continued to be hopeful that if peace could not be negotiated, their war with Britain could be concluded successfully with a combined air and naval campaign against its sea lines of communication; however, Hitler had begun to consider the possibility that an invasion might be required.[129] There was still no plan for such an operation by the end of June, but that was about to change.

As has already been noted, *Reichsmarshall* Göring issued a *Luftwaffe* Directive on June 30th that outlined the objectives for an air campaign against Britain that did not

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[126]Bryant, *The Turn of the Tide…*, 197.

[127]Butler, *Grand Strategy: Volume II…*, 269-270.

[128]*Ibid.,* 270.

[129]*Ibid.,* 270. Hitler discussed this with Benito Mussolini and again with Grand-Admiral Raeder on June 18th and 20th respectively.

include setting the conditions for a seaborne invasion.[130] Two days later Hitler provided his first direction, "… to the three Services for preparations to be made for a contingent operation. A landing in England … was feasible, provided that air superiority could be attained and certain other conditions satisfied."[131] Even at this point, an invasion was viewed only as a follow on to a successful air campaign, as General Alfred Jodl, Chief of the *OKW* Operations Staff, outlined in his own estimate of the situation, "… to finish off a country, economically paralysed and practically incapable of fighting in the air – if this is still necessary."[132] As late as July 11th, Grand-Admiral Raeder echoed these thoughts, stressing the difficulties that would face the *Kriegsmarine* in conducting such an operation, and recommending to Hitler that he pursue a strategy based on a naval blockade supported by an air campaign.[133] As it became clear that a negotiated peace was no longer a possibility, Germany commenced its air campaign, and on July 16th, 1940, Adolf Hitler issued his Directive Number 16, which outlined his intention to conduct an invasion of Great Britain, Operation SEA LION:

> As England, despite her hopeless military situation, still shows no sign of willingness to come to terms, I have decided to prepare, and if necessary to carry out, a landing operation against her. The aim of this operation is to eliminate the English motherland as a base from which war against Germany can be continued and, if necessary, to occupy completely.[134]

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[130]Terraine, *The Right of the Line…*, 172-173. The primary objective of the *Luftwaffe's* operation was to defeat the RAF and disrupt the aircraft industry to set the conditions for a successful air campaign against Britain's war industry and supply lines, including its ports and shipping.

[131]Butler, *Grand Strategy: Volume II…*, 270.

[132]*Ibid.,* 270.

[133]*Ibid.,* 270-271.

[134]Terraine, *The Right of the Line…*, 173.

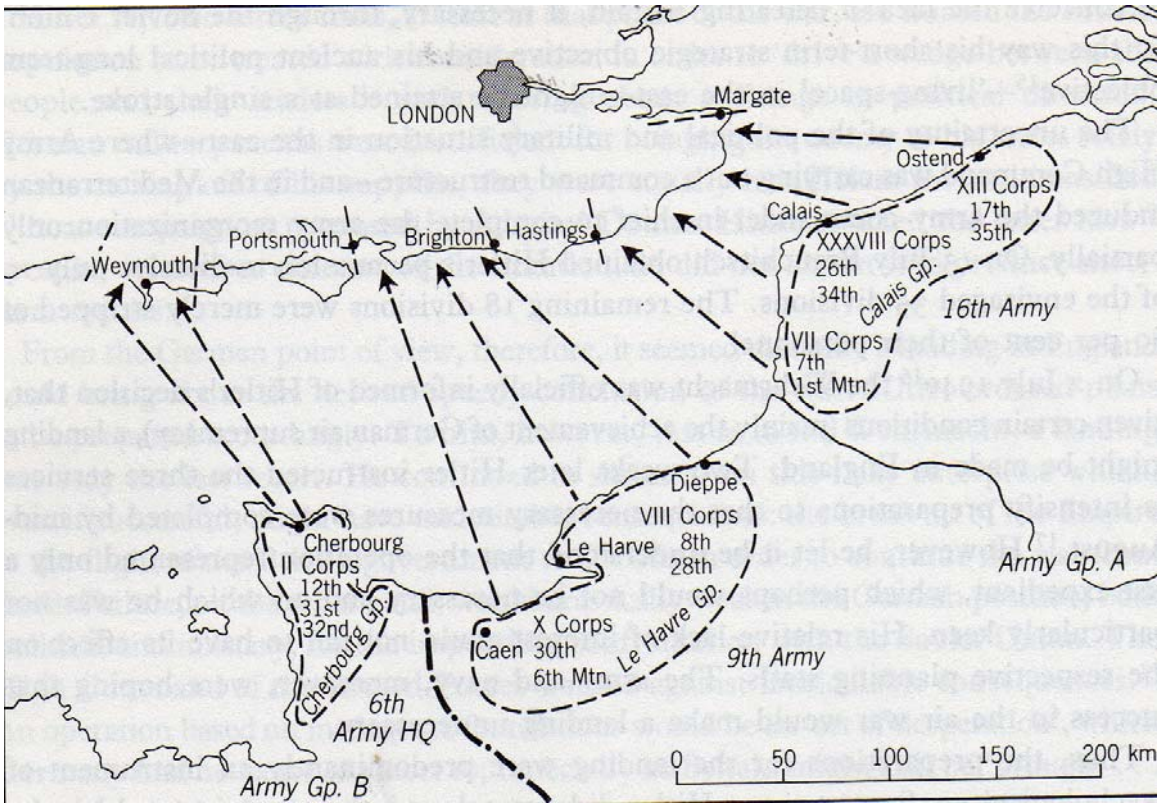

Figure 5 – Initial German Landing Plan

Source: Maier, *et al*, *Germany and the Second World War*, *Volume II*, 370.

Mid-August was set as the target date for the three services to complete their preparations.[135] In the interim the *Luftwaffe* would begin its air campaign, and on August 2nd Göring issued the directive that would guide his forces in this effort, which he estimated would lead to the, "Collapse of air defences in south … within four days, of Royal Air Force as a whole within four weeks."[136] The Army oriented its forces and resources in France on its tasks, and began training. While both the Army and the *Kriegsmarine* lacked experience with amphibious operations, the latter was also faced

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[135]K. Maier, *et al, Germany and the Second World War, Volume II: Germany's Initial Conquests in Europe*, ed. The Research Institute for Military History, Freiburg im Breisgau, Germany (Oxford: Clarendon Press, 1991), 369.

[136]Basil Collier, *The Battle of...,* 166.

with the significant challenge of assembling sufficient shipping to move the landing force across the Channel.[137] As this effort involved the re-allocation of civilian vessels from Germany and the occupied countries, there was an economic impact of the naval preparations. In addition, "… there were major difficulties with minesweeping in the Channel, the laying of German mine-barrages, and the protection of the ships and troops concentrated in the launching-ports against British air raids."[138]

As the shortfall in shipping capacity became evident, the Army and *Kriegsmarine* engaged in discussions regarding the invasion schedule as well as the size of the landing area, often mediated by *OKW*. Eventually, faced with the reality of the *Kriegsmarine*'s capacity to support the invasion, the Army was compelled to reduce the size of its initial landing force and the extent of the landing area, leading the General Staff to conclude that at best the invasion may, "… give the *coup de grâce* to an enemy already prostrated by the air war."[139] As a consequence of these difficulties, the deadline for completion of invasion preparations was postponed until mid-September.[140]

Based on the realistic limitations imposed by shipping capacity, both the landing plan and the plan for the build-up of forces within the beachhead was developed in more detail in order to ensure that a successful lodgement could be gained and the beachhead expanded in the face of British defences and counterattacks. Fortunately for the

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[137]Butler, *Grand Strategy: Volume II…*, 285-286. The invasion fleet would include, "… large river barges … all needing a tow across the open waters of the Channel … steamers averaging 4,000 tons … motor boats and auxiliary sailing vessels … tugs and trawlers."

[138]Maier, *Germany and the Second World War…,* 370.

[139]*Ibid.,* 371. The landing force was originally to be comprised of divisions from both Army Groups A and B, but was now limited to the two armies of the former.

[140]*Ibid.,* 371.

Germans, their intelligence estimates of the Home Forces' strength were reasonably accurate, identifying approximately 35 divisions when the actual strength at that time was 29 divisions and eight independent brigades.[141] The final version of the invasion plan called for nine divisions in the first wave, supported by the landing of two airborne divisions. Although 120,000 troops and their equipment would be ashore within three days, it was estimated that eleven days would be required to land all nine divisions.[142] In all, a total of 23 divisions from the 9th and 16th Armies of Army Group A would be landed within six weeks, including four *Panzer* divisions.[143] As shown in Figure 6, the initial objective was to secure south-east England from Portsmouth to the Thames Estuary, with the subsequent objective line extending from the Severn River in the west to Maldon in the east.

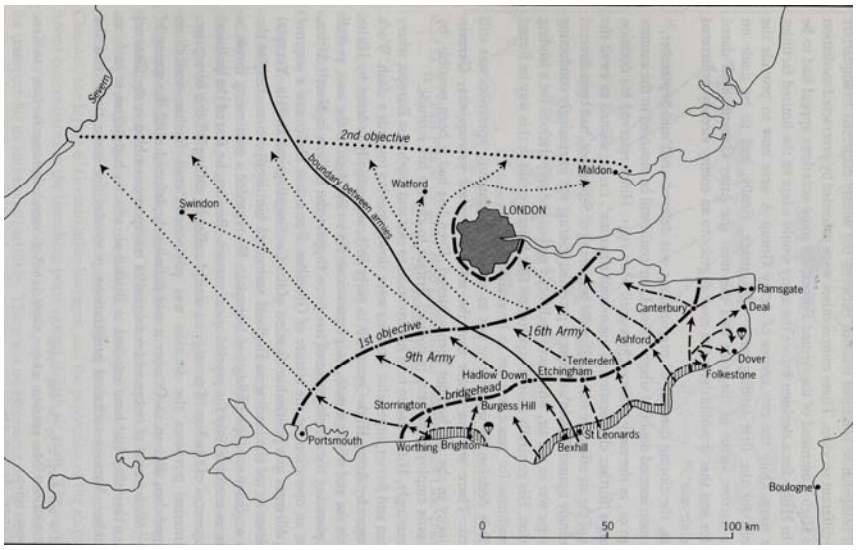

Figure 6 – German Landing Plan and Objectives

Source: Maier, *et al*, *Germany and the Second World War*, *Volume II*, 372.

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[141]Fleming, *Invasion 1940...*, 179.

[142]Butler, *Grand Strategy: Volume II...*, 285.

[143]*Ibid.,* 285.

The first wave would include tanks, but would lack adequate fire support, as the *Kriegsmarine* would not commit anything larger than a destroyer to the invasion, and most of these would be used on the flanks. The option of employing two old battleships for shore bombardment was considered, but was discarded due to the fact that they would need anti-aircraft guns and increased underwater protection.[144] Although other options were explored, the primary source of fire support for the assault would, "… be provided by a number of 3-inch and 37-mm cannon emplaced on 27 self-propelled coastal craft. On a front which still totalled some 50 miles this was a derisory scale of artillery support …".[145]

Consequently, the Germans would be almost completely reliant on the *Luftwaffe's Luftflotten* (Air Fleets) 2 and 3 to provide fire support for the landings; however, these formations were also responsible to prevent interference in the landings and beachhead area by the RN and RAF, and to interdict the movement of Home Forces reserves.[146] The *Kriegsmarine*, although unable to provide significant fire support to the landings, would employ destroyers, torpedo-boats and U-boats to protect the invasion force, supported by patrol boats, mine-sweepers and a specially laid protective minefield. Those heavier ships that were available, primarily cruisers, would be employed in diversionary tasks in the North Sea.[147]

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[144]Fleming, *Invasion 1940...*, 254.

[145]*Ibid.*, 254.

[146]Butler, *Grand Strategy: Volume II…*, 285. In addition to the aircraft of these two *Luftflotten*, "The VIII Air Corps, controlling some 200 dive-bombers, would supply close support to the 16th Army."

[147]*Ibid.,* 286.

Hitler realized that Operation SEA LION would be, "… an exceptionally bold and daring undertaking …".[148] Even with air superiority, it would have been a very difficult assault, with a relatively small landing force supported by tanks but with minimal artillery support. In addition to the challenges posed by the severe lack of specialized landing ships and craft, the Germans also recognized that their units would likely become separated during the crossing of the Channel, making it even more difficult to conduct coherent operations once ashore. Compounding these problems would be the fact that supplies and reinforcements would be limited until a port could be secured.

OPERATION SEA LION – BRITISH PREPAREDNESS AND JOINT CAPABILITIES

"Nothing moves an Englishman so much as the threat of invasion, the reality unknown for a thousand years."[149]
(Prime Minister Churchill, June 1940)

In order to analyze Britain's ability to counter Operation SEA LION, it is first necessary to review the strategic level direction that was available at the time, as well as the joint planning that was taking place during the summer of 1940. From that point, the subordinate operational level plans, specifically those involving joint operations or contingency planning, can be examined in detail to determine whether sufficient planning and inter-operability capabilities existed to plan and conduct joint operations to counter an invasion.

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[148]Churchill, *The Second World War: Their Finest Hour,* 304.

[149]*Ibid.,* 165.

Beginning at the strategic level, on July 10th Churchill forwarded a note regarding the invasion to General Brooke and Field-Marshal Dill (CIGS), indicating that based on his own appreciation of the situation, the RAF and RN were capable of disrupting an invasion force before and during a potential landing; therefore, he suggested that Home Forces could reduce the forces allocated to coastal defences in favour of holding more in reserve for counterattacks.[150] Two days later Churchill received a statement from Admiral of the Fleet Sir Dudley Pound (First Sea Lord), suggesting that the Germans were capable of landing approximately 100,000 men (with tanks) in an assault that would be followed by an immediate offensive towards London; however, unless the RAF and RN were neutralized they would not be able to sustain such a force ashore.[151]

Churchill forwarded both of these documents to the Chiefs of Staff and General Brooke on July 15th, adding a minute requesting that they review the plans for countering the invasion based on the assertion that Home Forces was capable of successfully defeating a landing given the assumptions outlined in the two documents.[152] He also stipulated that the enemy's most likely course of action was to place his main effort on a landing on the east coast; however, an assault on the south coast remained the enemy's most dangerous option, as "… *the sovereign importance of London and the narrowness of the seas in this quarter make the south the theatre where the greatest precautions must*

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[150]*Ibid.,* 286-288. In this note he also specified that the Germans would likely land on the east coast, as there had been no indication from recent intelligence or reconnaissance to demonstrate the transfer of shipping to ports in France.

[151]*Ibid.,* 289-290. The First Sea Lord also provided a breakdown of the assault force by ports of origin and likely landing areas: 25,000 from Bay of Biscay and Channel ports to the south coast, 12,000 from Dutch and Belgian ports to the east coast, along with 50,000 more from German ports and 10,000 from Norwegian ports to the Shetlands, Iceland and Scottish coast.

[152]*Ibid.,* 290-291.

be taken."[153] The Chiefs of Staff were to advise the War Cabinet of any necessary amendments to the plans that arose as a result of this review.

The Prime Minister amplified this direction in more detail in a subsequent note to the Chiefs of Staff Committee on August 5th, in which he outlined his concept for the defence against an invasion, and directed them to prioritize the coastline in terms of vulnerability and the allocation of forces, including reserves.[154] The Chiefs of Staff responded on August 13th, acknowledging the Prime Minister's appreciation of the situation and his observations regarding German intentions. This response included a statement from Major-General B.C.T. Paget, Home Forces' Chief of Staff, indicating, "… that the defence had already been disposed, as far as resources would permit, to meet a scale of attack of this magnitude."[155] The Army fully acknowledged Churchill's intent to assign additional forces to a reserve role for counterattacks, which was also one of General Brooke's priorities; however, the Chiefs of Staff supported the latter's policy that forces would not be removed from the main defences to expand the reserves until their training and equipment had reached the appropriate levels to enable them to conduct offensive operations.[156]

On July 17th, in the midst of this exchange, the Chiefs of Staff had released to the Commanders-in-Chief a report by the Joint Intelligence Committee that provided its

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[153]*Ibid.,* 291.

[154]*Ibid.,* 291-294.

[155]Butler, *Grand Strategy: Volume II…*, 278.

[156]Churchill, *The Second World War: Their Finest Hour,* 295-296. In particular, these formations required sufficient artillery to provide them with mobile fire support for offensive operations.

assessment of the potential scale of the German invasion.[157] The report indicated that an assault by up to five divisions supported by airborne drops should be expected, with the most likely landing areas to be on the east and south-east coast to enable the assault force to advance on London from two directions.[158] It also predicted that for the Germans the main factor that would limit the size of their assault force, "… would be neither troops nor shipping, but the extent to which shipping for the first attack could be concentrated without being detected, or interfered with, by our naval and air forces…".[159] In August, based on intelligence analysis and reconnaissance reports, it became clear to Churchill and the British military leadership that, "… the front to be attacked was altogether different from, *or additional to*, the east coast, on which the Chiefs of the Staff, the Admiralty and I, in full agreement, still laid the major emphasis."[160] As will be described below, this led to an immediate re-alignment of the defensive plan, specifically as it applied to Home Forces.

At the strategic level the Chiefs of Staff Committee held a special meeting on July 26th with all of the principal commanders responsible for the defence of Britain; to review the roles of the three Services should an invasion occur. A primary focus of this meeting was the consideration of an Air Staff memorandum that dealt with RAF responsibilities, but which also was "… an appreciation of the probable form and order of an invasion, and an indication of the action to be taken by the three Services."[161] The Chiefs

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[157]Butler, *Grand Strategy: Volume II…*, 277-278.

[158]*Ibid.,* 278.

[159]*Ibid.,* 278.

[160]Churchill, *The Second World War: Their Finest Hour,* 296.

approved it, with modifications, and issued it to the Commanders-in-Chief as their primary direction for the defensive campaign.

The paper stated that in order to launch an invasion the Germans would first have to defeat Fighter Command, so the preliminary phase of the invasion would be a determined air offensive against Britain's fighter defences, including airfields and the aircraft industry, likely accompanied by attacks on the RN and its bases as well. The invasion would then "… comprise three principal phases: the concentration of shipping and troops at points of departure; the voyage; and the establishment of a bridge-head …".[162] It was also anticipated that airborne landings would be employed in support of the amphibious landings, either as diversions or to seize a port, which would be a critical factor in the Germans' ability to disembark sufficient troops and equipment to secure their beachhead. In fact, British Intelligence had assessed that even with ports the Germans could not get sufficient supplies ashore for nine divisions.[163]

Based on this joint understanding of the enemy's most likely course of action, the RN's strategic direction stressed that an invasion would best be defeated by attacking the assault force before it sailed from its ports of embarkation in France and Belgium, and as the Admiralty's concept of operations emphasized, "… to accomplish that, 'we must have early indication of assembly by means of our intelligence and reconnaissance'."[164] The joint effort against the invasion fleet in its ports would employ air attacks, mining operations and naval bombardment as the three principal means of destroying or

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neutralizing the assault force before it could deploy.[165] If this approach proved impossible to put into effect, or was ultimately unsuccessful, the focus would shift to attacking the enemy at his landing sites, which would also require heavy reliance on all reconnaissance and intelligence assets, including those of Home Forces.

As its primary means of executing its portion of this joint effort, the Admiralty established, "… a striking force of four destroyer flotillas (at full strength thirty-six ships), with cruiser support …" to attack the invasion force at the landing sites and in the Channel.[166] As was outlined above, the RN also withdrew as many destroyers and escort vessels as possible from convoy escort duties to add to its counter-invasion fleet. In addition, it formed what would later become the Auxiliary Patrol, using civilian vessels to establish a surveillance screen close to the coast.[167] All of these elements would belong to the appropriate Shore Commands, where they could best be employed to achieve operational level effects. Based on the fact that the Luftwaffe had to establish air superiority before the invasion force began deploying, Admiral Sir Charles Forbes, Commander-in-Chief, Home Fleet, recommended that there would be sufficient warning for the RN to react; therefore, the Home Fleet's heavier ships would remain in their bases in the north.[168]

For its part, the RAF ensured at the strategic level that its subordinate operational level commands were fully integrated into the overall concept of operations for all phases

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[165]*Ibid.*, 249.

[166]*Ibid.*, 249. These flotillas were based at The Humber, Harwich, Sheerness and Portsmouth or Dover.

[167]*Ibid.*, 249. The Admiralty order stated, "… that small craft should 'be collected immediately for watching close inshore and hampering the enemy's operations'."

[168]*Ibid.*, 251.

of the invasion campaign. As we have seen, Coastal Command was already closely integrated with the RN's command and control structure at the operational level, and would perform the bulk of the reconnaissance missions of German-held airfields, ports and waterways throughout all phases of an invasion, but most critically during the early stages of phase one.

Clearly, Bomber Command would also play a substantial role in the initial phase, when it would complement the RN's naval bombardment operations in the destru

of the plan. In the event that the Germans were able to establish a beachhead, the bombing of targets further inland would be controlled at a very high level.[170]

The discussion at the Chiefs of Staff Committee meeting on July 26th also dealt with the priorities for employment of Fighter Command once an invasion was underway, which, during the first two phases, would be to focus on providing air cover to the RN. As General Brooke noted in his diary after that meeting, "… the Navy now realises fully that … in the face of strong bomber forces [it] can no longer ensure the safety of this island against invasion. This throws a much heavier task on the Army."[171] While Fighter Command's main effort would have to shift to the support of Home Forces operations during phase three, any RN efforts against the German lines of communication in the Channel would also have been a high priority during this phase. Although fighter strength was well below what the RAF had identified as the minimum required for the defence of Britain after the fall of France, "… it was felt in the Service that if the Radar stations could continue to give warning, it might prove enough to keep the Luftwaffe at bay and enable the Navy to hold the Channel."[172]

In terms of the ground aspect of the campaign, the Army's strategic direction to General HQ, Home Forces, initially led to the orientation of the latter's defences on the south-east coast. As it became evident from German dispositions that the main threat was likely along the south coast, the weight of effort in terms of the positioning of forces was

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[170]*Ibid.,* 22.

[171]Bryant, *The Turn of the Tide*..., 200.

[172]*Ibid.*, 204-205. By July, Fighter Command had 620 operational Spitfires and Hurricanes (up from 331 following Dunkirk), "… giving [Dowding] a total of 704 serviceable first-line fighters, with a further 289 in reserve compared to only 36 on June 4th … this was barely half the force the Air Staff had asked for to ensure the safety of the country …".

quickly adjusted.[173] This applied not only to Home Forces, but to the priority for the defence of the RN's ports as well. German planning had indeed identified the south coast as the best invasion area, which would, as Churchill remarked, force them to assault, "… our best-defended coast … where all the ports were fortified … There was no part of the island where we could come into action quicker or in such great strength with all three Services."[174] While a portion of this joint effort would have been coordinated at the strategic level, the great majority would have been dealt with by the operational level HQs. Churchill was convinced that this defensive capability would be well supported by the Home Forces':

> … central plan, elaborate, co-ordinated, and all-embracing …. Commands [armies], corps and divisions were each required to hold a proportion of their resources in mobile reserve, only the minimum being detailed to hold their own particular defences …. Above all was the final reserve directly under the Commander-in-Chief of the Home Forces. This it was our policy to keep as large and mobile as possible.[175]

As outlined above, by September the forces defending Britain had become much more capable, even taking into consideration the losses being suffered by Fighter Command during the air battle that had already raged for nearly two months. Home Forces was better postured to react to an invasion, and the training level of its formations was steadily improving. In that same month, the Independent Companies and

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[173]Churchill, *The Second World War: Their Finest Hour,* 296-297. In August there were seven divisions in the south-east compared with five on the south coast, but by mid-September the balance had shifted to four (plus one armoured brigade) and nine (plus two armoured brigades) respectively. At the same time, two armoured divisions were added to the reserve available to support either area.

[174]*Ibid.,* 301.

[175]*Ibid.,* 175.

Commandos belonging to the Directorate of Combined Operations were also made available to Home Forces for defence.[176] The RN's strength was also growing, and:

> … having made good the damage suffered during the evacuation, was far stronger in the Channel than in July. The battleship *Revenge*, based on Plymouth, was cruising in the Western Approaches, and growing numbers of destroyers, frigates and patrol boats were operating off the invasion ports.[177]

Anti-Aircraft Command, assigned under operational control of Fighter Command, had proven itself during the air campaign in July and August, and validated the requirement for its close command and control relationship with Fighter Command. By virtue of excellent aircraft recognition training and its direct communications with the Sector and Group Operations Rooms, close cooperation was possible at the operational and tactical levels, including the use of anti-aircraft guns to locate enemy aircraft for the friendly fighters by firing at them, or to break up formations so that the fighters could attack more effectively (particularly Hurricanes against the bombers).[178]

By early September, it had not only been acknowledged that the main effort of the anticipated invasion would fall on the south coast of England, but given moon and tide conditions on the coast between September 8th and 10th, the movement of additional Luftwaffe assets into the Low Countries, as well as the concentration of Stukas near Calais, it was becoming evident that the Germans were preparing to launch Operation SEA LION. On September 7th, "… the Joint Intelligence Committee … informed the

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[176]Butler, *Grand Strategy: Volume II*..., 260.

[177]Bryant, *The Turn of the Tide*..., 218.

[178]Robin Higham, "The Royal Air Force and the Battle of Britain," in *Case Studies in the Achievement of Air Superiority*, ed. Benjamin Cooling, 115-171 (Washington, DC: Center for Air History, 1994), 166.

Chiefs of Staff … that invasion might be imminent."[179] The Chiefs of Staff met that afternoon, and having agreed with the analysis, reviewed the states of readiness.

The RN had placed all small craft at immediate notice at night, and short notice during the day; thus, local commanders were ready without additional warning. The only other action that could be taken would be to sortie the Home Fleet. The RAF, expecting an invasion within three days, was also at a high state of readiness, and "… twenty-four medium bombers stood constantly ready to co-operate with Home Forces at half an hour's notice, while the remaining medium bombers had been earmarked for special tasks …".[180] Home Forces formations were at eight hours notice, conducting 'stand-to' drills at dawn and dusk each day. As there was no arrangement for a readiness state between eight hours notice and 'immediate action', that evening General HQ decided to order both Eastern and Southern Commands to 'immediate action', along with, "… all formations in the London area and to the IVth and VIIth Corps in G.H.Q. Reserve …".[181] The other commands within Home Forces received that signal for information only, and no special warning was given to civil departments.[182]

Although the Home Guard had not been included in these orders, some units were called out on local initiative, in response to false reports of airborne troops and small boats. On September 8th General Brooke issued direction to clarify the situation, particularly regarding the status of the Home Guard.[183] While this heightened state of

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[179]Collier, *The Defence of...*, 223.

[180]*Ibid.,* 223.

[181]*Ibid.*, 223.

[182]*Ibid.*, 223-224.

readiness continued within Home Forces, on September 13th the RN also stepped up its readiness by moving the Home Fleet battleship *Nelson* and battle-cruiser *Hood* from Scapa Flow to Rosyth, reinforcing the battleship *Revenge*, which had already been moved to Plymouth. Air reconnaissance patrols were also adjusted to give better coverage of potential invasion routes in the Channel, and this was made easier by the fact that Nos. 16 and 18 Groups of Coastal Command now had more squadrons available.[184]

In addition to these defensive responses, the British also augmented their offensive efforts. Although both Bomber and Coastal Commands had been engaged in attacks on enemy ports and invasion shipping throughout the summer, these were intensified in September, as the Germans began concentrating larger numbers of transport ships and barges in the Channel ports, and these, "… became the main objective of the whole bomber force, absorbing about three-quarters of the total effort for the month, and attracting more than a thousand tons of bombs."[185] Building on the successful attack on the Dortmund-Ems canal on August 12th, which delayed the assembly of the invasion fleet by ten days, "… Bomber Command had switched its attention to the waiting barges in the harbours of Flushing, Ostend, Dunkirk, Calais and Boulogne … On the night of the 13th alone eighty barges were sunk at Ostend."[186] This enhanced effort made the closer Channel ports increasingly dangerous for the German transports, but also meant that the RN had less worthwhile targets. When the 2nd Cruiser Squadron deployed on September

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[183]*Ibid.,* 224.

[184]*Ibid.*, 224. These two Groups now had 19 squadrons available, compared to only 15 earlier in the summer.

[185]*Ibid.,* 225.

[186]Bryant, *The Turn of the Tide…*, 218.

8th to bombard Calais and Boulogne, it found very few targets.[187] The same situation faced the 21st Destroyer Flotilla the next night, but on September 10th destroyers did find targets off of Ostend.[188]

The heightened state of readiness was gradually relaxed later in September, based on evidence that the Germans had postponed Operation SEA LION until the spring of 1941. On September 17th, Ultra intercepted of a message from German General Staff that, "… authorized the dismantling of the air-loading equipment on the Dutch aerodromes; and without the air-loading equipment there could be no invasion."[189] The Prime Minister discussed this information with the Chiefs of Staff that evening, and the Chief of the Air Staff explained that it likely meant the end of Operation SEA LION for 1940.[190]

While the invasion had been averted, Britain's defences, including the command and control structure, had been prepared to meet that challenge had it arisen. As the official British history of the Second World War noted:

> Such, in outline, was the scheme of defence against a German invasion in the summer of 1940. How the Government's arrangements for the conduct of the war in such conditions, in London and in the country, would have worked had they been put to the test, we cannot tell. No German forces landed; Regional headquarters were never isolated from Whitehall. Thus there was no occasion for Sir Alan Brooke to leave St. Paul's School for his command post adjacent to the Cabinet War Room, or for Regional Commissioners to assume their dormant powers. The Royal Air Force indeed was tried to the limit, and the Navy to a lesser degree, and neither was found wanting.[191]

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[187]Collier, *The Defence of…,* 225.

[188]*Ibid.,* 226.

[189]Terraine, *The Right of the Line…*, 212.

[190]*Ibid.*, 212.

The British command and control structure, having evolved through the summer of 1940, reacted very effectively to the threat of invasion in September, and carried out joint operations in accordance with its strategic direction and operational plans. By that point, experience with the strategic command and control structure had demonstrated that joint planning and coordination was indeed taking place at that level. As Churchill noted in September, 1940, "The system of control of operations by the three Chiefs of Staff concerted under a Minister of Defence produced a standard of team-work, mutual understanding, and ready co-operation unrivalled in the past."[192]

Faced with an immediate threat, in the midst of an intense air campaign, the joint HQs established at the operational level also proved capable of coordinating and conducting operations as planned. Clearly there were, "Weaknesses in this system … and it can scarcely be doubted that, if *Sea Lion* had been launched, stresses severer than it was designed to bear would have been placed on its cumbrous and intricate machinery."[193] As has been noted, the key shortfall was the lack of a single joint HQ at the operational level, with the authority and capability to de-conflict demands for resources between the three Services in a crisis situation, without engaging the strategic level. As General Brooke noted on July 29th, "... *It was a highly dangerous organization; had an invasion developed I fear that Churchill would have attempted as Defence Minister to co-ordinate the actions of these various commands."*[194]

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[191]Butler, *Grand Strategy: Volume II*..., 283.

[192]Churchill, *The Second World War: Their Finest Hour,* 314.

[193]Fleming, *Invasion 1940...*, 164.

[194]Alanbrooke, *War Diaries*..., 96.

Nevertheless, as has been outlined above, although there was no single joint HQ at the operational level to provide centralized command and control over all of the forces available for the defence of Great Britain, the joint HQs that did exist at that level had already proven themselves. Fighter Command's Operations Room, supported by its subordinate Group and Sector HQs, had been fully engaged in an intense air battle for over two months, and its command and control structure and its linkages to the other operational HQs had withstood the pressure of this aspect of the defensive campaign. Concurrently, the RN's Shore Commands and Coastal Command Group HQs, working jointly from the three Area Combined HQs, planned and conducted continuous operations to find and fix the invasion fleet in order to disrupt German preparations. As the campaign moved into what has been defined as phase one of the invasion itself in early September, Bomber Command became heavily engaged in this effort, coordinating operations with the RN and Coastal Command through its own Operations Room.

Had the invasion been launched in September 1940, these HQs would have continued to conduct these operations, but as the attack moved into phase three, the main effort of the defensive campaign would have shifted to General HQ, Home Forces, under General Brooke. Through his own Combined Central Operations Room, he would have exercised direct command and control over all land forces in Britain, as has been previously outlined. Assisted by his Liaison Officers at the other operational level HQs, and the senior Liaison Officers from the RN and RAF who were integrated into his own HQ, he would have coordinated joint effects to support the land battle. Through the Home Defence Executive, he would also have directly controlled the efforts of all civil defence resources in the country. In addition, given his central role at this point in the

campaign, General Brooke had direct access to the government, with his Advanced HQ located near the Cabinet War Room. This would have enabled close coordination and consultation between him and his staff and the Chiefs of Staff Committee, which in turn would have facilitated the de-confliction and prioritization of effort and resources at the staff level.

Above this solid base at the operational level was the strategic level joint HQ, centred on the Chiefs of Staff Committee and the Defence Committee (Operations) and under Churchill's leadership, with several months of intense experience. In the event of an invasion, this organization would have continued to provide the direction and guidance required by the three Services and their subordinate operational level commanders, and more importantly the operational level joint HQs, to ensure that priorities were established and adhered to, and that any potential conflicts were resolved as quickly as possible. Churchill's personality and leadership approach would have made him extremely effective in this role, and the relationships that he had developed with the Chiefs of Staff and the key operational level commanders would have enabled him to handle the types of crises that would have undoubtedly arisen in a campaign of national survival.

It is clear that by September 1940 the British had already begun to apply the lessons that they had learned in terms of joint command and control at both the strategic and operational levels. These lessons had come from experience in the First World War, exercises and trials in the inter-war period and more recent experience in the campaigns of the spring of 1940. Much of what was subsequently learned during the summer of 1940 was the confirmation of key command and control concepts and structures;

however, minor adjustments were undoubtedly made at both levels to strengthen any areas that had been identified as problematic.

Despite the solid base of joint capabilities at both levels, the requirement for more comprehensive joint command and control at the operational level in a campaign was certainly reinforced by the experiences of the summer of 1940. The potential point of failure in the British command structure in the fall of 1940 had been the lack of a central joint HQ at the operational level, and this lesson was clearly identified and addressed for subsequent campaigns, as exemplified by Operation OVERLORD and the campaign in North-West Europe in 1944-1945. An outstanding example of this was the development of the tactical air forces that supported that campaign, which were integrated into a highly effective command structure that enabled Allied commanders to produce joint effects at the operational level.

The lessons learned by the British in the summer of 1940 regarding joint command and control have been applied consistently by the world's militaries since the Second World War and are thus true lessons learned. The structures adopted by the British at that time continue to be relevant to Canadian Forces (CF) domestic and expeditionary operations in this century, as the CF's operational commands, particularly Canada Command and Canadian Expeditionary Forces Command, clearly illustrate.

CONCLUSION

Based on this analysis, it is clear that by August 1940, Great Britain had established a level of capability in joint planning and inter-operability that would have enabled it to successfully coordinate and conduct joint operations to defeat Operation

SEA LION. The command and control structures at the strategic and operational levels were well-established, and their experienced staffs had demonstrated that they were capable of functioning in a joint environment. One can reasonably argue that they could have done so in the context of a campaign of national survival, had Germany invaded in September 1940.

The paper has examined the defence of Great Britain as a case study in joint command and control, and specifically joint planning and operations capability at the strategic and operational levels in a campaign. In order to set the stage for this analysis and to put it into historical context, a number of key terms were first clarified and defined, and a brief overview of the strategic situation in Europe in the period June-September 1940 was provided. From that basis, Great Britain's strategic and operational level joint command and control structure and its planning and operations capability in the summer of 1940 were examined, as was the level of joint cooperation and inter-operability that existed between the three Services at that time. Included in this examination were observations on the relationships between the key leaders and between the staffs of the key HQs at these levels. This provided insight into the degree of cooperation between these elements, and highlighted the frictions or rivalries that may have impacted on the effectiveness of joint planning and/or operations. Having outlined Germany's plans for Operation SEA LION, the paper then analyzed Great Britain's preparedness for an amphibious/airborne invasion in 1940, by reviewing the strategic level direction and guidance as well as the joint and inter-agency plans and operations at both the strategic and operational level.

In addition to enabling this review and analysis of Britain's joint planning and operations capabilities, this case study has also provided a number of key lessons from this period. As has been shown, by 1940 the British had identified the critical requirement for a joint command structure at the operational level that could enable a Joint Force Commander to effectively plan, coordinate and conduct operations within a campaign, given the appropriate resources, span of control and command relationships to achieve operational effects in accordance with a strategic plan. This concept was utilized for the remainder of the war, and is likely best exemplified by the command and control structure established for Operation OVERLORD in 1944. It has also proven to be a successful construct for both joint and combined forces up to the present day, including in the context of Canadian domestic and expeditionary operations.

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