BOMBING CAEN

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Military History

by

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Throughout World War II, the United States and the British Commonwealth conducted a devastating air offensive against Nazi occupied France as part of the overall war with Nazi Germany. At the end of World War II, many French citizens returned home to their villages to find them severely damaged by the Allied bombing. It is estimated that by the time Allies liberated France from Nazi control, friendly aircraft had killed over 60,000 French civilians. More civilians were killed in France, at the hands of Allied air command, then British civilians were killed by the German Luftwaffe air raids. In particular, French towns near ports, airfields, or along lines of communication found themselves the target of a long and grueling bombing campaign to weaken the German control of occupied France. On 6 June 1944 the Allied forces launched Operation OVERLORD, an amphibious assault to secure a lodgment on the continent of Europe. An objective on day one of that operation was the city of Caen, France. When the Allies failed to seize the city on the first day it became the concentration of intense military activity. The Allies erroneously believed that aerial bombing would facilitate the ground forces capture of the city and the defeat of the German army. As a result, the city of Caen was left in ruins and Allied air forces had killed as many French civilians as Germans forces did Allied soldiers involved in the Normandy landings.

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ABSTRACT

BOMBING CAEN, by MAJ Tiane R. Garner, 127 pages.

Throughout World War II, the United States and the British Commonwealth conducted a devastating air offensive against Nazi occupied France as part of the overall war with Nazi Germany. At the end of World War II, many French citizens returned home to their villages to find them severely damaged by the Allied bombing. It is estimated that by the time Allies liberated France from Nazi control, friendly aircraft had killed over 60,000 French civilians. More civilians were killed in France, at the hands of Allied air command, then British civilians were killed by the German Luftwaffe air raids. In particular, French towns near ports, airfields, or along lines of communication found themselves the target of a long and grueling bombing campaign to weaken the German control of occupied France. On 6 June 1944 the Allied forces launched Operation OVERLORD, an amphibious assault to secure a lodgment on the continent of Europe. An objective on day one of that operation was the city of Caen, France. When the Allies failed to seize the city on the first day it became the concentration of intense military activity. The Allies erroneously believed that aerial bombing would facilitate the ground forces capture of the city and the defeat of the German army. As a result, the city of Caen was left in ruins and Allied air forces had killed as many French civilians as Germans forces did Allied soldiers involved in the Normandy landings.

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Finally, to the residents of Caen. I hope this work helps shed light on the suffering you endured in the summer of 1944 and showcases your resilience as a city. It has been my honor to attempt to tell your story.

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ACRONYMS

AEAF	Allied Expeditionary Air Force
AWPD	Air War Plans Division
COSSAC	Chief of Staff to Supreme Allied Commander
LSCO	Large-Scale Combat Operations
MRU	*Ministère de la reconstruction et de l'urbanisme*
OBW	Oberbefehlshaber West
RAF	Royal Air Force
SHAEF	Supreme Headquarters, Allied Expeditionary Force
USSTAF	United States Strategic Air Forces

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It is essential to remember that much of the fighting will take place over the heads of friendly people, who have endured the savagery of the Germans for years. Humanity and the principles for which we fight demand from our pilot's scrupulous care to avoid any but military targets.

—Supreme Allied Commander, General Dwight D. Eisenhower, June 2nd, 1944

We had barely gotten to safety when all hell broke loose. Terrorized little children began to scream as the machine guns tore up the area above us. The planes returned to attack, one after another. They swooped down on us and fired continuously. [. . .] We had the horrifying impression that they were targeting us, that we already had one foot in the grave and our only option was to sit and wait. What did they all want from us?

—Danièle Philippe, 15 years old, Caen, France, June 6th, 1944

CHAPTER 1

INTRODUCTION

> We couldn't bear to look around us. It was hell. Everything had been destroyed. The dead animals on the roadside were bloated due to the early August heat. The corpses of soldiers were decomposing on the embankments and orchards. We returned to discover a pestilent odor of death hanging over the countryside. [. . .] This was it; this surreal, spectacular combination of deliverance and death was the Liberation that we had dreamed of for days on end in the depths of the mine.
>
> —Yvonne (last name unknown), D-Day Through French Eyes

Throughout World War II, the United States and the British Commonwealth conducted a devastating air offensive against Nazi-occupied France as part of the overall war with Nazi Germany. At the end of World War II, many French citizens returned home to their villages to find them severely damaged by the Allied bombing. It is estimated that by the time Allies liberated France from Nazi control, friendly aircraft had killed over 60,000 French civilians.[1] Allied air command had killed more civilians than the German Luftwaffe air raids killed British civilians.[2] In particular, French towns near ports, airfields, or along lines of communication found themselves the target of a long and grueling bombing campaign to weaken the German control of occupied France. On June 6, 1944, the Allied forces launched Operation OVERLORD, an amphibious assault to secure a lodgment on the continent of Europe. In addition to bombing defenses along

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[1] Stephen Alan Bourque, *Beyond the Beach* (Annapolis, MD: Naval Institute Press, 2018), xii.

[2] Lindsey Dodd and Andrew Knapp, "How Many Frenchmen Did You Kill? British Bombing Policy Towards France (1940-1945)," *French Historical Studies* 22, no. 4 (2008): 1.

the beaches, the ground force commander, Field Marshal Bernard Montgomery, wanted heavy bombers to destroy bridges and intersections across the region to delay German army reinforcements from reaching the beachhead.[3] The ancient Norman stronghold of Caen was one city that held several identified targets for destruction. The planners at the Allied Expeditionary Air Force (AEAF) assigned the mission of destroying several road choke points to the United States Eighth Air Force.[4] Unfortunately, Eighth Air Force heavy bombers were neither designed nor equipped for hitting these precise targets, and this raid caused many civilian casualties and excessive destruction to the old city. That night, a subsequent attack by Royal Air Force (RAF) Bomber Command added to that destruction and carnage.

Montgomery's forces failed to capture the city of Caen as he originally planned. For the next six weeks, Caen suffered continuous bombardment as Canadian ground forces sought to drive the German defenders from the city.[5] All of this entailed more raids by heavy bombers, not designed for close-in ground support. As the Germans finally withdrew from the city, near the end of July, Caen was little more than a ruin, and Allied air forces had killed as many French civilians as Germans forces did Allied

[3] Denis Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy" (Air Historical Branch, 1945), 14a.

[4] Walter Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," November 6, 1944, 5.

[5] Claudia Baldoli and Andrew Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945* (London: Continuum International Publishing Group, 2012), 2.

soldiers involved in the Normandy landings.[6] At the end of the Normandy Campaign, the French began to call Caen a martyred city, and have never forgotten the experience that summer. What is unclear to French citizens and modern American soldiers, is why did the Allies use heavy bombers against targets inside the city?

The use of heavy bombers was a byproduct of the command structure, and tactics insisted on by the Allied senior military leader, General Dwight D. Eisenhower, and his ground force commander, Field Marshal Montgomery. Shaped by their experiences in North Africa and then Italy, they demanded tactical control of all air forces for the invasion.[7] However, heavy bombers, such as those found in the U.S. Eighth Air Force and the British RAF Bomber Command, were designed to attack large, strategic sites ill-suited for small tactical targets on friendly soil. Unfortunately, the bill payer for this flawed application of strategic assets were the citizens of French cities, such as Caen, who suffered substantial collateral damage and still feel the effects seventy-five years later.

Caen

The bustling city of Caen is situated six miles inland from the breathtaking French beaches of the English Channel. Its strategic location near the channel and along the Orne

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[6] Mary Louise Roberts, *D-Day Through French Eyes: Normandy 1944* (Chicago: The University of Chicago Press, 2014), 4; William I. Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe* (New York, NY: Simon & Schuster, 2008), 3.

[7] Dwight Eisenhower, *Crusade in Europe* (New York, NY: Doubleday, 1948), 222; Bernard Montgomery, *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.* (Cleveland, OH: The World Publishing Company, 1958), 130,198.

River cemented its place in history. As early as the 9th Century, Caen appears in reports of Viking raids as they attempted to capture the city. The Vikings settled in the region, morphing the French language, customs, and religion into their own. These people became known as the Normans, from Norseman, and the region came to be called Normandy. In the 11th Century, the Norman Duke William launched a great cross-channel invasion and became King of England. He forced the people in England to speak French and introduced them to the feudal system. Duke William's conquest of England forever altered the history of the island. After his overthrow of England, William built a large Château on the hill inside the city center of Caen across from the two abbeys, Sainte Étienne and Abbaye-aux-Dames, which he and his wife had previously commissioned. During the Norman expansion, which eventually extended from Italy to Ireland, many churches, abbeys, châteaus, and other buildings were built throughout the region using the popular Romanesque and Gothic architectures. When he died, William was eventually buried inside the Abbey Sainte Étienne; however, during the French Revolution, his bones were taken out of his crypt and scattered.[8]

In the 15th Century, under the English King Henry VI, a Catholic university was built in Caen. When the French abolished English rulers, the university remained and became part of the French education system in that region. During the French Revolution, the former independent provinces throughout France dissolved in an attempt to weaken the old loyalties to the former King. Later in the 18th Century, the government divided France into *departments* for administrative control. The former province of Normandy

[8] Charles Homer Haskins, *The Normans in European History* (Boston: Houghton Mifflin Company, 1915), 88–116.

split into five departments; the city of Caen resided in what became known as the Calvados department. Agriculture came to dominate Calvados, with the production of Camembert cheese, butter, and apple brandy, making the area famous. In the early part of the 19th Century, farmers began traveling from the southern regions to Caen to sell their produce and livestock to the fisherman. Eventually, the city built a canal that allowed ships to travel from the English Channel inland to deliver their goods. British citizens also began traveling from towns such as Portsmouth to the French port of Ouistreham; once ashore, they caught the train in Caen and traveled to Paris. After World War I, iron-ore deposits in the south led to the building of several metal industries throughout the region.

Over time the city became a bustling market town and world-renown tourist attraction, boasting over 62,000 citizens in 1940, with historical monuments on almost every block. Caen had become so large that it dominated the major road and rail routes that ran between Paris and the deep-sea port at Cherbourg.[9] This aspect of the city of Caene made it the objective of Allied forces during their invasion in 1944.[10]

Due to its proximity along important road networks, in the eyes of both the Allies and Germans, whichever side-controlled Caen controlled access of the Normandy region. From June 6 until July 21, 1944, Allied air forces conducted multiple aerial bombing

[9] Montgomery, *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.*, 228; Forrest C. Pogue, *The European Theater of Operations: The Supreme Command*, United States Army in World War II (Washington, DC: Center of Military History, 1954), 106.

[10] Frederick E. Morgan, “COSSAC Directive (43) 32, 7 July 1943” (Center for Military History, n.d.), 3, France 228.01, Historical Reference Collection.

missions over Caen, killing over 1,741 French civilians, and destroying approximately 73 percent of the city.[11] The bombings left Caen in ruins, destroyed entire neighborhoods, and many of the city's beloved historic sites ceased to exist.[12] Food and resources were in short supply for years following the bombings, and reconstruction was slow.[13] Allied occupation of the area also caused lasting damage as soldiers committed crimes against French citizens.[14] For the pre-war residents of Caen, their liberation had come at an extraordinarily high price. However, most of the American and British narratives of D-Day fail to account for any of the second-order effects the landings and bombings had on the Normandy region.[15] The real cost of liberation for the city of Caen is much more complicated than the stories that permeated in the last seventy-five years have shown.

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[11] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 6; Bourque, *Beyond the Beach*, 238; Norman Davies, *No Simple Victory, World War II in Europe 1939-1945* (New York, NY: Penguin Group, 2006), 299.

[12] Hugh Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," *Landscape Research* 24, no. 2 (July 1999): 120.

[13] Richard Vinen, *The Unfree French Life Under the Occupation* (London: Penguin Books, 2006), 357.

[14] Olivier Wieviorka, *Normandy, The Landings to the Liberation of Paris*, trans. M. B. DeBevoise (Cambridge, MA: The Belknap Press of Harvard University Press, 2008), 328.

[15] Davies, *No Simple Victory, World War II in Europe 1939-1945*, 7; Wieviorka, *Normandy, The Landings to the Liberation of Paris*, 1; Claudia Baldoli, Andrew Knapp, and Richard Over, eds., *Bombing States and Peoples in Western Europe 1940-1945* (London: Continuum International Publishing Group, 2011), 1.

A New Narrative

Countless stories, memoirs, books, and movies have immortalized the Allied landings in Normandy. Most Americans are familiar with the 101st Airborne Division exalted in the HBO series *Band of Brothers*. Many have seen Tom Hanks' heroic portrayal of Captain John Miller in *Saving Private Ryan*. Books such as Cornelius Ryan's *The Longest Day* and Stephen Ambrose's *D-Day* have offered a glorified glimpse into the Allied military planning and execution of Operation OVERLORD.[16] These narratives focus on invaders' view, the British, American and Canadian forces that landed on June 6th, 1944. The Allied narrative has permeated so deeply that the majority of museums across the Normandy coastline, dedicated to the memory of the landings, are run and operated by British, Americans, and Canadians.[17] The events of that day were, of no doubt, the greatest military affair to have ever been attempted in modern history. In the struggle to capture the breadth and vastness of the operation, authors, historians, and the soldiers themselves have chosen to highlight the heroic actions which frequently occurred across the battlefield.[18] In doing so, these accounts lay the foundation for the simplistic view that the invasion of France was nothing more than a battle of good versus evil. The Western Democracies had come to liberate Europe from the evil Nazi empire, and those

[16] Tom Hanks, *Band of Brothers*, 2001; Steven Spielberg, *Saving Private Ryan*, 1998; Cornelius Ryan, *The Longest Day, The Classic Epic of D-Day* (New York, NY: Simon & Schuster, 1959); Stephen Ambrose, *D-Day, June 6, 1944: The Climatic Battle of World War II* (New York, NY: Simon & Schuster, 1994).

[17] Davies, *No Simple Victory, World War II in Europe 1939-1945*, 474.

[18] Peter Caddick-Adams, *Sand and Steel, The D-Day Invasion and the Liberation of France* (Oxford, UK: Oxford University Press, 2019), xl.

that answered the called to fight, near demigods. In their endeavor to honor the sacrifice of the many that lost their lives on those beaches and across the French countryside, the enduring narratives have removed the undesirable consequences of the battle; guaranteed to remain only in the memories of those Allied soldiers that fought and the civilians that suffered during that fateful summer.[19]

Of those involved, the French citizen's silence on the bombings are the most intriguing. Why did these people that had suffered so significantly not flood the historical narratives with their accounts? During the First World War, the country of France suffered over five million casualties and endured so much industrial destruction that economists estimated that the war set France back nearly a decade in growth.[20] Moreover, many French industrial workers were pardoned from military service so that production could continue to meet the demands of those fighting. As a result, farmers left their families to fight on the front lines during the long and gruesome war.[21] After the war, this led to a vast societal rift and a national narrative that felt the cost of war was too high a price to pay again.[22] When the Germans invaded again in 1940 and successfully pushed the British military off the continent, it did not take long for the French government to surrender.[23] An otherwise unknown French Brigadier General, Charles de

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[19] Wieviorka, *Normandy, The Landings to the Liberation of Paris*, 1–5.

[20] Bourque, *Beyond the Beach*, 25.

[21] Julian Jackson, *France, The Dark Years* (Oxford, UK: Oxford University Press, 2001), 28–29.

[22] Bourque, *Beyond the Beach*, 26.

[23] Vinen, *The Unfree French Life Under the Occupation*, 19.

Gaulle, a few government officials, and a handful of military officers evacuated to Great Britain and refused to accept the French surrender. These men would go on to organize the French national resistance to Nazi Germany.[24] However, over the next four years, those remaining in the country of France were once again occupied by their German neighbors. The small French government that remained moved out of Paris and into the small town of Vichy.[25] 55,000 men had died in an attempt to keep France free, 123,000 were wounded in the process, and approximately 1.85 million were made prisoners-of-war in German camps. French society faced a significant shift as the war progressed; almost 30 percent of the male population disappeared nearly overnight.[26] Further compounding the situation were those that contributed to the German military. In 1942 several hundred thousand Frenchmen went to work in Germany to help support their families, and in 1943 the Vichy government passed a law that required labor service in Germany. Some 650,000 French men and women lived and worked in Germany, supporting the German war machine.[27] The final chapter on the complex narrative of occupied France is the complicit and active participation in Hitler's Final Solution. Throughout the war, approximately 75,000 French Jews were sent to Germany for extermination.[28] French government officials passed information to German officials to

[24] Catherine Gavin, *Liberated France* (New York: St. Martin's Press, 1955), 16–18.

[25] Vinen, *The Unfree French Life Under the Occupation*, 47.

[26] Bourque, *Beyond the Beach*, 40.

[27] Jackson, *France, The Dark Years*, 1.

[28] Ibid.

identify Jewish families that were then rounded up by French police officers, while the French citizens paid witness to this horror and often ousted their neighbors and countrymen.[29] It is these convoluted and complex factors that led to a post-war society that was deeply divided and fragile. As Charles de Gaulle led his country through reconstruction, there was very little acknowledgment of the horrors of the war. Memories of neighbors taken to concentration camps, of bombs destroying cities, of Nazi collaborators that turned in their fellow citizens, of forced labor in Germany, and other numerous atrocities steered France into an almost silent post-war period.[30]

As such, the narrative that was left was only that of the Allies, the liberators that had also paid an extremely high cost to free the French from their occupier. Those Allied narratives magnify the heroic action and pay homage to the thousands of lives that were cut short on foreign soil. Nevertheless, some seventy-five years after the first American boots stepped onto French beaches, others are willing to shed light on the more complicated parts of the last World War.

In his book *Normandy,* French historian Olivier Wieviorka directly challenges the myth that the incursion to France was a moral, holy war and the soldiers who fought were the crusaders.[31] Perhaps book's biggest most significant influence, on the previous narratives are the chapters in which he focuses specifically on the French people. He addresses the crimes and misdemeanors of the Allied Soldiers against the French, the

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[29] Vinen, *The Unfree French Life Under the Occupation*, 142–144.

[30] Olivier Wieviorka, *Divided Memory, French Recollections of World War II from the Liberation to the Present* (Stanford, CA: Stanford University Press, 2012), 2.

[31] Wieviorka, *Normandy, The Landings to the Liberation of Paris*, 3.

French citizen's role leading up to D-Day, how they interacted with the Allies, and how they contributed to the invasion. He then examines the effect the Normandy campaign had on the French, both in civilian life and as a country. Overall, Wieviorka's book challenges the reader to examine the previous accounts of operations OVERLORD with a critical eye. For in his own words, "Rediscovering the war obliges us, then, to reexamine its violence – whether administered or endured – and to challenge the legend that the Allied soldiers fearlessly stormed the shores of Normandy under a hail of enemy fire, ready to die for the cause of democracy."[32]

Similarly, Antony Beevor, a British military historian, reexamined the invasion into Normandy and the subsequent liberation of Paris in his book *D-Day the Battle for Normandy*.[33] His book intertwines not only the experiences of the soldiers, allied and German, but also the French citizens. Beevor's book holds among the litany of other military history works on D-Day, but by making space for the French narrative in his account, he has offered a more holistic view of the invasion.

Several American authors have also begun to place themselves in the line of historians willing to reexamine D-Day's long-standing narratives. In her book, *D-Day Through French Eyes*, Mary Louise Roberts presents the collected testimonies of French citizens as they recalled the events of the summer of 1944. Her book offers readers an insight into how the battle was felt, seen, and heard from nonconsensual players in their emancipation. Her book challenges that perception that the French were just passive

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[32] Wieviorka, *Normandy, The Landings to the Liberation of Paris*, 5.

[33] Antony Beevor, *D-Day, The Battle for Normandy* (New York, NY: Penguin Books, 2009).

observers to the greatest military operation ever accomplished, and in doing so, confronts her audience with the notion that perhaps the French were some of the most substantial participants. From losing everything they owned, including family and friends during the aerial bombardment, to hiding downed Allied pilots and passing along information about German artillery strength and location, "the Normans were agents in their own liberation."[34]

Another American author and the inspiration behind this paper is Dr. Stephen Alan Bourque and his work *Beyond the Beach*. A Professor Emeritus at the United States Army Command and General Staff College School of Advanced Military Studies, Bourque takes a hard stance on the need for militaries to examine what it means to cause "collateral damage". He accomplishes this by scrutinizing the invasion of Normandy, specifically the Allied air campaign and its outcome across France and its impact on her citizens. His book offers three perspectives: the Anglo-American leadership, the Allied Air Forces, and the French citizens that lived under aerial bombardment. His unique argument is that the centralized control of the air forces, which Eisenhower demanded, led to misuse of the bombers, and this cements his place in this new OVERLORD narrative. Bourque claims that both the air and army leadership knew how inaccurate the bombers were and still chose to employ them on targets in European cities to shape the battlefield for ground troops. Tragically, his book confirms that the bill payer for these decisions were the French civilians "beyond the beach"[35].

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[34] Roberts, *D-Day Through French Eyes: Normandy 1944*, 1–5.

[35] Bourque, *Beyond the Beach*, 253–263.

William Hitchcock's, *The Bitter Road to Freedom*, is also among the new narratives that are acknowledging the suffering inflicted upon civilians during the Second World War. Hitchcock says, "This book, I believe, offers a new history of liberation, told largely from the ground up. It is a surprising story, often jarring and uncomfortable, and it is one that does not appear in our monuments or our history books."[36] He argues that the human cost of war is so much more than the headstones of soldiers that line the national cemeteries across Europe and that the liberation is also a story of destruction and violence.[37]

Other authors such as Claudia Baldoli and Andrew Knapp have taken a special interest in the effects Allied bombing had on civilians in Europe. In *Forgotten Blitzes, France and Italy Under Allied Air Attack*, Baldoli and Knapp contend that the Post-World War II bombing literature which focusses on the British and German experiences is unjustified.[38] Their argument centers on the fact that Great Britain received barely more than one-eighth the number of bombs France did and less than one-fifth that of Italy.[39] *Forgotten Blitzes* attempts to rectify the lack of literature about France and Italy's bombings by giving full scale national accounts of both countries' experiences.

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[36] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 2.

[37] Ibid., 2–6.

[38] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 1.

[39] Ibid., 2.

Along the same lines, Richard Overy's *The Bombers and the Bombed* is one of the most comprehensive books on the bombing war in Europe. By covering all of Europe, underscoring the fact that bombing was part of the Allied strategic plan, and by examining both the 'bombers and the bombed', his book looks to provide "the first full narrative history of the bombing war".[40] His partnered work with Baldoli and Knapp, *Bombing States and Peoples in Western Europe* explores the effects of bombing on the civilians in Europe. Their collection of essays focuses on not just the short-term consequences but also the long term, intangible changes that have happened throughout society.[41] Another important publication is the journal article, *How Many Frenchmen Did You Kill? British Bombing Policy Towards France* by Lindsey Dodd and Andrew Knapp. Their article carefully examines how the Allies decided to allot so much of their bombing effort to German-occupied France.[42]

These authors and others have set out to inspire a new generation of historians to critically reexamine the Allied operation OVERLORD. Their works, and this paper, have attempted, not to tarnish the memory of the significant sacrifices the Allied forces made for liberation of Europe, but to bring the final piece to the puzzle. To thoroughly examine why the Allied forces came to the decision to use heavy bombers in cities across France and subsequently, how those bombs affected the French citizens, allows the French

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[40] Richard Overy, *The Bombers and the Bombed, Allied Air War Over Europe, 1940-1945* (New York, NY: Penguin Books, 2013), xii.

[41] Baldoli, Knapp, and Over, *Bombing States and Peoples in Western Europe 1940-1945*, 1.

[42] Dodd and Knapp, "How Many Frenchmen Did You Kill? British Bombing Policy Towards France (1940-1945)," 1.

narrative to be as important as those of the American, British, and Canadian soldiers. In doing so, it also opens the door for future military leaders to examine the relationship between military capabilities and the long-term consequences of collateral damage.

CHAPTER 2

ALLIED AIR FORCES

Starting in the early morning hours of June 6, 1944, Eighth U.S. Air Force heavy bombers flew across the English Channel and, in an attempt to destroy road and rail bridges and block key intersections, dropped their bombs on cities across the Normandy coastline in France.[43] The decision to target the bridges and intersections, referred to as chokepoints, came from the 21st Army Group, under the command of then General Bernard Montgomery, as part of his strategy to delay German army reinforcements from reaching the beachhead.[44] Both Montgomery and the Supreme Allied Commander, General Dwight D. Eisenhower, knew that for Operation OVERLORD to be successful, the German Army must be denied the ability to rapidly reinforce units in the invasion area.[45] Together, they and their staffs created plans that employed the Allied air forces in an operational role to set favorable conditions for the ground forces prior to the invasion.[46] Eisenhower was able to dictate the actions of the Eighth Air Force and any other American or British Air Forces in the European theater, because of the command

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[43] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," F.O. 727, 1.

[44] Denis Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy" (Air Historical Branch, 1946), 177–189.

[45] Montgomery, *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.*, 217–218; Eisenhower, *Crusade in Europe*, 221.

[46] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy," 177.

authority that he insisted on as Supreme Allied Commander.[47] The resolve to use all available air forces in support of the tactical operation was a direct result of the Allied commander's experiences in North Africa and Italy.[48] Unfortunately, heavy bombers in both the American Air Forces and the British RAF were built and equipped under a different modality, to bomb large targets such as cities, airfields, and infrastructure.[49] Despite significant objection from almost all Allied air force leaders, General Eisenhower continued with the plans.[50] The tactical control given to Eisenhower over the heavy bombers led to their employment in an operational role for which their technology and equipment was ill-suited.

From Africa to Italy

Eisenhower and Montgomery believed that all air forces, including the heavy bombers, were best used in support of the ground forces during the invasion of Normandy. Montgomery had used the air forces as his "long-range hitting weapon" in Alamein in 1942 to successfully push German *Generalfedlmarschall* Erwin Rommel out

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[47] Alfred Chandler and Stephen Ambrose, eds., *The Papers of Dwight David Eisenhower*, vol. III, *The War Years* (John Hopkins Press, 1970), 1785.

[48] Eisenhower, *Crusade in Europe*, 222.

[49] Office of the Chief of the Army Air Forces, "AWPD/1 Munitions Requirements of the Army Air Forces" (War Department, August 12, 1941), Air Force Historical Research Center; Maurice Harvey, *The Allied Bomber War 1939-1945* (Tunbridge Wells, Kent, United Kingdom: Spellmount Ltd., 1992), 20.

[50] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy," 183.

of Egypt.[51] Which only cemented his belief that they be used in a similar fashion to support OVERLORD. He insisted that the air forces should "…hold the ring, and hinder and make difficult the movement of enemy reserves by train or road towards the lodgment area."[52] Eisenhower had similar experiences in Italy during the Allied amphibious landings near Salerno. After the Allies defeated the Germans along the beachhead, Eisenhower wrote,

> With the AVALANCHE landing now apparently secure against any major counterattack that could seriously threaten us, it appears to me important that one major lesson should never be lost sight of in future planning. This lesson is that during the critical stages of landing operation every item of available forces including land, sea, and air, must be wholly concentrated in the support of the landing until troops are in position to take care of themselves. This most emphatically includes the so-called strategic air force.[53]

He continues to say that does not doubt that the bombing force used in conjunction with the landings were the only reason the Allied forces were not pushed back into the sea.

Not only did the experiences in North Africa and Italy shape the operational understanding air forces support to the landings in France, but it also solidified for Eisenhower that he must have command of the air organizations. In a letter to Army Chief of Staff, George Marshall, Eisenhower wrote in October of 1943 that all air, ground, and naval forces must be placed under the command of the Allied Commander-

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[51] Montgomery, *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.*, 128, 130.

[52] Ibid., 198.

[53] Chandler and Ambrose, *The Papers of Dwight David Eisenhower*, 3:1446 (italics added for emphasis).

in-Chief to ensure effective and continuous coordination.[54] It was his view that the operations in Sicily and then Salerno had only been successful because of the coordination among the services.[55] From those experiences, Eisenhower believed so strongly that if made Supreme Allied Commander of the European Theater that he must have control of all air, naval, and ground forces and would accept no other solution.[56]

Despite the strong beliefs of Montgomery and Eisenhower, not everyone agreed that the strategic air forces should fulfill a tactical role. Eisenhower's deputy Supreme Commander, Air Marshall Arthur Tedder, wrote that the Allied bombing operations against the island of Pantelleria (prior to the invasion of Sicily) would be "the perfect curse" for the air forces.[57] He argued that it was improbable ever to have the conditions in Italy again and that the accuracy of the heavy bombers was only half of what they had estimated before the attack.[58] During the planning conferences for OVERLORD, Tedder continued to advocate for the heavy bombers to only perform their strategic roles. Tedder outspokenly disapproved of the use of the Eighth Air Force's heavy bombers against the chokepoints in French cities "because of the high civilian causalities likely to be caused,

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[54] Chandler and Ambrose, *The Papers of Dwight David Eisenhower*, 3:1478.

[55] Eisenhower, *Crusade in Europe*, 179.

[56] Ibid., 222.

[57] Arthur Tedder, *With Prejudice, The War Memoirs of Marshal of the Royal Air Force, Lord Tedder. G.C.B.* (Boston, MA: Little, Brown and Company, 1966), 443.

[58] Ibid., 442.

as well, as destruction to historic monuments" which in his opinion were not offset by the military advantages gained through such bombing.[59]

After commanding operations in North Africa and then Italy, both Eisenhower and Montgomery firmly believed in the Allied Air Force's role as an operational asset. Furthermore, Eisenhower demanded control of those air forces as part of operations leading up to and through the initial stages of OVERLORD. As such, he tasked his Air Commander-in-Chief, Air Marshal Leigh-Mallory, with creating an air-line of action that would create the specific conditions on the ground that both Eisenhower and Montgomery felt were necessary for success.[60]

AEAF and the Bombers

On August 17, 1943, at a conference in Quebec, the British and American Chiefs of Staff approved the first plans for Operation OVERLORD, a cross-Channel invasion that would bring Europe's liberation.[61] During the same conference, the chiefs of staff appointed Sir Trafford Leigh-Mallory as Air Commander-in-Chief of the newly created AEAF.[62] The AEAF formed explicitly to support the invasion with fighters, fighter-bombers, light bombers, medium bombers, and reconnaissance aircraft. The AEAF had

[59] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy," 183.

[60] Bourque, *Beyond the Beach*, 69.

[61] Pogue, *The European Theater of Operations: The Supreme Command*, 103.

[62] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 4.

no heavy bombers assigned to it, as both the RAF and the U.S. refused to give up control of their Bomber aircraft to this unified organization.[63] Later, during the Cairo Conference in 1943, the United States Chiefs of Staff ordered the creation of the United States Strategic Air Forces (USSTAF) in Europe. Lieutenant General Carl Spaatz, then commander of the U.S. air forces in the Mediterranean and North Africa, was named chief of the new headquarters. Through the creation of the USSTAF, Spaatz was operationally in control of the strategic air forces, the Eighth U.S. Air Force in Great Britain, and the Fifteenth U.S. Air Force in the Mediterranean.[64] Spaatz had administrative control of the Ninth U.S. Air Force, but the AEAF would retain operational control of the organization for the invasion.[65]

With the creation of these organizations, American heavy bombers in Europe fell under the control of Spaatz and the RAF's heavy bombers under the control of Sir Arthur Harris. Neither commander supported heavy bombers in support of tactical work with ground forces and the AEAF. Spaatz advocated for the bombing of aircraft factories and oil refineries and Harris for the bombing of German industrial towns in accordance with the assigned task of the Combined Bomber Offensive.[66] While they accepted that

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[63] Dennis Richards, *The Hardest Victory, RAF Bomber Command in the Second World War* (New York, NY: W.W. Norton & Company, Inc., 1994), 223.

[64] Pogue, *The European Theater of Operations: The Supreme Command*, 48.

[65] Wesley F. Craven and James L. Cate, eds., eds. *Europe: Torch to Pointblank, August 1942 to December 1943,* vol. Two, *The Army Air Forces in World War II* (Chicago: University of Chicago Press, 1949), 754.

[66] Richard Overy, *The Bombing War* (London: Penguin Books, n.d.), 366–367; Craven and Cate, *Europe: Torch to Pointblank, August 1942 to December 1943*, 2:130.

OVERLORD was the Allied plan to liberate Europe, they both argued that their bombers should continue only for strategic purposes. Harris composed a letter to Air Marshal Sir Charles Portal (then Commander in Chief of RAF), Leigh-Mallory, and General Montgomery, in which he clearly stated that his heavy bombers would not be accurate in hitting small targets. He also argued that the bombers were extremely dependent on weather conditions and, could not respond until hours after notification, which would make them irrelevant. Portal responded that Harris should want to help with the operation even if it meant "trying new techniques and tactics against the kind of targets which you rightly consider to be outside the scope of normal night-bomber operations."[67]

General Eisenhower did not arrive in London until January of 1944, and by that time, the command of Allied air forces had become so convoluted every decision resulted in heated debates between the leaders of the AEAF, USSTAF, and the Combined Chiefs of Staff.[68] During his command in Africa, Eisenhower had learned the importance of a fully integrated air command for operations. He demanded control of both USSTAF and Bomber Command for the invasion. Spaatz reluctantly agreed to fall under Eisenhower's command at least sixty days before the invasion, but the months preceding would expect to attack targets of his choosing under the CBO guidelines.[69] In a letter to the U.S. Army

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[67] Richards, *The Hardest Victory, RAF Bomber Command in the Second World War*, 223.

[68] Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, DC: Center for Air Force History, n.d.), 312–313.

[69] Ibid., 314–315.

Air Forces Commander, Henry Arnold, Spaatz said, "I will emphasize that air operating under the command of a ground officer will most probably be improperly used."[70]

The British were not so willing to acquiesce control but after several months of persuading Prime Minister Churchill that he had no interest in diminishing the bombings already taking place over Germany, Eisenhower was granted the command relationship he desired with British Bomber Command.[71] In his memoirs, Eisenhower said, "My insistence upon commanding these air forces at that time was further influenced by the lesson so conclusively demonstrated at Salerno: when a battle needs the last ounce of available force, the commander must not be in the position of depending upon request and negotiation to get it."[72] Eisenhower did give the air commanders one concession, the air forces for Operation OVERLORD would all coordinate through Air Chief Marshall Tedder, who had served with Eisenhower and Spaatz in the Mediterranean. Leigh-Mallory and the AEAF, Spaatz, and the USSTAF, with Harris and the RAF Bomber Command, would operate on the same coordinating level. Tedder would coordinate the strategic air plan for the operation and Leigh-Mallory the tactical plan, the bombers would only be tasked until the assaulting forces on the continent established themselves.[73]

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[70] Davis, *Carl A. Spaatz and the Air War in Europe*, 218.

[71] Pogue, *The European Theater of Operations: The Supreme Command*, 124.

[72] Eisenhower, *Crusade in Europe*, 222.

[73] Pogue, *The European Theater of Operations: The Supreme Command*, 124.

On the December 15, 1943, at the request of Spaatz and Harris, the Allies formed a joint planning committee to consider the airpower support for the upcoming invasion; this committee, incorporated 21st Army Group personnel, under the command of Montgomery, and representatives from each of the air forces involved.[74] Additionally, in January of 1944, planners created a specific bombing committee to consider the employment of bomber aircraft. The committee had four principle concerns: suitability of targets for bombing, the relationship of bombing commitment to the scale of effort estimated to be available, the allocation of priorities to the various commitments, and the apportionment of the available bomber efforts.[75]

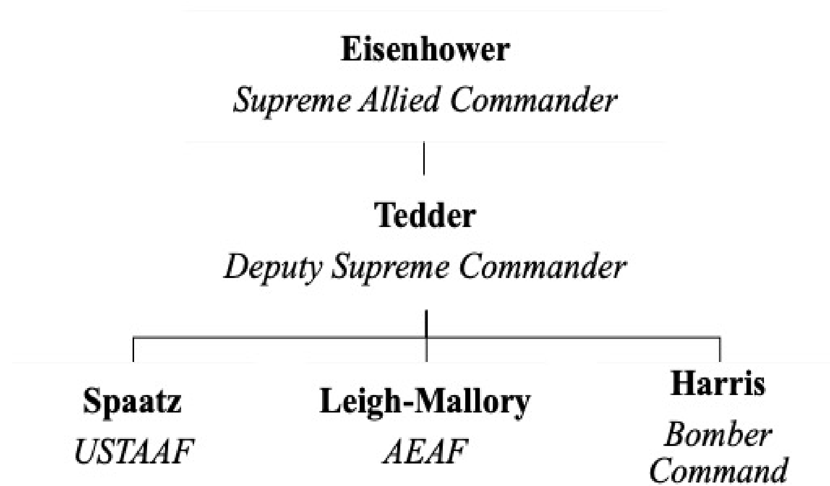

Figure 1. Allied Air Forces Chain of Command Structure for Operation Overlord

Source: Stephen Alan Bourque, *Beyond the Beach* (Annapolis, MD: Naval Institute Press, 2018), 58.

[74] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," 2.

[75] Ibid.

The AEAF divided the initial support for Operation Overlord into two phases. The first phase consisted of the attainment of allied air supremacy and the destruction of the German production capacity. The importance of this first phase should not go unnoticed as the substantial damage inflicted on the German factories and assembly plants, combined with the destruction of German combat aircraft in the months before the invasion, resulted in the German *Luftwaffe* having no more than a nuisance effect on the landings and subsequent operations, and affording the Allies the air superiority they needed to bomb the chokepoints.[76]

The second phase contained the air support to the ground assault; part one was the Transportation Plan and the Airfield Plan in the spring of 1944.[77] These plans sought to reduce critical infrastructure and ultimately cripple the German forces and prevent or severely delay German reinforcements into Normandy once the Allies landed.[78] Professor S. Zuckerman, the scientific advisor to the AEAF, analyzed the previously carried out railway bombing in Italy. He proposed a ninety-day attack against specific railways across Germany, France, and Belgium to dislocate enemy force supply systems for the enemy forces.[79] Taking the recommendation in preparation for Operation OVERLORD, the Allies created a plan intended to target the German dependence on rail

[76] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," 3; Craven and Cate, *Europe: Torch to Pointblank, August 1942 to December 1943*, 2:136–137.

[77] Pogue, *The European Theater of Operations: The Supreme Command*, 127.

[78] Chandler and Ambrose, *The Papers of Dwight David Eisenhower*, 3:1843.

[79] Pogue, *The European Theater of Operations: The Supreme Command*, 127.

transport for resupply of material and troops. The goal was to use RAF Bomber Command, the AEAF, and USSTAF to create a "railway desert" between Germany and the French coastline. A previous ruling in the British War Cabinet had forbidden attacks of occupied countries if a doubt existed as to the accuracy of bombing and if severe damage could occur to the local populace. The British Ministry of Home Security estimated that the proposed Transportation Plan would cause 80,000-160,000 causalities.[80] Churchill and Spaatz both opposed the plan initially, in a letter he presented to Eisenhower, Spaatz said

> I would feel seriously remiss in my duty if I did not bring it to your attention the serious implications involved with these attacks. Many thousands of French people will be killed, and many towns will be laid to waste in these operations. I feel a joint responsibility with you, and I view with alarm a military operation which involves such widespread destruction and death in countries not our enemies, particularly since the results to be achieved from these bombing operations have not been conclusively shown to be…decisive…[81]

However, the Transportation plan was crucial in Eisenhower's eyes, he wrote on the matter to Chief of Staff of the Army General George Marshall, "I have stuck to my guns because there is no other way in which this tremendous air force can help us…"[82] Finally, when Churchill realized that Eisenhower had the support of the Combined Chiefs of Staff and President Roosevelt, he acquiesced.[83] In order to determine the efficacy of the plan, Eisenhower ordered Harris to carry out the first few attacks as part of a trial run.

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[80] Pogue, *The European Theater of Operations: The Supreme Command*, 128.

[81] Davis, *Carl A. Spaatz and the Air War in Europe*, 400.

[82] Chandler and Ambrose, *The Papers of Dwight David Eisenhower*, 3:1839.

[83] Davis, *Carl A. Spaatz and the Air War in Europe*, 405.

On the first raid, the bombers inflicted substantial damage to the sheds, tracks, and rolling stock at a railway southwest of Paris without any aircraft loss. The second raid produced similar results, and the third raid, a few days later, destroyed 15 locomotives and 800 coach cars. Overall five trial operations took place, and an estimated 110 French civilians lost their lives, far less than expected. Churchill insisted on a revision to the target-list, eliminating all targets which would likely result in more than 100-150 civilian causalities and insisted that the total number never exceed 10,000. Rail and marshaling yards across France, Belgium, and into Germany were bombed over the spring and into the summer. The attacks on rail centers were catastrophic to the German forces in France; the number of serviceable trains in the region reduced from 70,000 to 10,000.[84] Allied bombers attacked all enemy airfields within a 130-mile radius of Caen, cratering runways, landing grounds, and destroying any parked aircraft. As a result of these bombing runs, the German Air Force's capability became severely hindered. In the end, the civilian loss of life per target exceeded the limit, with 252 killed on the attack on Courtrai, 456 in the attack on Lille, and 482 at Ghent, but the overall total number killed was far less than Churchill's prescribed 10,000. When confronted by Churchill over the fear that the loss of life would alienate the French and Belgian peoples, Eisenhower responded, "The French people are now slaves. Only a successful OVERLORD can free them. No one has a greater stake in the success of that operation than have the French."[85] Even though these transportation targets, typically large rail yards, were still relatively sizeable, the heavy

[84] Richards, *The Hardest Victory, RAF Bomber Command in the Second World War*, 228.

[85] Chandler and Ambrose, *The Papers of Dwight David Eisenhower*, 3:1809.

bomber support to ground operations cemented in the eyes of Eisenhower and Montgomery as a necessity for the successful execution of the invasion.[86]

Leigh-Mallory briefed the Allied Air Commanders on June 3, 1944, that the first part of the AEAF support to OVERLORD had ended. He then stated that now, the essential task for the air forces before the landings would be harassment and prevention of the German army to reinforce or build up forces near the beachheads. He re-stated what Montgomery had laid out, that the tasks of the Allied air forces would be to block the path of those reinforcements and to do that meant additional bombing missions against transportation chokepoints throughout towns and villages across Normandy.[87] 21st Army Group planners had chosen twenty-six towns and cities across the region due to their importance as potential key movement corridors for German reinforcements – bridges and small crossroads that, when peppered with rubble, could prevent German ground troops from traveling along a specific route. The city of Caen was one such target, holding four chokepoints that, if destroyed, could delay or even stop reinforcements from reaching the beachhead.[88] Spaatz immediately dissented on the use of heavy bombers to target those chokepoints, pointing out that the fighter-bombers which were under the direct control of the AEAF were better suited for attacking precise targets. However,

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[86] Eisenhower, *Crusade in Europe*, 233–234.

[87] Stephen Darlow, *D-Day Bombers: The Veterans' Story* (London: Grub Street, 2004), 131.

[88] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," 5; Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy," 177.

Montgomery's plan would stand, heavy bombers would target the road and rail junctions throughout the city of Caen prior to the invasion.[89] Already a Day One objective for the Allied ground forces due to those same road and rail networks that emanated from the city, controlling Caen was critical for the Germans as well. Starting on June 6, 1944, the city would be the focus of both armies and air forces for the next thirty-six days. The subsequent destruction to the city would cause such intense devastation and suffering that the city of Caen was referred to as a martyred city after World War II.[90] While the Allied commanders wanted the chokepoints destroyed, it was not their intention to demolish the city altogether. The fact was that the Eighth Air Force and RAF Bomber Command did not have the equipment, technology, or tactics suitable for bombing such small precise targets, especially in a friendly occupied country where civilian causalities should have been avoided.

Technology and Tactics

One of the most significant reasons the French civilians suffered from Allied bombings was the inaccuracy of the Allied technology for bombing small targets. In response to American President Franklin D. Roosevelt's inquiry on the requirements to develop the U.S. Army air forces, the Army Air Force's War Plan Division produced Air War Plans Division-1.[91] AWPD-1 described in detail the number of airplanes and types

[89] Darlow, *D-Day Bombers: The Veterans' Story*, 131–132.

[90] Peter Gray, "Caen - The Martyred City," in *The Normandy Campaign 1944: Sixty Years On* (Abilene, KS: Routledge, 2006), 158.

[91] Bourque, *Beyond the Beach*, 60.

of munitions that the air forces would need to destroy targets in Germany. The AWPD also forecasted how many bombers would be required to secure "one hit," in other words, the destruction of a target. They assessed that one target 100ft x 100ft required two hundred and twenty aircraft.[92] In 1942, General Eaker, commander of the U.S. VIII Bomber Command, predicted that only 40 percent of all bombs could be expected to fall within 500 yards of their aiming point. Even within that level of accuracy, the bombings did not produce appropriate levels of damage to their targets. In raids against shipyards that year, bombs produced no visible damage to the target themselves.[93] Moreover, some formations bombed the wrong target altogether, as witnessed on the raid of Saarbrucken in September of 1942, which resulted in a town thirteen miles off target receiving extensive bombing.[94] This level of inaccuracy was the result of multiple factors ranging from technical reasons to tactical.

One factor that influenced bombing accuracy was that navigational aids used by both British and American air forces proved to be useful only in daylight and clear conditions. Gee was the first navigational aid used by Allied air forces. It laid an invisible grid over a target using three widely-spaced ground transmitters that radiated sequential radio pulses. One transmitter was the "A," also the Master station, and the other two were

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[92] Office of the Chief of the Army Air Forces, "AWPD/1 Munitions Requirements of the Army Air Forces," (War Department, August 12, 1941), Tab 2b, Air Force Historical Research Center.

[93] Craven and Cate, *Europe: Torch to Pointblank, August 1942 to December 1943*, 2:217–218.

[94] Richards, *The Hardest Victory, RAF Bomber Command in the Second World War*, 150.

the "B" and "C," or slave stations. By measuring the differences in time taken by the A and B and then the A and C signals to reach an aircraft, it could locate the plane on two positional lines, called Gee coordinates. The point at which the Gee coordinates intersected was the ground point of the aircraft. The data then displayed onto the navigator's table inside an aircraft, giving an accuracy of a one-half mile to five miles depending on the skills of the navigator inside. This accuracy would become an issue later in the war when more navigators were needed and thus rushed through training before being sent on bombing missions. Because Gee relied on transmissions from ground stations in Britain, its maximum effective range was approximately 350 miles, less than half the distance from the British coastline to Munich. Navigators understood that the further from England, one traveled, the less accurate, and eventually obsolete the Gee coordinates would be.[95] Gee also did not solve the problem of being able to identify the target. Harris acknowledged that Gee was only useful in getting aircraft to the vicinity of the target, but visual identification was still necessary.[96]

Another navigational aid used during World War II was called Oboe, similar to Gee, it used transmissions from a pair of ground stations in England. Unlike Gee, the Oboe ground stations received and measured the pulses back from the aircraft, allowing for a more accurate measurement.[97] One station, called the Cat, tracked the aircraft as it

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[95] Jonathan Falconer, *Bomber Command Handbook, 1939-1945* (London: Sutton Publishing Limited, 1998), 104–105.

[96] Randall T. Wakelam, *The Science of Bombing, Operational Research in RAF Bomber Command* (Toronto: University of Toronto Press, 2009), 71.

[97] Ibid., 74.

traveled over a target, and the second station, called the Mouse, calculated when the bombs should be released.[98] The pilot was kept on track by dots or dashes into his earphones, and if he were on track, he would hear one long continuous note (thus dubbed the Oboe). Once the pilot reached the correct point for targeting, a single sharp signal cut in, and the pilot would release the bomb. The most significant drawback to Oboe was that the curvature of the earth limited it, thus the longer the distance, the less accurate. Because of this limitation, Oboe was used mainly by Mosquitos, which could reach a high ceiling and thus extended the range. Another drawback to Oboe was the limitation on ground stations to control multiple aircraft and once. By 1943, only eighteen aircraft every hour could fly under Oboe control.[99] Toward the end of the war, the use expanded to Lancaster's and Mosquitos. Those aircraft acted as leaders for formation bombing, in which the follow-on aircraft took visual cues on where to drop their bombs.[100] However, when Harris first saw the AEAF plans for the bomber forces, he wrote to Leigh-Mallory stating, that RAF Bomber Command had never obtained the degree of concentration upon which the OVERLORD plan depended. Specifically, Harris stated that Oboe marking could not obtain the level of accuracy.[101]

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[98] Falconer, *Bomber Command Handbook, 1939-1945*, 104.

[99] Richards, *The Hardest Victory, RAF Bomber Command in the Second World War*, 156.

[100] Falconer, *Bomber Command Handbook, 1939-1945*, 105.

[101] Wakelam, *The Science of Bombing, Operational Research in RAF Bomber Command*, 186.

The third navigational aid was called H2S and was the only self-contained aid not limited by range or altitude. H2S used radar transmissions to "paint" a picture of the ground below. The resulting impression from the radar displayed on a screen in front of the navigator.[102] The development of H2S allowed for the potential to bomb even in overcast conditions – otherwise known as blind bombing.[103] The ability to distinguish between land and sea was evident, but once the aircraft flew over large urban areas, it became virtually impossible to discriminate between images on the screen.[104] The American air forces had a version of H2S, called H2X, which performed much like its British counterpart. The H2X did have a degree of higher definition of the images it displayed as compared to its British counterpart.[105] However, neither the H2S or H2X could assist in differentiating between similar-looking targets, and in the case of large cities like Berlin, the entire screen was white.[106] Interestingly, prior to the invasion, the Eighth Air Force forbade using H2X bombing methods over occupied countries such as France. The policy stated that in order to avoid civilian causalities that would be inflicted by the inaccurate bombing-through-clouds techniques H2X should not be used.[107]

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[102] Roger A. Freeman, *The Mighty Eighth War Manual* (London: Jane's Publishing Company, 1987), 48.

[103] Ibid.

[104] Falconer, *Bomber Command Handbook, 1939-1945*, 105.

[105] Freeman, *The Mighty Eighth War Manual*, 49.

[106] Wakelam, *The Science of Bombing, Operational Research in RAF Bomber Command*, 243.

[107] Davis, *Carl A. Spaatz and the Air War in Europe*, 382.

Multiple other factors contributed to the inaccuracy of the bombers such as the technology in bombsights, which performed poorly in cloudy conditions or when an aircraft used evasive maneuvers under enemy fire, and the equipment lost sight of the target.[108] In an interview fifty years after World War II, Warrant Officer H.R. Moyle of the British 44 Squadron had this to say about his bombsight (called a gyro), "The gyro had a habit of putting in jerky alterations of course on the bombing run and seemed to release the bomb when it felt like it."[109] The American B-17 bombers were outfitted with the Norden gyro-stabilized bombsight. The Norden sight was highly publicized as being able to place a bomb in a pickle barrel from 30,000 feet. However, this bombsight, like the others, was intended for daytime bombing only and underperformed on the cloudy European continent.[110] The Norden was a complex electrical system that frequently froze in the cold European skies, mostly, however, the human error of incorrect heading or poor visibility for identifying the target decreasing the accuracy.[111] Additionally, the height from which heavy bombers dropped their bombs also reduced accuracy, many dropping from above 25,000 feet to avoid German anti-aircraft fire.[112] The higher an aircraft dropped a bomb, the more dispersed the load would be over a target area, causing more inaccurate results.

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[108] Max Hastings, *Bomber Command* (London: Dial Press, 1979), 110.

[109] Richards, *The Hardest Victory, RAF Bomber Command in the Second World War*, 311.

[110] Harvey, *The Allied Bomber War 1939-1945*, 39.

[111] Freeman, *The Mighty Eighth War Manual*, 45.

[112] Ibid.

Another factor influencing inaccuracy was the tactics for air formations during World War II. In the early years of the air war against Germany, the British had learned that the bombing group should fly at night in large dispersed formations, as defensive measures against German Luftwaffe attacks. The first formation would depart Great Britain, usually the pathfinder force, and would mark the target. Then subsequent formations, staggered over a short amount of time, would follow behind and bomb the marked area. Nicknamed the bomber stream, the RAF attempted to funnel as many bombers over a target as quickly as possible to saturate the German defenses.[113] The RAF stream initially positioned up to 600 aircraft in the sky, alternated over a length of 150 miles and a width of 6 miles; towards the end of the war, the bomber stream was four times as dense.[114] The American air forces used various box formations, which evolved over the years to account for changing *Luftwaffe* and anti-aircraft tactics. In 1944 the Eighth Air Forces typically used either a 27 or 36 plane group box, which stacked groups of aircraft along almost 3,000 feet of elevation. The box formations covered an area approximately 2,000 by 7,000 feet across.[115] These formations meant that spatially too much ground was covered to hit small targets accurately. An investigation into bombing accuracy in 1943 found that the Eighth air force averaged only 13 percent of bombs

[113] Falconer, *Bomber Command Handbook, 1939-1945*, 122.

[114] Ibid.

[115] Freeman, *The Mighty Eighth War Manual*, 37–44.

within 1,000 feet of the target, and the last formation in a bombing group only averaged 5 percent.[116]

For a variety of technological and tactical reasons, the Allied bomber forces remained a highly inaccurate and unwieldy military capability throughout the war. The arguments of the Allied air forces to use the heavy bombers for strategic targeting only were overruled as the British and American forces looked to a large-scale operation on the continent of Europe. As the Allies launched the most extensive ground invasion the world had ever witnessed, the men and materiel of the Allied air forces would be called upon to support operations, unlike anything they had previously seen, in a role that their equipment and aircraft were not designed for, and the French citizens would pay the price.

[116] Overy, *The Bombing War*, 346.

CHAPTER 3

THE BATTLE FOR CAEN

In November of 1942, the Chief of Staff to Supreme Allied Commander (COSSAC) planners began their assessment of where the Allied invasion of Europe would take place.[117] After the lessons learned from the failed Dieppe assault, the planners decided that the ground forces would need to land in a consolidated area to secure the lodgment for follow on forces. Furthermore, the area needed to meet certain conditions, such as being in range for fighter aircraft support from the United Kingdom, have airfields or areas suitable for building airfields, have at least one major port and preferably a group of smaller ports nearby, have beaches suitable for port operations, the ability to defeat or neutralize beach defenses, and most importantly that the area have a road and rail network that could rapidly resupply the large Allied force. After examination by army planners, only one area came close to meeting all the requirements, the area around the French city of Caen.[118] Because of the beaches along the Normandy coastline and the road and rail networks that spiraled out from Caen, which connected the region to the rest of France, the Allies chose this area to secure the initial lodgment in Normandy, to liberate France, and to ultimately defeat Germany.[119] Securing the city of

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[117] Historical Sub-Section Office of the Secretary, General Staff, "History of COSSAC (Chief of Staff to Supreme Allied Commander) 1943-1944" (Supreme Headquarters, Allied Expeditionary Force, May 1944), 1, accessed May 9, 2020, http://www.history.army.mil/documents/cossac/Cossac.htm.

[118] Morgan, "COSSAC Directive (43) 32, 7 July 1943," 1–9.

[119] Montgomery, *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.*, 228.

Caen was an objective on the first day of the invasion.[120] However, on June 6, 1944, British forces encountered strong German defenses and struggled to get their armored vehicles into action. As a result, the city of Caen remained in German control.[121] The city of Caen would not be liberated until the 19th of July, thirty-six days after the initial Allied landings in Normandy.[122] Over those thirty-six days, the Allied forces launched three major offensives in their attempt to capture the city.[123] General Eisenhower's command authority over the Allied heavy bombers resulted in their misuse as tactical support to those ground offensives.[124] Despite the heavy bombardments, the fight for Caen cost the Allies thousands of lives, and the unwieldy application of air support provided no significant results.[125] However, the use of the heavy bombers in a tactical role left the city of Caen a rubbled shell of its former self.[126]

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[120] James Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France* (Great Britain: Bantam Press, 2019), 51.

[121] Ibid., 212–213.

[122] John Buckley, *Monty's Men: The British Army and the Liberation of Europe* (New Haven: Yale University Press, 2013), 53–64.

[123] Ken Ford, *Caen 1944, Montgomery's Break-out Attempt*, Campaign 143 (Oxford, UK: Osprey Publishing, 2004), 9; Pogue, *The European Theater of Operations: The Supreme Command*, 183–191; USAF Historical Division, "The Employment of Strategic Bombers in a Tactical Role 1941-1951" (Research Studies Institute, Air University, April 1954), 80.

[124] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 32.

[125] Overy, *The Bombing War*, 579; Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 29.

[126] Ford, *Caen 1944, Montgomery's Break-out Attempt*, 9; Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 29.

The Allies

Operation OVERLORD was code word for the invasion into France by two Allied armies landing between the River Orne and the Cotentin Peninsula.[127] The United States 1st Army, commanded by General Omar Bradley and the British Second Army, commanded by Lieutenant-General Sir Miles Dempsey would be the ground forces under the leadership of General Bernard Montgomery. The plan assigned the three most eastern beaches to the British Second Army. The British Second Army divided into two units, I Corps and XXX Corps. I Corps was commanded by Lieutenant-General John Crocker, and the subordinate units were the British 3rd Division and the Canadian 3rd Division. XXX Corps was under the leadership of Lieutenant-General Gerard Bucknall, with only the British 50th Division assigned. The plan for the British Second Army was that the British 3rd Division was to land at Sword Beach and push south along the roads leading to Caen with the intent to capture the city on D-Day. The Canadian 3rd Division was to land at Juno beach and gain control of the roads and rail networks connecting the cities of Caen and Bayeux. The XXX Corps was to land the British 50th Division at Gold Beach, drive south to first to take Bayeux, then to link up with the Americans from Omaha Beach and eventually make contact with the Canadians. The American participation in Montgomery's initial plan positioned the 1st U.S. Army landing V Corps at Omaha Beach and VII Corps at Utah Beach. The Americans would form a consolidated hold in the west.

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[127] Office of the Secretary, General Staff, "History of COSSAC (Chief of Staff to Supreme Allied Commander) 1943-1944," 5; Pogue, *The European Theater of Operations: The Supreme Command*, 58.

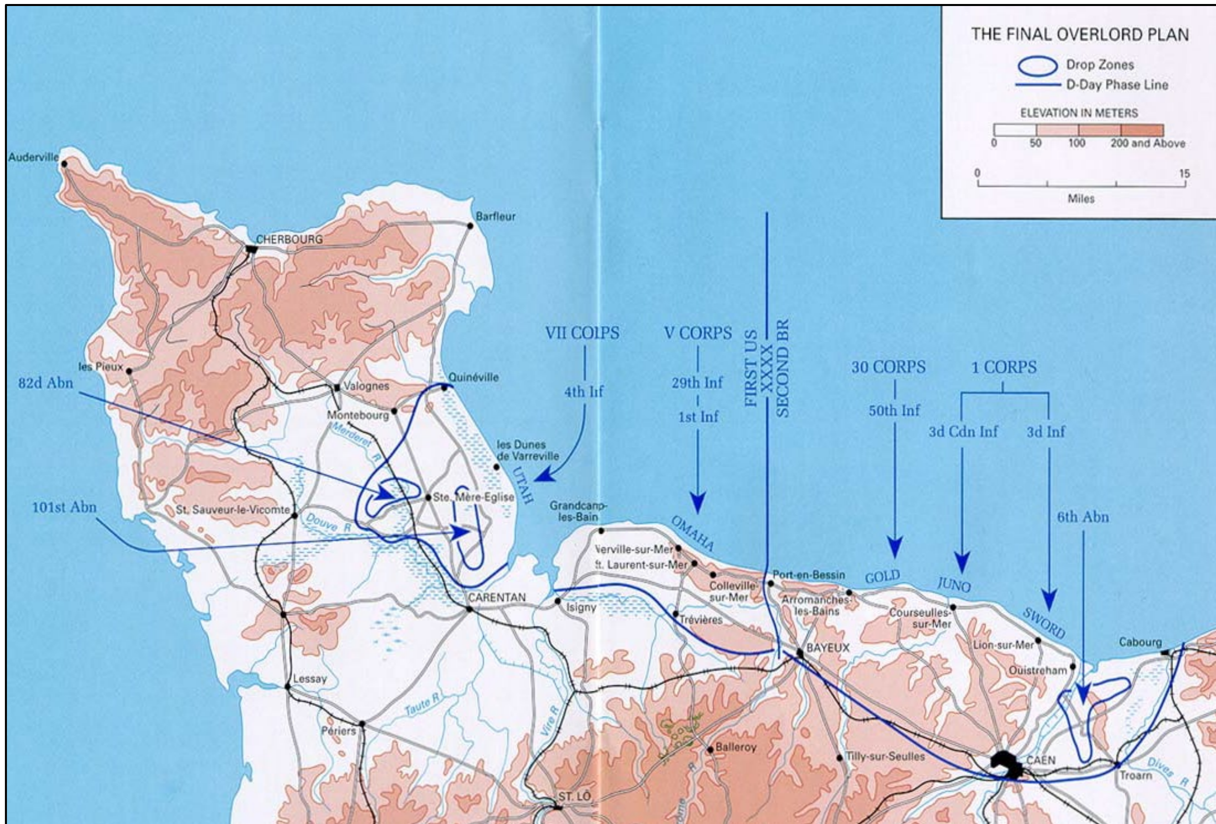

Figure 2. The Final OVERLORD Plan

Source: U.S. Army Center of Military History, "Normandy," last modified March 21, 2020, https://history.army.mil/brochures/normandy/nor-pam.htm.

If all Allied forces achieved their day one objectives, they would form a fifty-mile front along the French coastline. The second day, in the British sector, another infantry and armored division would land as reinforcement for the initial lodgment created. Montgomery's vision for the operation was to deny the German forces the ability to mass for a counterattack. He aimed to do this by maintaining operational pressure along the length of the line and continuing to push forward with the support of naval gunfire and close air support provided by fighter-bombers. As the British and Canadians secured the high ground around Caen, the American 1st Army would move south, cut the Brittany

Peninsula, and secure the ports at Nantes and St. Nazaire. Once the British breakout had occurred, the American 3rd Army, would exploit through the German defenses in both the west and the south.[128]

The plan was in place, and the orders were given; men were loaded into aircraft, ready to jump behind enemy lines, others loaded onto boats, ready to assault the beaches. Hundreds more readied their aircraft and their bombs, prepared to shape the battlefield, and provide support to those on the ground. Operation OVERLORD was ready for General Eisenhower to give the command.[129]

The Germans

Having occupied France since the summer of 1940, the German military knew that it was only a matter of time until the Allies would attempt an invasion in force to attempt to recapture the territory. As such, Hitler issued Fuehrer Directive No. 40 in March of 1942, which outlined the basic responsibilities for establishing coastal defenses in France and the Low Countries. Additionally, the directive indicated that the Commander in Chief West, *Oberbefehlshaber West* (OBW), reported to the Armed

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[128] Ford, *Caen 1944, Montgomery's Break-out Attem*pt; Max Hastings, *OVERLORD, D-Day & The Battle for Normandy* (New York, NY: Simon & Schuster, 1984), 30–3921; 21st Army Group HQ, "Notes on the Operations of 21 Army Group, 6 June 1944-5 May 1945," September 1, 1945, 1–7; W. B. Smith, "SHAEF Directive (44) 22, Operation 'Overlord'" (SHAEF, March 10, 1944); Office of the Secretary, General Staff, "History of COSSAC (Chief of Staff to Supreme Allied Commander) 1943-1944"; Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 4, 4a; Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France,* 42–52; Ambrose, *D-Day, June 6, 1944: The Climatic Battle of World War II*, 119.

[129] Eisenhower, *Crusade in Europe*, 249–252.

Forces High Command, *Oberkommando der Wehrmacht*.[130] On September 29th, Hitler followed up Directive No. 40 by formally tasking the establishment of an “Atlantic Wall,” 15,000 strong points to be defended by 300,000 men.[131] Additionally, Hitler believed that any Allied invasion would focus around the Pas-de-Calais region due to its proximity across the English Channel and thus focused the majority of his defensive efforts on the area.[132] Fighting on the Eastern Front, North Africa, and in Italy continued to siphon off German forces from OBW. On October 23rd, 1943, Field Marshall Von Rundstedt, head of OBW, wrote a blistering report to Hitler outlining the situation in his area of responsibility and highlighting the inadequate defensive preparations should the Allies launch an invasion in the west. As a result, Hitler published Fuehrer Directive No. 51, which decreed that “there should be no more weakening of the west in favor of other theaters.”[133]

As part of the renewed commitment to the defenses in the west, Hitler appointed *Generalfeldmarschall* Erwin Rommel as the Army Group B commander, subordinate to von Rundstedt and OBW. However, Rommel had direct access to Hitler and could bypass von Rundstedt if necessary. An additional complication to the command relationship, Panzer Group West, the theater armored reserve, under the command of General der

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[130] Robert Citino, *The Wehrmacht’s Last Stand, The German Campaigns of 1944-1945* (Lawrence: University Press of Kansas, 2017), 112.

[131] Ibid., 113.

[132] Paul Carell, *Invasion! They’re Coming!*, trans. David Johnston (Atglen, PA: Schiffer Publishing Ltd., 1995), 13–14.

[133] Tim Saunders, *Juno Beach, 3rd Canadian & 79th Armoured Divisions* (Montreal: McGill-Queen’s University Press, 2004), 34, 148.

Panzertruppen Leo Geyr von Schweppenburg, bypassed both Rommel and von Rundstedt and reported directly to *Oberkommando der Wehrmacht*.[134] Furthermore, Rommel and von Rundstedt fundamentally disagreed on the German concept of operations to defeat the coming Allied invasion.[135] Based on his experiences in France and Russia, von Rundstedt believed that once the main Allied landing site was identified, a large armored counterattack could drive the enemy back into Channel. Conversely, having experienced Allied air superiority in North Africa and Italy, Rommel believed that the invasion would be determined at the water's edge, and placed an emphasis on local fortifications and armored formations much closer to the coast.[136]

The German Seventh Army under Generaloberst Friedrich Dollman was the ground force headquarters in Normandy and Brittany and subordinate to Rommel's Army Group B. Within Normandy itself, General der Artillery Erich Marcks commanded the LXXXIV Army-Korps and was responsible for the area that would soon be invaded by the Allies. Within his sector of responsibility, Marcks arrayed his forces from east to west as follows: the 716th Infantry Division under the command of Generalleutnant Wilhelm Richter was the force in charge of defending the coastline nearest Caen; the 352nd Infantry Division under the command of Generalleutnant Dietrich Kraiss; and the 709th

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[134] Gordon Harrison, *The European Theater of Operations: Cross-Channel Attack*, United States Army in World War II (Washington, DC: Center for Military History, n.d.)., 244.

[135] Saunders, *Juno Beach, 3rd Canadian & 79th Armoured Divisions*, 36.

[136] Harrison, *The European Theater of Operations: Cross-Channel Attack*; Richard Overy, *Why the Allies Won* (New York, NY: W.W. Norton & Company, Inc., 1995), 154–155; Saunders, *Juno Beach, 3rd Canadian & 79th Armoured Divisions*, 36., 258.

Infantry Division under the command of Generalleutnant Wilhelm von Schlieben were further west in the American sector.[137] Additionally, the 21st Panzer Division under the command of Generalmajor Edgar Feuchtinger, part of the theater reserve, occupied positions in the vicinity of Caen and was the only Panzer Division within striking distance of the beaches.[138] Stretched across the Normandy coastline, von Rundstedt and Hitler believed that the German fortifications and personnel would be adequate to halt the Allied invasion; however, Rommel was less optimistic and believed the first forty-eight hours would decide the fate of the attack. Allied planners and commanders hoped that Rommel's pessimism would prove correct as they launched their attack and attempted to seize their initial objectives.[139]

[137] Citino, *The Wehrmacht's Last Stand, The German Campaigns of 1944-1945*, 129; Saunders, *Juno Beach, 3rd Canadian & 79th Armoured Divisions*, 40–45.

[138] Harrison, *The European Theater of Operations: Cross-Channel Attack;* Ryan, *The Longest Day, The Classic Epic of D-Day*, 155., 254-257.

[139] Overy, *Why the Allies Won,* 155–156; Ryan, *The Longest Day, The Classic Epic of D-Day*, 27–28.

Figure 3. German Military Order of Battle for OB West

Source: Gordon Harrison, *The European Theater of Operations: Cross-Channel Attack,* United States Army in World War II (Washington, DC: Center for Military History, Map V.

D-Day

Starting early on the June 6, the Allied air forces began their first bombing run to destroy targets that would halt German advancement toward the beaches.[140] Using crude hand-drawn sketches as their means of identifying the chokepoints, the bombers attempted to destroy the buildings around them.[141] The sketch map of Caen identified railroads, main waterways, and roads only; the prominent historic castle of Duke William I, which stands on the high ground in the middle of the city nor the associated buildings near it, were identified. Chokepoints three and four were straightforward, a road bridge that crossed the Orne River and a cluster of two bridges, one road, and the other rail immediately to the northeast. Chokepoint two was less identifiable with no terrain feature depicted on the map, merely two main roads joining in the city. However, the sketch did not include the famous botanical garden, *le Jardin des Plantes*, or the botanical institute, covering over eight acres of land; this important landmark would have been easily identifiable by air and was directly next to the second chokepoint. Chokepoint one was also the intersection of main roads in the western part of the city. The three roads depicted on the map intersected just southwest of the castle grounds, abridged by the Abbey of Saint-Étienne and the Church of Saint-Nicolas built by monks in 1083.[142]

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[140] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," F.O. 727, 6.

[141] Bourque, *Beyond the Beach*, 222.

[142] Haskins, *The Normans in European History*, 88–116; Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," Target Assignments; Bourque, *Beyond the Beach*, 222–223.

Figure 4. Map Used by Eighth Air Force to Identify Bombing Targets

Source: Operations, Deputy Chief of Staff, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June."

Like Spaatz's complaints to Leigh-Mallory, the Eighth Air Force planners had submitted to Supreme Headquarters, Allied Expeditionary Force (SHAEF) that the risk to civilian lives was too high to implement the bombing plan on the chokepoints inside French towns. The Eighth Air Force was directed to continue with the plan as ordered. The air plans section understood that the 21st Army Group planners intended for the bombing runs to destroy buildings, regardless of historic consequence or loss of life, and

subsequently cause the rubble to impede the way of German troops.[143] This was the relationship General Eisenhower had insisted upon, tactical control of the air forces in support of the invasion, the ability to direct bombs be dropped over targets he and his staff deemed necessary.[144]

In the overcast pre-dawn hours of the June 6, 1,361 heavy bombers from the 1st and 3rd Bomb Division of the Eighth Air Force left England and flew toward France, 155 of them tasked to drop their bombs on the city of Caen.[145] Unbeknownst to most of the American crews, for weeks prior to D-Day, the crews of the Eighth air force had been practicing for their support to the Normandy landings. Their training flights over the British Isles had been rehearsals to perfect their bombing techniques, which required close cooperation between the navigator, the H2X operator and, the bombardier. After take-off, the navigator placed his aircraft on the Gee line, and when the target came into sight and in the Norden bombsight range, the bombardier took control. The H2X operator measured the range and distance to the target, updating the bombardier who continued to put the information into the Norden bombsight. If the weather over the target was clear, the bombardier would take over visually; if the weather was cloudy or obscured, the crew would rely on the H2X radar to confirm the target and the bombsight to release

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[143] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944"; Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy," 179.

[144] Eisenhower, *Crusade in Europe*, 222.

[145] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," F.O. 727, 5; Roger A. Freeman, *The Mighty Eighth War Diary* (London: Jane's Publishing Company, 1981), 259.

automatically, called overcast bombing.[146] Using the overcast or blind bombing technique of navigating and targeting, forty-seven of the aircraft missioned to Caen carried out their attacks as planned, dropping 562 500lb bombs and eighty-three 1,000lb high explosive bombs on what they believed to be chokepoint three and four.[147] However, French citizens reported that the bombers missed their intended targets and that no damage occurred to any of the bridges inside the city. The aircraft released their bombs on what they believed to be the targets but were instead outside of Caen.[148]

Due to the difficulty in navigating in overcast conditions, many planes lost visual contact with their pathfinder plane, and, as a result, the aircraft assigned to chokepoints one and two returned to base without releasing any bombs.[149] The target obscuration also prevented aircrews from gathering credible estimates of the effect their bombs had on the targets. The bombing results given to Army planners only listed the number of bombs dropped and did not clarify whether the bridges remained intact. Consequently, a second group of bombers, from the 1st Bomb Division, were dispatched at 0930 later that day to targets across Normandy. The second group, 528 planes, had been held in reserve during the initial operation to reduce congestion on the runways and the flight path. Despite the continued poor weather conditions and only one pathfinder plane available for escort, the

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[146] Darlow, *D-Day Bombers: The Veterans' Story*, 128.

[147] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," 5.

[148] Darlow, *D-Day Bombers: The Veterans' Story*, 76; Bourque, *Beyond the Beach*, 223.

[149] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," F.O. 727.

aircraft began their journey toward France. Understanding that impeding road traffic and rail movements were critical to the first phase of ground operations, these aircraft proceeded to their targets all across Normandy, regardless of the odds against the successful accomplishment of the mission. As fate would have it, cloud cover, reported as 10/10 density, meaning the bombers could see nothing on the ground, covered all primary and secondary targets, and the aircraft returned to base with their bombs.[150]

On the afternoon of June 6 intelligence reported that the 21st Panzer Division armor units, located to the southeast of Caen, were now moving towards the Allied landing area to reinforce the besieged German defenders.[151] Intelligence had previously failed to identify that the 21st Panzer Division had moved its anti-tank artillery and half of its infantry units between the coastline and the city of Caen, directly on the route of the British army.[152] Coupled with the poor weather conditions on D-Day, which caused congestion on the beachhead and slowed the British armor from massing, the British and Canadians were not able to move as rapidly south towards Caen as initially anticipated.[153] Likewise, in the western sectors, the Americans encountered massive resistance and were struggling to move off the beaches.[154] For the 21st Panzer Division

[150] Todd, "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944," F.O. 727, 1-2.

[151] Jonathan Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War* (UK: Cambridge University Press, 2019), 500.

[152] Terry Copp, *Fields of Fire, The Canadians in Normandy* (Toronto: University of Toronto Press, 2003), 37.

[153] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 59.

[154] Eisenhower, *Crusade in Europe*, 253.

armor to reach the coastline, elements would have to use the bridges over the River Orne in the city.[155] Recognizing the operational importance of disrupting the German armored reserve commitment, Allied planners determined that it was still necessary "to dispatch a third mission against that target" to facilitate the achievement of the chokepoints being destroyed.[156] Once again, the 21st Army Group ordered the Eighth Air Force to send their bombers to target chokepoints three and four in and around Caen. The mission went to the 2nd Bomb Division, which had been assigned to Omaha Beach that morning and was thus unfamiliar with the Caen targets. With the cloud cover still thick and causing confusion, only fifty-six aircraft of the seventy-three aircraft arrived over the targets. These aircraft dropped more than 155 tons of high-explosive bombs on what they assumed to be their targets, turning the ancient city of Caen—much of which was still wooden structures—into an inferno.[157]

Over twenty-four hours, 756 aircraft had dropped over 800 tons of bombs had on Caen in an attempt to destroy the chokepoints and bridges.[158] As Spaatz and Harris had argued for months before the invasion, the heavy bombers were inaccurate against such precise targets. As the city burned, the first units from German reinforcements crossed over the relatively undamaged bridges and through Caen's road network.[159]

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[155] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 71.

[156] Ibid., FO 729, 1.

[157] Ibid., FO 729, 1.

[158] Ibid.., F.O. 727.

[159] Bourque, *Beyond the Beach*, 19; Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 29; Richards, "R.A.F

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Overall, Eisenhower considered the Allied landings successful, and each of the five beachheads established, albeit at the high cost of Allied lives.[160] However, the breakouts from the beachheads were not as successful as the Allies had hoped. On June 6, the British 3rd Division was stopped seven kilometers short of Caen due to the German strongpoint at Hill 61—codenamed Hillman or *Widerstandsnest* 17 by the Germans—and a subsequent clash with forces from the German 21st Panzer Division which reached the fight late in the evening, split them from the Canadian forces to their west.[161] In the western sector, American forces eventually secured the landing beaches and were now holding a small area along the main highway connecting Carentan with Bayeux and Caen.[162] It was evident that any reinforcement by the Germans would threaten what little ground had been won on the first day. When word reached the 21st Army Group that the Eighth air force daylight bombings had been ineffective at blocking the Germans advancement, "anxiety at Headquarters […] reached an acute stage," the decision was made to bring in Bomber Command.[163] Despite the knowledge that night bombing was

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Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 71.

[160] Eisenhower, *Crusade in Europe*, 253.

[161] Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France*, 182; Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 497–498; Overy, *Why the Allies Won*, 161.

[162] Overy, *Why the Allies Won*, 161; Ambrose, *D-Day, June 6, 1944: The Climatic Battle of World War II*, 576–577.

[163] Bourque, *Beyond the Beach*, 235; Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 76,217.

even more inaccurate than daytime bombing and thus only used for area bombing, army planners were desperate for another bombing run in an attempt to demolish the targets.[164]

The task was again to destroy the bridges and chokepoints across the River Orne. At approximately 0230 on the June 7, the first wave of Mosquitos, using a newly developed target marking, dropped their incendiaries over Caen; following, in single file, came 125 Halifax and Lancaster bombers of the bomber stream.[165] The tactics used by these bombers were that the first crew of aircraft, the Mosquitos, dropped incendiary bombs onto the target to mark it. The main force came after, and targeting the fires created by the previous incendiaries, they dropped their high explosive bombs.[166] At the end of 1943 Bomber Command achieved greater accuracy using the H2S radar but still averaged only 32 percent of bombs falling within a three-mile radius of the target.[167] These aircraft and tactics were designed to destroy German factories and cities; now they were dropping almost 500 tons of bombs on bridges in occupied France. The bombing came to an end only thirty minutes later, but to the frustration of the 21st Army group, all

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[164] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 71.

[165] Martin Middlebrook and Chris Everitt, *The Bomber Command War Diaries* (New York, NY: Viking Books, 1985), 523–524; Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 129.

[166] Hastings, *Bomber Command*, 194; Falconer, *Bomber Command Handbook, 1939-1945*, 118; Bourque, *Beyond the Beach*, 236.

[167] Overy, *The Bombing War*, 347.

bridges and roadways were peppered with rubble but not destroyed as the city burned around them.[168]

The 12th SS Panzer Division, *Hitlerjugend*, exploited the Canadian forces' initial halt the first day and launched an ambush from the west of Caen on June 7 that caused substantial losses in both the infantry and armored units.[169] Despite not being able to reach their original D-Day objective and being pushed north toward the sea, the Canadian forces prevented the Germans from penetrating the Allied lines and threatening the lodgment on the beaches.[170] The German 12th SS Panzer fought at the battalion level after the Allied forces effectively destroyed the German 716th Division during the landings, there were no reinforcements to hold the line for the Panzer units while they regrouped into division level attack formations.[171] Losing the infantry units served as a significant degradation of the German forces, thus preventing the establishment of the necessary momentum to launch a large scale counterattack against the Allies. As a result, both sides were dug in and held ground, ground that they would fight over for the next four weeks.[172]

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[168] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy," 129; Bourque, *Beyond the Beach*, 236.

[169] Copp, *Fields of Fire, The Canadians in Normandy*.

[170] Citino, *The Wehrmacht's Last Stand, The German Campaigns of 1944-1945*, 153–154.

[171] Carell, *Invasion! They're Coming!*, 108, 123; Saunders, *Juno Beach, 3rd Canadian & 79th Armoured Divisions*, 145.

[172] Ford, *Caen 1944, Montgomery's Break-out Attempt*, 1; Saunders, *Juno Beach, 3rd Canadian & 79th Armoured Divisions*, 143–145; Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 497–498.

Montgomery quickly realized that his initial plan had not survived the first contact with the German forces and set out to develop a new operation to seize Caen.[173] Now firmly entrenched along the French coastline, the Allies understood that their initial D-Day objective required an intense fight.[174] Key to the change in understanding was the problematic terrain now laid out before the Allies. In the southern region began the infamous bocage, small fields lined by thick and steeply embanked hedges with recessed roads running in between the settlements that slowed the armored forces advances. Villages pocketed this region, giving the defender multiple strongpoints and concealment amongst the treacherous terrain. Thick woods with steep embankments encompassing a river with very few bridges characterized the Odon Valley. Just beyond the woods lay Hill 112 and 113, from which all of Caen and the entire region was visible on a clear day.[175] This terrain, favoring the defender, presented a challenge to Montgomery as he planned his new assault to capture Caen.[176]

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[173] Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 503; Montgomery, *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.*, 228.

[174] Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 503.

[175] Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France*, 239.

[176] Simon Trew, *Operation Epsom*, Battle Zone Normandy 9 (Phoenix Mill: Sutton Publishing Limited, 2004); Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 504; Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 71.

Epsom

On the June 18, Montgomery issued a directive to his army commanders, called Operation Epsom, was planned to drive one armored and two infantry divisions through the River Odon Valley and up Hill 112.[177] With the plan in place, the Allied forces began to plan their attacks and build their supplies for the operation, including reinforcements from England. However, a great summer storm moved over the English Channel on June 19. For three days, the storm pummeled the French coastline, disrupting the flow of logistics and effectively grounding any Allied fighter bombers.[178] This storm gave great relief and offered a tactical advantage to the Germans who were now able to freely reinforce their units without being attacked from the air. Due to this delay in the launching of Epsom, the German 12th SS Panzer Division conducted sustainment and maintenance activities before digging in the northwest of Caen.[179] An elite division comprised of fanatical German youth, experienced officers, and outfitted with the most modern equipment, 12th SS Panzer found itself squarely in the path of the upcoming Allied operation.[180]

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[177] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 74; Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 506.

[178] Tedder, *With Prejudice, The War Memoirs of Marshal of the Royal Air Force, Lord Tedder. G.C.B.*, 553.

[179] Copp, *Fields of Fire, The Canadians in Normandy*, 97.

[180] Trew, *Operation Epsom*, 25–26; Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 506–507.

Commencing Operation Epsom and its corresponding attacks early on the morning of the June 26, the British VIII Corps moved southeast in its new effort to cross the Odon, seize Hill 112, the high ground overlooking the city, and envelop Caen.[181] Over the next four days, British and Canadian forces slowly pushed the German defenders back towards Caen, though at a high cost in casualties and lost equipment. As British combined arms formations pressured elements of *SS-Standartenführer* Kurt Meyer's 12th SS Panzer Division and forced the defenders to begrudgingly give ground, the dogged defense by the German forces disrupted the Allied operational timetables. It caused the commitment of additional VIII Corps assets to penetrate in the German lines.[182] In contrast, the previously described terrain allowed the German defenders to maximize their capabilities while minimizing the Allied numerical advantages. However, over the next two days, the weight of the Allied number began to bear, thus causing German Army Group B to commit the II SS Panzer Corps to holding the defensive line west of Caen and launch a local counterattack to drive back the British and Canadian forces. While the defensive line stabilized, the commitment of the 9th SS Panzer Division and 10th SS Panzer Division ruled out the possibility of a decisive counterattack by German forces to drive the Allies from their Normandy lodgments. By the evening of the

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[181] Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 508; Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 74; Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France*, 329.

[182] Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 508.

June 30, the British and Canadian forces ceased their attack, ending Operation Epsom and the second attempt to capture Caen.[183]

As a result of the bitter fighting, British and Canadian forces suffered over 4,000 casualties, and the German defenders almost 3,000, while the respective lines on the battlefield did not change significantly.[184] The German defenders maintained possession of the high ground dominating the area and the city of Caen itself. While the British had moved closer to Caen and closed the distance to their overall goal, they had still failed to capture their initial D-Day objective, though they had significantly attrited the German defenders and their armored capabilities.[185] Following Epsom, the 12th SS Panzer's commander evaluated that his division could "no longer be considered fully operational."[186] Likewise, Field Marshal Gerd von Rundstedt, German Commander-in-Chief West, wrote on the June 30, that the Germans had suffered "grievous losses" during their defense against the VIII Corps attack along the Odon.[187] While the destruction of German armored capabilities provided Montgomery with the basis of claiming success in

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[183] Copp, *Fields of Fire, The Canadians in Normandy*, 80–86; Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 506–509; Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 75–87; Trew, *Operation Epsom*, 27.

[184] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 87; Copp, *Fields of Fire, The Canadians in Normandy*, 87.

[185] Carell, *Invasion! They're Coming!*, 222; Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France*, 358–259.

[186] Clark, Operation Epsom, 107.

[187] Ibid., 108.

Operation EPSOM, the fact remained that Caen continued to be in German possession.[188] Initially slated to be seized on the 6th of June, three weeks had passed, and British and Canadian forces had sacrificed thousands of lives to capture the city, an objective that still evaded its grasp. In an effort to bring about the attainment of this elusive goal, Allied forces once again turned their attention back to the air, Eighth Air Force and Bomber Command, to further set the conditions for success on the ground.

Charnwood

Having gained little ground in the previous attempt to capture the city, the Allied forces planned to once again attempt to seize Caen. This time, General Montgomery decided to put the entire Second Army, in a massive display of force, straight down the roads from the north.[189] Army planners, for the first time, tasked Bomber Command as tactical support to the ground troops.[190] Spaatz, who had been adamantly opposed to using heavy bombers in direct close support of the ground forces, wrote in his diary, "…Montgomery, who visualize best use of tremendous air potential lies in plowing up several square miles of terrain in front of the ground forces to obtain a few miles of advance. […] The only thing necessary to move forward is sufficient guts on the part of the ground commanders."[191] Despite the views of Spaatz, Harris, and even Tedder,

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[188] Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 509.

[189] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 88.

[190] Ford, C*aen 1944, Montgomery's Break-out Attempt*, 52.

[191] Davis, *Carl A. Spaatz and the Air War in Europe*, 459.

Bomber Command executed the bomb run and again the tactical control of all air forces that Eisenhower had demanded was put into play.[192]

Up until the evening of the July 7, the northern portion of Caen had remained relatively intact, a fact which would change with the execution of Operation Charnwood. Late in the night, using 467 Lancasters, Halifaxes, and Mosquitos and tactics similar to those used on the night of June 6, Bomber Command dropped 2,276 tons of bombs as direct support for British tanks and infantry who were advancing in the area.[193] Unfortunately, out of concern for fratricide, the decision was made to bomb 6,000 meters ahead of the British front line. The reality was that the German troops were only a few hundred meters from the Allied forces, and the new target line was now in the city of Caen. While the bombs hit the University of Caen and killed approximately 350 civilians, it killed few German military, and they, in turn, used the rubble of homes as fortified fighting positions to block the subsequent attack by 2nd Army.[194]

As the Operation Charnwood progressed, the fighting became intense, units engaged in bitter house-to-house battles in the suburbs of Caen, and others faced the ever

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[192] Darlow, *D-Day Bombers: The Veterans' Story*, 222–223; Tedder, *With Prejudice, The War Memoirs of Marshal of the Royal Air Force, Lord Tedder. G.C.B.*, 560.

[193] 21st Army Group HQ, "Notes on the Operations of 21 Army Group, 6 June 1944-5 May 1945," 13; Middlebrook and Everitt, *The Bomber Command War Diaries*, 539.

[194] Middlebrook and Everitt, *The Bomber Command War Diaries*; Holland, *Normandy '44, D-Day and the Epic 77-Day Battle for France*, 374; Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 34.

determined 12 SS-Panzer Division.[195] On July 8, fighter-bombers and rocket-firing Typhoons from the 2nd Air Force strafed the enemy lines, and 250 medium bombers from the 9th Air Force bombed roads, bridges, and formations of German soldiers in an attempt to assist the Allied land forces in and around Caen.[196] The city of Caen had become a never-ending pile of rubble. Over the night of July 8 and into the morning of the 9th, the 2nd Air Force targeted any visible enemy concentrations in Caen, as well as continued their raids on bridges and roads. The continued pressure from the skies and the mounting forces moving slowly forward forced the German commander to decide to withdraw from the northern portion of the city.[197] Moving all his heavy weapons and the II SS-Panzer Corps over the River Orne, he ordered his infantry and engineer groups to remain in the northern portion of Caen until attacked by a superior Allied force, only then should they follow the retreat to the southern bank of the river.[198] The bombings from 7-9 July were regarded as a significant success due in no small part to the amount of physical damage it caused and the psychological effect it had on both Allied and German forces. However, the bombers did not destroy any significant enemy forces or strong points. The only reported impediment caused by the rubble was against the Allied forces

[195] Darlow, *D-Day Bombers: The Veterans' Story*, 223.

[196] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 89.

[197] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 34.

[198] Ford, *Caen 1944, Montgomery's Break-out Attempt,61*.

forward advancement, especially the use of tanks.[199] However, the British I Corps did make significant advances, reaching the bridges over the River Orne, most of which were still standing and usable despite the near-constant barrage to knock them down.[200] On July 9 the Deputy Mayor of Caen, Joseph Poirier, met the first British officer to enter the city; when the British major tragically asked where he could find a hot bath, Poirier "informed the good major that there were virtually no buildings at all left standing in the city."[201]

Goodwood

Over the next few weeks, the Allied forces fought street by street to try and break through the rest of the city, and as the German's tried to delay their advances, shells continued to fall directly in the center of Caen.[202] After ten days of intense fighting and minimal advancement to show for it, a second large scale ground operation launched under the codename Goodwood[203]. This operation eventually gave Montgomery the city he had been denied since the invasion. The 21st Panzer Division and the 1st SS-Panzer

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[199] Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany, 1939-1945*, vol. 1, *Preparation* (London: Naval and Military Press, 1961), 136; Copp, *Fields of Fire, The Canadians in Normandy*, 104–106.

[200] Bourque, *Beyond the Beach, 237*.

[201] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 35.

[202] Ibid.

[203] Copp, *Fields of Fire, The Canadians in Normandy*, 133–134; Fennel, *Fighting the People's War, The British and Commonwealth Armies in the Second World War*, 519520.

Division were in the reserve, and the 12th SS-Panzer was in Lisieux conducting reset, transforming the western section of the German front. However, spread out along the center of the sector were the Luftwaffe's III Flak Corps and two German mortar brigades, supported by companies from the Panzer Abteilung 503, newly equipped with the Panzerkampfwagen VI Tiger Ausführung B, perhaps the deadliest tank in the German Army. Facing the inferior British Cromwells and Sherman tanks were 230 Panzer IVs, Panthers, Tiger Is and IIs. The British VIII Corps would commit 750 tanks to the center attack with another 350 along the flanks to counter the qualitative superiority of the German armor. Despite these odds, the command of the air still belonged to the Allies, and General Montgomery ordered a massive bombing raid ahead of the operation.[204] This display of force from the sky was the largest of any attack by Allied air forces to date.[205] At first light on July 18, 942 RAF aircraft dropped 6,800 tons of bombs on six areas, five of which were small villages on the eastern edge of Caen that were known enemy strongpoints.[206] Ahead of advancing Allied troops, an additional 600 tons of bombs swept the area, meaning bombs dropped without specific targets over large portions of the ground.[207] The goal of the bombing was to shock the German troops into disorganization right as the ground forces assaulted onto their objectives, giving them the

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[204] Carell, *Invasion! They're Coming!*, 234–235.

[205] Ford, *Caen 1944, Montgomery's Break-out Attempt, 69*.

[206] 21st Army Group HQ, "Notes on the Operations of 21 Army Group, 6 June 1944-5 May 1945," 13; Overy, *The Bombing War*, 579; Middlebrook and Everitt, *The Bomber Command War Diaries*, 544.

[207] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 95.

tactical advantage.[208] The 16th Luftwaffe Field Division and the 21st Panzer Division reported being badly affected by this tactic during the bombing.[209] An Allied report of German prisoners taken once the ground attack commenced stated that 70 percent of German soldiers were deaf for twenty-four hours due to the bombardment.[210] Despite the considered success of the bombing raid, like every other operation that had gone before it, Goodwood also failed to reach the ultimate objective of securing the high ground between Caen and Falaise.[211] The operation did give Montgomery the city of Caen, thirty-six days after the initial landings, the city was finally under Allied control.[212]

The failure to take Caen on D-Day as initially planned was a combination of inaccurate enemy assessments, poor weather, perhaps even overly ambitious planning, and not understanding the limitations of airpower, particularly strategic airpower. The tragic side effects of the weeks-long battles were the high number of Allied forces and equipment lost and the loss of civilian lives and infrastructure. Over six weeks, Bomber Command dropped over 25,300 tons of bombs in close-support operations around the

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[208] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 101.

[209] Citino, *The Wehrmacht's Last Stand, The German Campaigns of 1944-1945*, 245.

[210] Darlow, *D-Day Bombers: The Veterans' Story*, 227.

[211] Webster and Frankland, *The Strategic Air Offensive Against Germany, 1939-1945*, 1 Preparation:136; Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 111.

[212] Darlow, *D-Day Bombers: The Veterans' Story*, 227; Citino, *The Wehrmacht's Last Stand, The German Campaigns of 1944-1945*, 245.

city.[213] The Eighth air force dropped approximately 800 tons of bombs directly on Caen in their attempts to destroy the bridges and another 1,800 tons in support of operations to take the city.[214] In June 1944, RAF Bomber Command and U.S. Eighth Air Force dropped a total of 117,772 tons of bombs across Europe.[215] While it may be impossible to know the exact number of residents from the city of Caen that perished, the most accurate assessment is 1,741 died, mostly on 6 and 7 June during the raids in support of the landings.[216] Many more thousands were wounded over the subsequent weeks to secure the city, and the city was left in ruins. Before the war, Caen boasted a civilian populace of 62,000; after the war only 18,000 to 20,000 remained.[217] The bitter battle to win the city for its operational advantage came at a high cost for both the Allies and the French civilian population.[218]

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[213] Richards, *The Hardest Victory, RAF Bomber Command in the Second World War*, 239.

[214] Buckley, *Monty's Men: The British Army and the Liberation of Europe*, 101.

[215] Alan Wilt, "The Air Campaign," in *D-Day 1944*, ed. Theodore A. Wilson (Lawrence: University Press of Kansas, 1994), 152.

[216] Bourque, *Beyond the Beach*, 238.

[217] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 161.

[218] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 44.

CHAPTER 4

THE AFTERMATH

> *La douler m'a brisée, La fraternité m'a relevée; De ma blessure a jailli un flueve de liberté*
>
> Sorrow broke me, Brotherhood has raised me up again; From my wound has sprung a river of freedom.
>
> — Engraving on the outside of Le Mémorial de Caen

The weeks-long campaign to capture the city of Caen came at a high price to the Allied forces. Yet the soldiers, sailors, and airmen of the British and American militaries were not the only bill payers in the war. The citizens of Caen had been witnesses to one of the greatest displays of military might the world had ever seen and watched their beloved city destroyed as a result. The inaccuracy of the Allied air forces and the misuse of heavy bombers by Allied leadership caused almost complete desolation to one of Europe's most historic cities.[219] Because of the central part it played in the story of World War II, and the accompanying suffering, the city of Caen transformed over the next seventy-five years into a beacon for worldwide peace.

The Cost

Yvonne Mannevy was a thirty-eight-year-old nurse living in the southeast portion of Caen when the Allies invaded in 1944. Having experienced the bombing on the June 6, she recalls the events of June 7 when the Allied bombers returned to try and destroy the bridges over the River Orne, "Everywhere I looked, there were caved-in houses, dead

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[219] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 29; Davies, *No Simple Victory, World War II in Europe 1939-1945*, 488–489.

bodies on the ground, and people screaming. That same morning those same people had been living peacefully in their houses; in the blink of an eye, the town had turned into a lunar landscape."[220] Yvonne, and many others like her, would continue to work throughout the constant bombing over the next several weeks to try and save as many people as possible.

Throughout the Normandy region, the devastation from the war was astonishing. The result of the fighting killed approximately 15,000 civilians. The Germans killed 1,500 French men and women after deportation, and another 2,700 for being part of the Resistance.[221] Of the 400,000 inhabitants of the Calvados department, approximately 50,000 lost all their property, and the same number had lost more than half.[222] Seventy-three percent of the city of Caen sustained destruction; of the 15,000 buildings which made up the city, 5,000 experienced some level of damage, and only 1,000 remained intact. The immediate suburbs of Caen suffered just as much, with many having less than a hundred buildings still standing at the end of the six-week battle. Commentators after the war likened the appearance of Caen to that of the Somme battlefield or the city of Verdun after World War I. A British war correspondent wrote in July 1944, "One must drive through Caen every time one goes to or from the Orne front and it's still a horrible and rather shaming thing. The people of Caen will never quite understand why we had to

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[220] Roberts, *D-Day Through French Eyes: Normandy 1944*, 80.

[221] Arthur Layton Funk, "Caught in the Middle: The French Population in Normandy," in *D-Day 1944*, ed. Theodore A. Wilson (Lawrence: University of Kansas Press, 1994), 254.

[222] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 120.

do anything so awful to them. Still day by day, the bodies of their fellow-citizens are being dug out of the ruins."[223]

Caen was not the only city to be affected in the region. 32,450 buildings across the department had been destroyed, classified as beyond repair. Approximately 208,300 buildings were significantly damaged, and 557 public buildings—schools, town halls, and the like—destroyed. The industrial plant outside of Caen was devastated, as were a quarter of all factories across the department. Overall, the Calvados region accounted for 6.2 percent of all buildings destroyed in France during World War II.[224] The level of destruction felt across the department caused severe problems during reconstruction; it was not one town that needed rehabilitation, but the entire region.

Aside from the loss of physical infrastructure in the region and Caen, another significant feature of the department was lost—the rich history captured in medieval architecture and historical monuments. The British Baron Methuen, who worked for the Procurement and Fine Art branch of the British military, wrote an account of his time in Normandy during World War II. In regards to the destruction of historical monuments he said, "hardly any part of France could boast of so many historical buildings in stone, country churches, châteaux, manor houses, etc. as lie in the triangle formed by Caen, Falaise, and Mézidon…and it was here precisely that the issue during the summer of 1944 was fought, and where naturally the greatest damage to historical buildings was

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[223] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 240.

[224] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 120–121.

wrought."[225] The bombings destroyed the University of Caen, one of the churches built in the eighth century next to the Abbey of St. Étienne, the botanical gardens near chokepoint two, and many other historic sites around the area. A survey of damage to the Normandy region after the war likened the loss of cultural heritage to a loss of "communal orientation, as if some sort of cultural compass had been knocked off course."[226] After the war, the French government determined that more historical monuments had suffered destruction in the Calvados region than in any other department in France.[227] As a city with a deeply rooted identity in history, the loss of monuments and artifacts was a profound cost for freedom.

The Human Cost

The human cost of the conflict in the Calvados department is harder to quantify than the material destruction. After World War II, France turned its focus to healing the complex societal rift that occurred with the split of the Vichy government from Charles DeGaulle and the Resistance. In their book *Bombing, States and Peoples in Western Europe 1940-1945*, Baldoli, Knapp, and Overy examine the lack of public condemnation for the bombings in France. The French, Post-World War II, wanted to be remembered as a nation of Resistors. However, industry across France was the target of Allied bombing

[225] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 121.

[226] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 44.

[227] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 121.

because the people worked for and supplied Nazi Germany.[228] As a result, the French dedicated very little post-war research or publication to the detrimental effects the war had across France. Additionally, the Allied forces did not want to discuss the killing of so many civilians within what was considered a friendly, but occupied, country.[229] Moreover, the near-constant movement of people across France during the war made proper record keeping near impossible. Individuals from bigger cities targeted earlier in the war moved temporarily to the country, like Normandy, to escape the bombings. People from farms then fled to nearby towns as the Allies enacted the Transportation Plan, bombing rail yards and factories. Fourteen-year-old Christine Fenand remembers, "We followed a small wounded child, who cried while escaping: "It's burning me! It's burning me!" […] She would be cared for by the English in Bayeux but would die on the operating table; both her arm and her intestines were perforated. She and her brother, who was also killed, had been sent to Trévières by their parents in Le Havre* in order to keep them safe."[230] This French child is only one example of the hundreds that died away from their homes as they sought refuge in the countryside. For weeks following the bombings, local newspapers would have pictures of lost people, and their families were holding onto desperate hope that they were alive somewhere. Radio stations also ran

[228] Simon Kitson, "Criminals or Liberators? French Public Opinion and the Allied Bombing of France, 1940-1945," in *Bombing, States, and Peoples in Western Europe 1940-1945* (London: Continuum International Publishing Group, 2011), 291.

[229] Bourque, *Beyond the Beach*, 261. * Le Havre was a port town in the northern section of Normandy, the Allies had been bombing Le Havre since 1940 in an attempt to degrade the German port and naval operations based there.

[230] Roberts, *D-Day Through French Eyes: Normandy 1944*, 140.

messages for families, some receiving nearly two thousand requests per day after the initial bombardment.[231]

Across all of France, the casualty rate was high, the war had killed nearly 200,000 men, and another 250,000 were seriously wounded.[232] Due to extensive research conducted in recent years by Caen citizens, the rough estimate is that approximately 1,700 residents died during its liberation. These numbers do not account for deaths across the Calvados department, around 15,000, or those wounded.[233] French accounts of the bombings recall buildings collapsing on entire families, bombs hitting medical stations and killing all thirty people inside, including the doctors and nurses; bombs hitting the fire station and killing 17 firefighters and the fire chief, the loss of life was enormous.[234] Even after the bombs fell, it was incredibly difficult to provide medical assistance to those that were injured. The streets were lined with rubble, almost completely impassable in some places. Electrical, telephone, and water lines had been destroyed, complicating the ability to coordinate for aid across the city.[235] Furthermore, medical facilities were not spared from the bombs, killing the desperately needed trained medical personnel and destroying their facilities and instruments. Yvonne Mannevy also recalled,

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[231] Roberts, *D-Day Through French Eyes: Normandy 1944*, 93.

[232] George Kyte, "War Damage and Problems of Reconstruction in France, 1940-1945," *Pacific Historical Review* 14, no. 4 (1946): 418.

[233] Funk, "Caught in the Middle: The French Population in Normandy," 254.

[234] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 31; Roberts, *D-Day Through French Eyes: Normandy 1944*, 81.

[235] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 31.

> The hospital was on fire. During the first wave, bombs had hit the chapel and the cloister. The radiology department had been destroyed, and a nun and two nurses had been killed. […] There was a second barrage of bombs, and this time, surgery took a direct hit. The metal elevator car fell, and Dr. Frinault was literally cut in two. Meanwhile, Foisy and the others were covered in shards of glass and rendered deaf by the explosions…[236]

In Caen, the bombings destroyed all the hospitals except one, the Bon Sauveur, which adjoined the Abbey Saint Etienne. A secondary school called Lycée Malherbe adjoined the hospital and abbey, and it was here that city's heartbeat found shelter from the battle that waged outside. The buildings came to house thousands of refugees, the mayor's office, the post office, the city's supply center, a morgue, a nursery, and the only three operating rooms remaining.[237]

As the war destroyed their city, nearly 12,000 citizens took refuge in a network of underground caves outside the city. Having stood vacant for years, the caves were damp and continuously muddy. Conditions inside the caves were terrible, with lice and bedbugs infecting everyone, and human waste piling up in corners. Yet with the bombs continuing to fall, the residents remained, even going so far as to create a makeshift city underground. Some choosing to stay even weeks after the city's liberation since they had lost everything and had nowhere to go.[238]

Even more, the dire state of food and resources necessary for those in the Calvados region aggravated the situation. Occupation by German forces had already

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[236] Roberts, *D-Day Through French Eyes: Normandy 1944*, 81.

[237] Funk, "Caught in the Middle: The French Population in Normandy," 251.

[238] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 32–33.

depleted the region of its natural resources, and the fighting to liberate the area further destroyed what little remained. The Allies' destruction of the transportation system only added to the inability to transport the necessary materials needed to harvest and process food in the area. In October of 1944, a British report on the region concluded that the nutrition of the population was better than expected, but the "primary needs of the French is for the means of transport and raw materials, though a certain quantity of fats and temporarily at least, milk for children and meat, should be imported as soon as possible."[239] 1,860 farmsteads endured destruction, and another 4,250 suffered partial damage. The Allied tanks and heavy equipment devastated the fields and hedgerows of the region. Moreover, the timing of the invasion in June meant that crops across the region neared harvest. As a result of the battles, those crops were either abandoned as residents fled, ruined by Allied vehicles, or left to rot due to the loss of family members and equipment to harvest properly. Crossfire had obliterated farm buildings, and country homes ceased to exist. Somewhere between 37,000 and 50,000 acres of farmland were hastily mined by German troops as they retreated.[240] By August 1944, another 1,000 civilians had been killed or injured by stepping on mines.[241]

Germans converted another significant portion of land across the department into landing strips for aircraft. As a result of the mining, building of airstrips, craters left by

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[239] Hilary Footitt and John Simmonds, *France 1943-1945* (New York, NY: Holmes & Meier, 1988), 216.

[240] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 122.

[241] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 44.

bombs, and effects from military vehicles, over four thousand acres of land needed restoration. To put it in other terms, farmers needed approximately one billion gallons of soil to fill in craters and level their fields across the region. Due to the scale of destruction, most of the farmland was not useable until after 1947. Furthermore, in October 1944, it was reported by the director of refugee services that 30 percent of all cattle, 25 percent of horses, and 80 percent of pigs in Calvados had been killed or stolen. The impact of this devastation left the region struggling economically for years.[242]

Food resources were scarce across Europe throughout the war, then a bitter winter hit in 1945, and drought struck in 1946, which affected most of the European and Asian continent; thus, an estimated 800 million people worldwide faced starvation.[243] The drought and famine meant that the already limited supplies of resources available to aid areas like Calvados were restricted even further. The long-term results of starvation are hard to quantify, but three researchers from the University of Munich partnered with a RAND fellow to study the economic and health outcomes across Europe as a result of World War II. Their research indicated that long-term health complications arose from hunger crises throughout the war and into reconstruction. Statistically, regions that saw combat experienced more hunger than other parts of the same country, and countries that participated in the war experienced higher levels than noncombatant European counterparts. People experienced hunger for many reasons, but much relied on the fact

[242] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 122.

[243] Lizzie Collingham, *The Taste of War, World War II and the Battle for Food* (New York, NY: The Penguin Press, 2012), 476.

that the bombing and fighting destroyed factories, crops, livestock and restricted mobility between regions. Trade suffered, and food supplies were either taken by or given to military members of either side. For regions like the Calvados department, this research denotes the level of crises caused by the bombings and subsequent battles in June and July of 1944. The impacts of hunger were not just immediate; further research has proven that famine experienced in utero can cause children to suffer from cognitive and mental problems and long-term health issues such as addiction, diabetes, and heart disease. The impacts of starvation continued for several generations in Normandy. Additionally, young people in warzones were unable to receive proper immunizations as children, which led to health issues later in life.[244] Diseases that were preventable and even curable often caused deaths in infancy and early childhood; those that survived sometimes suffered long-term disabilities. Compounded with the thousands of residents maimed or left wounded during the bombings and those that returned from war injured, the health and medical consequences for residents of Caen were high. Reports during the reconstruction efforts showed that diseases such as tuberculosis, pneumonia, and syphilis were more widespread across all of France than ever before.[245] Close to 300,000 men and women died as prisoners in Germany, and 230,000 returned to France suffering from such diseases.[246]

[244] Iris Kesternich, Bettina Siflinger, James Smith, and Joachim Winter, "The Effects of World War II on Economic and Health Outcomes Across Europe.," *The Review of Economics and Statistics* 96, no. 1 (March 2014): 114.

[245] Kyte, "War Damage and Problems of Reconstruction in France, 1940-1945," 418.

[246] Ibid.

Another sad human consequence of the landings in Normandy were crimes committed by Allied forces against the French populace. In France, between June 1944 and June 1945, the Office of the Staff Judge Advocate found that U.S. soldiers raped a total of 181 women. On the British side, they reported 275 "acts of indecency" and over 3,000 other offenses against civilians. Another report estimated that the Allies committed 403 murders and cases of voluntary manslaughter and 305 instances of criminally negligent homicide for the whole of the campaign. In France alone, American military courts sentenced thirty-five soldiers to death and forty-eight to life in prison; many more sentenced to terms of eight to ten years. Estimates at the end of the war showed that the American military legal system charged somewhere between 20,000 and 40,000 service members in Europe with offenses from theft, to the sale of stolen property, and murder.[247] In one city, a mayor called his town "a theater of military debauchery." In Le Havre, where American's waited to return to their country after the tour was over, service member caused injury to a civilian, whether by reckless driving, stray bullets, or assault, almost every day.[248]

For citizens across the Calvados region who had already suffered immensely during the bombings and battles, these crimes only added to the confusion as to whether or not Allied forces were truly liberators. Fifteen-year-old, Danièle Philippe wrote in her diary on June 6th, 1944, "This is your 'great' liberation? We are all meant to get our share? Our world was calm before you arrived. Perhaps it wasn't terrific, but at least we

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[247] Wieviorka, *Normandy, The Landings to the Liberation of Paris*, 328.

[248] Roberts, *D-Day Through French Eyes: Normandy 1944*, 186.

had a chance to make it out in one piece, whereas now…"[249] The human cost to the war wasn't the only price paid; the reconstruction of homes and infrastructure would not be quick and would keep the citizens of Caen in subpar conditions for years.

Between November and December of 1944, portable housing units delivered to the port of Caen were not able to be constructed for several months due to the destruction around the port and the lack of labor. Decisions of emplacement throughout the city by the mayor and if the buildings should be used for housing or administrative offices delayed their use as well.[250] In January of 1945, the director for refugees and war victims begged the French government for 50,000 blankets, 20,000 cots, and mattresses, 40,000 pieces of clothing, and shoes.[251] The refugees had to live in a city that was still mud and ruins throughout the harsh conditions of winter 1944-1945, compounded further when the river Orne flooded over its banks and into parts of the city. The Caen newspaper declared December of 1944 "the saddest Christmas we have ever known. Because we still live in a world in flames, in a murdered France, in a ravaged region. No more houses, no more roofs over our head, and grief everywhere around us."[252] It is telling that in the documents after the war started, displaced personnel across the region are referred to as

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[249] Roberts, *D-Day Through French Eyes: Normandy 1944*, 76.

[250] Lindsey Dodd, "'Relieving Sorrow and Misfortune'? State, Charity, Ideology and Aid in Bombed-Out France, 1940-1944," in *Bombing, States and Peoples in Western Europe 1940-1945* (London: Continuum International Publishing Group, 2011), 75.

[251] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 57.

[252] Roberts, *D-Day Through French Eyes: Normandy 1944*, 185.

sinistrés, which means "disaster victim" in French.[253] In July of 1945, one year after liberation, 53,600 people still lived in emergency housing or temporary shacks erected throughout the city.[254]

As emergency and temporary housing began to arrive in the region, it became apparent that the quality varied significantly. Some stable wooden structures arrived from Sweden and Finland, and prefabricated homes with steel frames came from the U.S.; these solid structures allowed their respective neighborhoods to begin flourishing. Allied-provided Nissen huts, or more recognizably called a Quonset hut, which formed other parts of the city. The citizens of Caen did not receive these steel half-moon structures well, as they stood in stark contrast to a traditional home. Additionally, the hut's round nature meant that conventional furniture did not fit properly, and the usable space inside was significantly less than a typical square-based house. Other temporary structures used stone and debris left over from the bombing. Despite the influx of material, in 1954, temporary housing provided shelter to over 8,000 residents of Caen.[255]

The delay in returning residents to a family dwelling was due in part to the loss of ownership documents and confusion about the prior size of family dwellings. Surveyors took to using photographs and postcards to determine pre-war property proprietorship. The city of Caen had previously been all single-family homes, a point of pride for many

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[253] Dodd, "'Relieving Sorrow and Misfortune'? State, Charity, Ideology and Aid in Bombed-Out France, 1940-1944," 75.

[254] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 125.

[255] Ibid., 131–132.

citizens. Now, however, with confusion about compensation and ownership, the government implemented plot consolidation. Where previous Caen neighborhoods had totaled around 9,800 plots, the number shrank to 3,000 in the post-war years. The first apartment building started development in 1955, and residents moved in before Christmas of 1956. In 1958 more than 7,000 citizens finally moved into apartments throughout the city, having endured sub-par temporary structures for more than twelve years.[256] The citizens of Caen had unwittingly played a significant role in the Allied liberation of Europe. Still, they continued to suffer for years after the end of the war and the road to rebuilding forever altered the city's face and spirit.

Allied Support to Reconstruction

Once the Allied fighting forces had pushed the Germans out of the region, the attention turned to the tasks necessary to rebuild and ensure no further loss of life occurred. French and Allied public-health authorities took on the task of supervising teams designated to clear debris, bodies, mines, and unexploded ordinance across the department. The Civil Affairs team from the American 82nd Airborne Division put out an urgent request for "civilian labor for grave digging …and the disposition of cattle killed during combat activities."[257] Homes that were still habitable needed to be made safe, and protection from the weather was the most immediate concern. Ruined homes posed problems such as how to dispose of intermixed food, clothing, furniture, and other

[256] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 133-134.

[257] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 45.

matters of household waste. The almost 500,000 people that had been taking shelter in abandoned quarries and other underground facilities now needed emergency supplies of food and water. The only people capable of addressing these needs with immediate resources were the Allied forces in France and, in particular, the Americans.[258] SHAEF tasked some 70,000 troops with assisting in reconstruction efforts.[259]

The Allied militaries started by bringing in bulldozers and other large excavation equipment to begin clearing debris. They tasked the almost 10,000 prisoners of war (POW) in the region with clearing mines and shells. Unfortunately, due to the success of the Transportation Plan undertaken by Bomber Command, the lack of rail lines and useable roads severely hampered progress for many of these endeavors. The bridges across the River Orne, which had been the singular focus of Allied planners and caused so much destruction, needed to now be rebuilt to facilitate resource flow in and out of the city. The Allied forces emplaced temporary structures over the river; which lasted for several years until the city built new ones.[260]

After March 1945, the POWs began to assist in agricultural and industrial work, much to the reluctance of local farmers. After experiencing the brutal German occupation during World War I and then again the cruelty of the Nazi's over the last four years, the French people did not welcome the prisoners. Especially since the German POWs were

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[258] Footitt and Simmonds, *France 1943-1945*, 215.

[259] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 122.

[260] Ibid., 123.

better fed and clothed than most of the French citizens.[261] However, with many local entities focused on immediate work across the department, agricultural and industrial communities had to rely on POWs for support. De-mining operations killed approximately 756 French men, so the French government requested the use of 100,000 German prisoners to carry out the rest. However, as late as April 1945, farmers were still discovering mines in previously "cleared" areas.[262] The mine-clearing lasted until February of 1946; then, the majority of the prisoners transferred to assist with farm work. In the last few months of 1945, the Czech and Italian prisoners underwent repatriation, and in 1947, the German POWs were allowed to return home. After prisoners' labor was gone, the department had to rely on locals to finish the work of clearing debris out of the fields and filling in craters so farmers could begin the work of planting new crops.[263]

French Government Support for Reconstruction

In October of 1944, the French government created the *Ministère de la reconstruction et de l'urbanisme* (Ministry of Reconstruction and City Planning) or MRU. The MRU had representatives in departments across France who approved and controlled the reconstruction and development of buildings destroyed by the war. In the Calvados region, the MRU devoted most of its early effort to what it called "emergency

[261] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 55.

[262] Kyte, "War Damage and Problems of Reconstruction in France, 1940-1945," 424.

[263] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 124.

work," clearing of mines, shells, immediate food shortages, and removal of debris. In 1946 the designs for reconstruction of farm buildings were created, but Paris held up funds to start rebuilding until 1947.[264] Because most of the buildings across the region were devastated, including those that housed the land ownership documents, surveyors started from scratch, dividing and assigning farmland to those residents remaining.

The MRU created master plans for 150 towns across the Calvados department. A master plan denoted that an entire town was utterly devastated and needed restoration from scratch. In eighty-one of these towns, property consolidation had to be undertaken before construction could begin, a painful task for those who had lost loved ones or for neighbors of the families that had been completely wiped out by the bombs. In 102 towns, substantial repairs had to be made to drainage systems, water supplies, and electricity, leaving those towns without reconstruction for more extended periods than others. Material shortages were a significant concern to city planners, so architects and builders became creative with resources. In some instances, builders combined local bricks, stone from the quarries near Caen, and concrete to create a singular building. In 1948 reconstruction officially began across the countryside of the Calvados region; these mismatched buildings continued to be built by MRU for the next 15 years.[265]

The reconstruction for the city of Caen was a monumental task for the MRU. On one side of the city, a strip of land 2,000ft wide and 6,500ft long was entirely devastated, with no standing structure remaining. This area, known as the *Ile-Saint-Jean*, started at

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[264] Funk, “Caught in the Middle: The French Population in Normandy,” 255.

[265] Clout, “Destruction and Revival: The Example of Calvados and Caen, 1940-1965,” 125.

the railway station over to what had been a shopping district along the Orne floodplain, up to the residential areas north of the Château de Caen.[266] This section of the city had been the target of air operations as allied bombers attempted to take out the bridges over the river, designated as chokepoints 3 & 4 on their hand-drawn maps.[267] Many of the buildings were a combination of wood and stone, and the incendiary bombs dropped by Allied aircraft set the area ablaze, destroying, four churches, a hotel, all the hospitals except one, and sixty manor homes. The city's theater, museum, university, and library laid in rubbles with another thirty historic buildings severely damaged.[268] Reconstruction crews encountered crushed underground pipes and cellars, a secondary effect of the demolished buildings and homes, creating a health hazard and delaying the construction of buildings and homes. Due to the significant reestablishment efforts that needed to happen, the city's mayor made a case for adopting a more contemporary style and updating the *Ile-Saint-Jean* rather than attempting to recreate the area as it was before the war.[269] The mayor’s vision for the future of Caen would set the stage for reconstruction efforts and ensure the city did not lose its historical and economic significance in the region.

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[266] Clout, “Destruction and Revival: The Example of Calvados and Caen, 1940-1965,” 126.

[267] Todd, “Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June, 1944,” F.O. 727.

[268] Clout, “Destruction and Revival: The Example of Calvados and Caen, 1940-1965,” 126–127.

[269] Ibid., 127.

Local Support to Reconstruction

Yves Guillou was born in northern Brittany and relocated to the city of Caen in 1924 at the age of 44. Two years after his arrival, the Orne River flooded the lower portion of the city, and Guillou organized a group of residents to demand compensation for their ruined property. After making a name for himself from the flood experience, the citizens of Caen elected him as a city councilor from 1929-1935 with responsibility for roads, drainage, and street lighting. In September of 1944, immediately following the invasion, the Prefect Daure (the government of France's representative to the region) nominated Guillou to preside over a special delegation. The delegation became the city's new municipal council, and in March of 1945, the citizens elected Guillou mayor of the city of Caen. Guillou held mayor's position until 1957 and became the most significant driving force behind the reconstruction of Caen in the post-war years.[270]

During the interwar years, when he served as a counselor, Guillou commissioned a surveyor to examine the idea of a new road that ran across the *Ile-Saint-Jean*, parallel to the existing road. His goal was to improve traffic flow and housing conditions in the center of Caen. He also wanted to open up an area around the Château to form a public garden. Due to the economic state of France during the 1930s, the project never came to fruition. However, this proposed idea became critical during the reconstruction of the city.[271]

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[270] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 127.

[271] Ibid.

In September of 1944, acting in his role as president of the city's special delegation, Yves Guillou appointed Parisian architect Marc Brillaud de Laujardière to be the chief architect and planner for the rebuilding of Caen. Laujardière and Guillou started immediately on preparation for their vision of the city. They planned a spacious avenue running from the River Orne to the Château, a grid of new streets throughout the Ile-Saint-Jean, several open public spaces, and a new university. Guillou wanted to quickly reestablish Caen's business district for economic stability and its former place as an epicenter for higher education. As temporary structures arrived in Caen, Guillou insisted that temporary shopping centers utilize some of the buildings. He knew that if all temporary construction went to homes, that the nearby cities of Rouen and Bayeux—which were relatively unscathed during the war—would quickly steal retail functions and, ultimately, economic capital from his city. This quick timing was pivotal because the government of France did not create the MRU until November of 1944, well after the plans and preparation had begun for the future of Caen. Given the breadth of work that needed to be done across the country and especially in this region, the MRU readily accepted Guillou's plans.[272] The MRU brought in material and began constructing buildings and homes that were decidedly more modern than citizens had previously experienced. Driving through the Normandy region, today, one will experience the dichotomy presented by the MRU construction; the contemporary buildings stand in stark contrast to the handful of original stone structures that survived the war.[273]

[272] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 127.

[273] Ibid., 125.

Another factor that changed the future face of the city were the bulldozers used by the Allied army. Approximately two million square meters of debris needed removing from the inner city of Caen. To make the clearing of debris efficient, the military created a new route that avoided pedestrian traffic; it ran parallel to the *Rue-Saint-Jean*. The path created by the heavy machinery was the once missing link to the previously proposed plans for another route in that section of the city. Laujardière set to work on designing an avenue that ran toward the Château and be unencumbered by the previously cluttered homes that had hidden it for centuries. The bulldozers not only created that path for him but cleared the ruins of those homes that had once hindered his vision.[274] Historic buildings on the Château's grounds underwent restoration, construction crews built a park with refurbished walls, and emplaced a designated walking path for visitors.[275] The Château now sits prominently overlooking the city that has been at the forefront of history for the Western world.

Economically, France stabilized by 1950 and surpassed its pre-war Gross Domestic Product (GDP) standards by 1973. Steel foundries that had closed during the war were opened and back in business by the early 1950s. Metal products starting shipping from Caen's port as early as 1946 and continued to increase to eight times their original numbers by 1951.[276] In Caen, two new department stores opened in the Ile-Saint-Jean in the mid-1950s, signally the return of the significant retail district to the city.

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[274] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 128.

[275] Funk, "Caught in the Middle: The French Population in Normandy," 256.

[276] Ibid., 255.

In 1954 the first students and professors moved into the newly constructed *Université Caen Normandie*, the first campus environment for higher education in France. The French government purchased the Abbaye aux Hommes complex in 1956, and in return, converted the Lyceé Malherbe into a town hall.

Across the countryside, reconstruction was finished by 1957, with 1367 farmhouses and 4052 farm buildings assembled. In 1964, twenty years after the first Allied troops stepped foot onto a Normandy beach, reconstruction was considered complete in the suburban area around Caen. Mayor Guillou's vision for the city ensured its continued importance in the region, boasting a population of over 100,000 and a university of more than 26,000 students, the city is flourishing seventy-five years after the invasion.[277] Where historic stone structures and wood front buildings once stood now stand brightly colored shops made with prefabricated materials.[278] A walk through the *Ile-Saint-Jean* will take tourists through broad, straight streets, lined with new buildings, past the Church of Saint-Jean—which still leans significantly to the side from damaged suffered during the bombing—up to the Château of Duke William. One block to the east, however, the buildings begin to intermix with the occasional ancient wood and stone structures along narrow, winding roads, retelling visitors of a city the used to be.

The numbers that tell of the near annihilation of Calvados correlate to the simple fact that the department had the unlucky fate of being chosen by the Allied forces as their

[277] Clout, "Destruction and Revival: The Example of Calvados and Caen, 1940-1965," 137.

[278] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 57.

foothold into Europe.[279] Many historical narratives failed to capture the emotional and physical toll the destruction had on the residents of Caen and those across the Calvados department. Most current residents of the city were born after the horrors of the bombings, and the apartment buildings and other modern structures are now just a normal part of the city's landscape. Moreover, the thousands of British and American tourists that arrive every summer to tour the battlefields and pay homage to the soldiers in the Normandy cemeteries are part of everyday life.[280]

Caen Today

In 1988, on the 44th anniversary of D-Day, a museum opened in Caen, called *Le Mémorial de Caen*. Inaugurated by President François Mitterrand, a former member of the French Resistance, city planners built the museum on top of the old German command post just outside the city center.[281] The museum not only captures the history of what happened during the invasion but also sponsors events and forums for peace. The memorial flies the flags of all nations involved in the fight for Normandy, including Germany's. Inside the *memorial*, there is a Hall of Peace that beckons visitors to contemplate how peace is broken by hate and ideologies.[282]

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[279] Morgan, "COSSAC Directive (43) 32, 7 July 1943," 1–7.

[280] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 58.

[281] Ibid., 58–59; "Caen-Normandie Mémorial," accessed February 17, 2020, https://normandy.memorial-caen.com/.

[282] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 59.

For the past thirty-one years, the *mémorial* has held an international competition for human rights lawyers. A panel of judges listens to lawyers' arguments for a current case of human rights violations and chooses the well-argued case.[283] The competition for human rights is a fitting tribute to Frenchman René Cassin. After serving in World War I, Cassin became the founder of a pacifist veteran organization in France, *Union Fédérale,* which became the largest veterans' group in France. He then launched the only international veteran organization within the League of Nations in 1926. Cassin worked for General Charles de Gaulle during World War II, and it was in this role he co-authored the Universal Declaration of Human Rights 1945-1948. It was Cassin who read the declaration to the United Nations gathered in Paris in 1948.[284]

In 2016 Le Mémorial de Caen sponsored the opening of a museum in Falaise entitled Civilians at War. The memorial focuses on three different themes: occupation, liberation, and reconstruction. The exhibits are dedicated to the life and survival of civilians during World War II and include testimonies of the survivors.[285]

Le Mémorial de Caen has also archived the stories of the people who lived through the bombings, recording their experiences and ensuring that the French citizen's perspective of the war is not lost. Because of the *Mémorial* and authors' efforts to write

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[283] Le Mémorial De Caen, "Caen-Normandie Mémorial," accessed February 17th, 2020, https://normandy.memorial-caen.com/.

[284] Jay Winter, "From War Talk to Rights Talk Exile Politics, Aerial Bombardment and the Construction of the Human Rights Project during the Second World War," in *Bombing, States and Peoples in Western Europe 1940-1945* (London: Continuum International Publishing Group, n.d.), 318–331.

[285] Le Mémorial De Caen, "Falaise Memorial Civilians at War," accessed February 17, 2020, https://www.memorial-falaise.com/.

about the fear of living under the bombs, the myth that Allied forces were solely liberators has started to wane, and a new narrative is beginning to take shape. The stories passed down from those that survived the horrors of July 1944 are no longer muted by the desire to move on with life and heal the deep wounds caused by the occupation by Germany. The children and grandchildren of Normandy are ready to record the actual destruction which occurred that summer. As William Hitchcock so plainly puts it, "On these now-placid verdant Norman fields, Americans come to pay homage to their soldiers amidst the somber grandeur of a military cemetery; the people of Caen prefer to gather in a museum of glass and steel and consider the human cost of not just their liberation but of all wars. Both sides are fitting tributes to the varieties of liberation, and the universality of mourning."[286]

In recent years, residents of Caen started the "Normandy for Peace" organization, which promotes discussions, projects, and events on peace. The organization has held annual programs that include educational events, exhibitions, and academic conferences.[287] In 2018, on the 74th anniversary of the invasion of Normandy, the organization planned the Normandy World Peace Forum. A former Secretary-General to the United Nations attended the forum, a former Prime Minister of France, the current Vice President of the European Parliament, and over 5,000 other people from across the globe. On the 75th anniversary of the invasion in 2019, the forum hosted Nobel Peace

[286] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 59.

[287] Région Normandie, "Normandie Pour La Paix," last modified February 17, 2020, https://normandiepourlapaix.fr/en.

Prize winners from all over the world, included debates between academics, and presented a Freedom Prize for Peace, sponsored by the International Institute of Human Rights and the University of Normandy.[288]

During the 2019 forum, the European Union presented its newly created Normandy Index, developed in partnership with the Institute for Economics and Peace. The Normandy Index uses a scale of 0 to 10 to map a state's vulnerability to conflict using eleven danger indictors. The indicators are climate change, cyber-security, economic crises, energy dependence, fragile states, murder rate, freedom of press, terrorism, armed conflicts, and weapons of mass destruction. The tool's design helps the European Union identify which nations are most at risk for conflict and assist in policy decisions. The European Union's publication on the Normandy Index addresses the issue of how to measure peace. The document says, "The modern definition of peace refers not only to 'an absence of war,' but also includes elements of well-being: people demand and expect more from peace."[289] The citizens of Caen endured not only devastation because of the war but were also afflicted for years as their city and homes were rebuilt. The people of Normandy know first-hand that even in times of peace, suffering can still be felt and are laying the foundation for a new conversation about the summer of 1944. The same day the Normandy Index was presented, hundreds of veterans of the D-Day

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[288] Région Normandie, "Normandie Pour La Paix."

[289] Elena Lazarou and Philippe Perchoc, "Mapping Threats to Peace and Democracy Worldwide, Introduction to the Normandy Index," ed. Étienne Bassot and Monika Nogaj (European Parliamentary Research Service, May 2019), 1.

landings attended a ceremony honoring their sacrifice for the freedom of Europe.[290] In the words of the French author Olivier Wieviorka

> It was surely an epic event; of that, there can be no doubt. But between the reality of the event and the myth yawns a great abyss. The myth recounts the inevitable triumph of a well-oiled war machine manned by impossibly brave soldiers, eager to sacrifice themselves for the cause of liberty in general and the liberation of France in particular. But this view, propagated by an endless series of memoirs and historical narratives, of young men who gladly risked death without batting an eye, misrepresents the actual nature of the campaign, by disregarding the repugnance felt by many of those who fought in Normandy and overlooking the immense suffering that was inflicted, deliberately, or otherwise, on innocent civilians.[291]

The efforts of *Le Mémorial de Caen*, the Normandy for Peace initiative, and the Normandy World Peace Forum are only a few of the ways the region is beginning to use its place in history to open the door for a more in-depth discussion about World War II. Along with the authors mentioned throughout, the people of Normandy are not only rewriting the long-held narrative of the D-Day invasion but also posing ethical questions for modern-day militaries regarding the acceptability of collateral damage. Using the city of Caen as a case study, current militaries can continue to analyze the greatest campaign in modern history while simultaneously looking through moral and ethical lenses to weigh the consequences of the tactical decisions.[292]

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[290] Normandie Tourisme, "Normandy World Peace Forum," accessed February 17th, 2020, http://en.normandie-tourisme.fr/calendar-of-events/june/the-normandy-world-peace-forum-943-2.html.

[291] Wieviorka, *Normandy, The Landings to the Liberation of Paris*, 360.

[292] Davies, *No Simple Victory, World War II in Europe 1939-1945*, 488–489.

CHAPTER 5

LA FIN

The last bombs to fall on the city of Caen came on July 18, 1944, in support of the Allied Operation Goodwood. Ironically, the last bombs to fall in France would still be in Normandy on September 11, 1944, during the fight to control the port city of Le Havre.[293] As the Allies advanced into Belgium and then Germany, the city of Caen and the country of France started down the long road of recovery and rebuilding. As the Allies moved on, so seemingly did the world, with the fire-bombing of Germany and then the atomic bombs dropped on Japan overshadowing the air operations in France.[294] In a report published after the end of the war on the use of heavy bombers during the invasion, the U.S. Army Air Force discusses in detail the beach targets attacked but makes no mention of the chokepoints targeted in Caen or around Normandy.[295] In the official histories of the Army Air Forces in World War II, the chokepoints are given only two sentences in a short paragraph about transportation targets on D-Day.[296] Despite the lack of reporting on the bombing of Caen, 21st Century military leaders will find the lessons learned applicable as they look to waging battles insides cities.

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[293] Bourque, *Beyond the Beach*, 88–92.

[294] Hitchcock, *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*, 56.

[295] Bourque, *Beyond the Beach*, 250.

[296] USAF Historical Division, *Europe: Argument to V-E Day, January 1944 to May 1945*, ed. Wesley F. Craven and James L. Cate, vol. Three, *The Army Air Forces in World War II* (Chicago: University of Chicago Press, 1951), 193–194.

In the end, the history books have recorded the Normandy invasion as an epic event and the associated bombings of cities a fair price to pay for the French citizens' liberation from Nazi Germany.[297] There is no argument that the Transportation Plan did not have a direct impact on delaying German reinforcements to the battle. As one German prisoner of war recalled, "I crossed the German border into France through Metz two weeks ago. My journey to Périers-Carentan took me twelve days. Railway lines are completely broken up by air attacks. Lines of communication are completely disorganized. Troops on furlough had to be transported by wood-burning trucks."[298] While the plan succeeded in slowing down German reinforcements, it is hard to justify that it was worth the price of over 16,000 civilians killed in France and another 10,000 in Belgium.[299] Much like the city of Caen, Allied planners and commanders consistently assigned strategic heavy bombers to targets, which caused massive destruction without equitable results. In Caen, the bridges over the River Orne remained intact throughout the battle, only to be destroyed by the Germans when they began their withdrawal. The bombings in support of operations Charnwood and Goodwood hit their targets but did not cause overwhelming German casualties or damage to equipment but did lay ruin to the suburbs outside Caen.[300] As laid out in the previous chapters, the devastation was a result

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[297] Davies, *No Simple Victory, World War II in Europe 1939-1945*, 487.

[298] Bourque, *Beyond the Beach*, 253.

[299] Ibid., 178.

[300] Richard Overy, "Peoples and Economies at War," in *West Point History of Warfare*, ed. Clifford Rogers and Ty Seidule (New York: Rowan Technologies, 2016), 578–579, https://reader.rowan.nyc/#/read/206/page/12586.

of inaccurate bombing due to technical limitations, and limited understanding by military leaders of the capability airpower had.

Airpower was born out of the post-war emotions of World War I and the desire to avoid another long war. The theories of Giulio Douhet, William "Billy" Mitchell, and Hugh Trenchard focused on the strategic bombing of economic targets in the enemy's homeland to reduce its capability and will to fight.[301] The development of aircraft and doctrine that stemmed from these theories was still in its infancy when the Second World War broke out. As a result, airmen were still learning the art and science of aerial warfare, and one of their learning laboratories was France.[302] There was no doctrine or military process to guide commanders on how to bomb an occupied state and the production of what little doctrine on employing bombers written was based on theory and without any experience. The technology and tactics that were born from the early years of the war only furthered the inaccuracy of these new bombers.[303] Formation bombing, which was a defensive measure against German *Luftwaffe*, reduced accuracy as the last crews in the bombing run could not identify target indicators. Additionally, the heavy bombers flew higher than other aircraft to avoid anti-aircraft guns, and this tactic ensured that bombs were dispersed around the target rather than on a precise point. Bombsights

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[301] Giulio Douhet, "Command of the Air," in *Roots of Strategy*, book 4 (Mechanicsburg, PA: Stackpole Books, 1999), 263–408; William Mitchell, "Winged Defense," in *Roots of Strategy*, book 4 (Mechanicsburg, PA: Stackpole Books, 1999), 409–516.

[302] Bourque, *Beyond the Beach*, 258–261.

[303] Conrad Crane, *Bombs, Cities, and Civilians - American Airpower Strategy in World War II* (Lawrence: University Press of Kansas, 1993), 4–8.

and navigational equipment designs assumed planes would be flown at high altitudes, avoid defensive maneuvers that would cause inaccurate data, detect large targets, and drop their bombs.[304] The Allied air forces built aircraft to destroy factories, industrial cities, and other sizable areas, all in the enemy's homeland, not to destroy precise tactical targets in support of ground operations.[305]

Despite their inaccuracy and the intended design of the technology, Allied leaders insisted on employing the bombers on tactical targets inside France and other occupied states. Eisenhower demanded operational control of all air forces in the European theater, going so far as to threaten to quit if he did not receive the command structure he wanted.[306] He then forced the heavy bombers under Spaatz and Harris to bomb the targets chosen by inexperienced army planners. Even after repeated warnings that these bombers could not achieve the required level of accuracy and the cost to civilian lives would be high, Allied planners and commanders sent the heavy bombers to destroy bridges, railways, and parts of towns across France. Then in an unparalleled move, these same planners and commanders tasked the heavy bombers as direct support to ground troops as they attempted to capture the city of Caen.[307]

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[304] Wakelam, *The Science of Bombing, Operational Research in RAF Bomber Command*.

[305] Office of the Chief of the Army Air Forces, "AWPD/1 Munitions Requirements of the Army Air Forces."

[306] Eisenhower, *Crusade in Europe*, 222.

[307] Richards, "R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy."

The short-term consequences were an extreme loss of French lives, and the commitment of thousands of Allied soldiers tasked to assist in reconstruction, taking away from combat power on the front lines. The long-term effects shaped an entire city and several generations to be avid proponents for peace, so others do not have to suffer the same fate.[308] As the military of the 21st Century prepares for future battles, the issue of collateral damage and airpower support to operations is as relevant now as it was in June of 1944.

In his book on urban warfare*, *Concrete Hell*, Dr. Louis DiMarco contends that the evolution of warfare in the 20th century reveals that the urban environment will be the common terrain for war in the 21st century.[309] Army Techniques Publication (ATP) 3-06, *Urban Operations*, states, “Currently more than 50 percent of the world population lives in urban areas and is likely to increase to 70 percent by 2050, making military operations in cities both inevitable and the norm.”[310] In the recently updated Army Field Manual 3-0, *Operations*, it warns, “future battlefields will include noncombatants and they will be crowded in and around large cities.”[311] Moreover, DiMarco argues that the modern military has put themselves in a “Catch 22” situation, “as modern armies try to be

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[308] Le Mémorial De Caen, “Caen-Normandie Mémorial.”

[309] Louis A. DiMarco, *Concrete Hell: Urban Warfare from Stalingrad to Iraq* (Oxford, UK: Osprey Publishing, 2012), 21. *Urban warfare refers to the conduct of military operations inside cities.

[310] Headquarters, Department of the Army (HQDA), Army Techniques Publication (ATP) 3-06, *Urban Operations* (Washington, DC: Government Publishing Office, 2017), 1–1.

[311] Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2017), 1–1.

more and more precise in their application of violence they focus more on what is absolutely critical, and the urban centers are natural strategic and operational decisive points."[312] Like the fighting that took place in and around Caen in the summer of 1944, the American military will continue to fight in large urban areas, as such, the use of airpower to influence the battle for Caen illustrates lessons to consider for all future operations.

Lessons Learned for 21st Century Warfare

Since the summer of 1944 to the present, there have been significant transitions in the international community regarding the rules and laws governing civilians in war. Just four years after the end of World War II, the 1949 Geneva Conventions adopted new provisions for the treatment of civilians in occupied territories.[313] In 1977 the First Additional Protocol to the Geneva Conventions was signed, and Article 48 of that document states that parties involved in a conflict must "distinguish between the civilian population and combatants and between civilian objects and military objects."[314] Article 51.2 then goes on to say, "The civilian population, as such, as well as individual civilians,

[312] DiMarco, *Concrete Hell: Urban Warfare from Stalingrad to Iraq*, 46.

[313] International Committee of the Red Cross, "Convention (IV) Relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949," accessed May 5, 2020, https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/Treaty.xsp?documentId= AE2D398352C5B028C12563CD002D6B5C&action=openDocument.

[314] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 249.

shall not be the object of attack."[315] Then, in 1998, the Rome Statute established the International Criminal Court and Article 8 of that document defines as a war crime:

> Intentionally launching an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated.[316]

While the United States has not ratified the Geneva Conventions since 1944 and is not currently party to the Rome Statute, as the internationally agreed-upon rules of armed conflict have changed, so has American military doctrine.

The U.S. military has changed in three significant ways that correlate to the lessons learned in Caen. First, the military understands the necessity for specific doctrine on operations in urban settings. Second, certain rules and guidelines must apply to military targets, including a methodology for determining collateral damage. Finally, ensuring senior leaders understand joint doctrine and sister service capabilities is also necessary. ATP 3-06, *Urban Operations,* acknowledges that

> Operations conducted in urban areas require precise application of firepower to avoid unnecessary civilian causalities, despite the fact that urban terrain and infrastructure make precision weapons employment more difficult and degrades munitions effectiveness. Emphasis on reducing collateral damage and civilian causalities may limit fire support to friendly forces.[317]

The doctrine continues to define the many aspects of cities or urban settings that pose specific problems for commanders and soldiers, such as how an urban setting affects

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[315] Baldoli and Knapp, *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*, 249.

[316] Ibid., 250.

[317] HQDA, ATP 3-06, 1-2.

each of the military's warfighting functions. ATP 3-06 also defines the foundations of urban operations, including, avoiding the attrition approach, minimizing collateral damage, separating noncombatants from combatants, preserving critical infrastructure, and restoring essential services. Avoiding the attrition approach instructs ground forces to avoid a linear approach to an enemy in a city. The resulting standoff of firepower in a linear approach can cause significant collateral damage.[318] Minimizing collateral damage stresses that commanders put constraints on their firepower and asses the short- and long-term effects of their operations. Preserving critical infrastructure orders commanders to identify essential services for the urban population and then, avoid and protect that infrastructure during their operations. By doing so, the commander protects the health and well-being of the civilians. Each of the foundations link how military operations can affect the civilians in the cities and demands an approach that minimizes suffering.

One of the characteristics of urban warfare that has plagued military commanders for time immortal is the price paid by the civilians in the cities.[319] One of the most significant ways military doctrine has adapted to consider civilians in war is with a focus on targeting. Joint Publication, 3-60, *Joint Targeting*, states, "Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities."[320] Military commanders and staff are given detailed instructions on evaluating a target prior to placing an effect on it. Part

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[318] HQDA, ATP 3-06, 2-8.

[319] DiMarco, *Concrete Hell: Urban Warfare from Stalingrad to Iraq*, 34.

[320] Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-60, *Joint Targeting* (Washington, DC: Government Publishing Office, 2018), 1–1.

of the evaluation includes its relationship with noncombatants and the civilian populace. JP 3-60 places specific emphasis on minimizing collateral damage through the appropriate application of force. The joint military force now has a methodology to calculate the risk of collateral damage that a target would have. The collateral damage estimate provides commanders information to weigh the risk against military necessity.[321] Joint doctrine also places restrictions on targeting, including limitations such as proportionality. JP 3-60 states that the incidental injury or death of civilians or property damage cannot be excessive in relation to the military advantage gained by the attack.[322] These changes stand as a stark difference to the freedom given to General Eisenhower in 1944 when he sacrificed a large portion of Caen for a few bridges over the Orne River.

Another change in doctrine involves close air support to ground forces, just as Field Marshal Montgomery requested aircraft bomb the enemy in front of his armies as they fought to seize the city of Caen.[323] Current doctrine on the employment of close air support plainly states that it is the responsibility of the commander and those involved in the process to comply with the law of war and positively identify the target before employment. It also states that understanding and properly selecting targets will reduce

[321] JCS, JP 3-60, 111-1.

[322] Ibid., A-2.

[323] Tedder, *With Prejudice, The War Memoirs of Marshal of the Royal Air Force, Lord Tedder. G.C.B.*, 560.

the impact of civilian casualties.[324] Again, this is a change in doctrine and employment, born from the lessons learned in the summer of 1944, when pilots received no specific target, and still, the Allies dropped their bombs, laying waste to the suburbs around Caen.

The lessons born from battles like Caen and then later in cities like Aachen, Hue, and Fallujah prove that battles for cities are complex and not easily won. The employment of fires, whether artillery, armor, or close air support, can lay waste to cities if proper targeting is not conducted.

Large-Scale Combat Operations

As the military of the 21st Century begins to transition its focus to large-scale combat operations (LSCO), like those seen in World War II, the battle for Caen offers further lessons. First, regarding the understanding of other service doctrine and capabilities, harkens back to Spaatz and Harris' objections on their heavy bombers tasked for precision bombing. Ground commanders must understand the capabilities and limitations of all military forces. Army officers learn the abilities of the Air Force, the Navy and the Marine Corps to shape the battlefield through professional military education and joint assignments. It is also in these assignments and opportunities that Army leaders learn the limitations of those services and build respect for their joint counterparts' knowledge on the employment of their service-specific assets. Senior leaders across the military should be well versed and well trained in joint doctrine and have a deep understanding of joint service capabilities before commanding in combat. As

[324] Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-09.3, *Close Air Support* (Washington, DC: Government Publishing Office, 2014), 1–11.

learned in the bombing of Caen, the misunderstanding of another services' capability can have long-lasting operational, strategic, and political effects.

A second lesson learned is the understanding of strategic assets versus tactical assets. The allies built heavy bombers to destroy large-area, strategic targets. However, Eisenhower used them in support of tactical targets, like bridges and German forces. A significant shift since World War II has occurred within this lesson learned. The Army no longer controls the Air Force; it is an independent arm of the military and has built its organization around being a strategic asset. However, throughout the wars in Iraq and Afghanistan, ground units have become comfortable with requesting close air support to their operations and receiving a broad range of capabilities. Because America has limited the scope of these wars, there has not been a need to develop deep, strategic air targets. However, as the military transitions back to focusing on LSCO, the level of coordinated fighting will be at the corps and division level. This size of operation will require a more strategic look at shaping the battlefield, and the role of the Air Force will undoubtedly be targeting in the deep fight.

One of the core tenants of the Air Force is to provide global strike capability, which includes strategic attack. The strategic attack aims to weaken the adversary's ability or will to engage through the systematic application of force against an enemy's center of gravity.[325] The very principles argued by the air commanders of World War II are in the air doctrine of today. In LSCO, the Air Force will undoubtedly no longer provide an immediate response to the ground force commander, especially at the brigade

[325] "U.S. Air Force: Roles, Functions, Capabilities, Limitations" (Presented at the C309, Command and General Staff College, September 10, 2019).

level or below. Ground component commanders must then be prepared to plan their operations without the level of air support they have grown accustomed too during the last twenty years. As seen in the battle for Caen and across France, if military leaders create plans that hinge on a strategic asset creating effects that they are not available or equipped to achieve, the results will be devastating not only for the militaries on the ground but also for those non-combatants on the battlefield. Because the combined planners only devised one way to stop the German reinforcements from entering the region—destroying the bridges in Caen and other towns throughout Normandy—they over-committed the heavy bombers, sending wave after wave of bombing groups to achieve their objective. Then, when the city's capture was not going as planned, they used a strategic asset to achieve a tactical goal, causing incredible suffering to the civilians in Caen.

Conclusion

As the military of the 21st Century looks toward LSCO, the value of studying military history cannot be understated. The lessons learned through wars and, in the case of airpower in World War II specifically, provide valuable information and experience to apply to future LSCO situations. What studying the bombing of Caen in the summer of 1944 shows is that the Allies erroneously believed that aerial bombing would facilitate the ground forces capture of the city and the rapid defeat of the German Army. As a result, Allied air forces killed as many French civilians as Germans forces did Allied soldiers involved in the Normandy landings and left the city of Caen in ruins.[326]

[326] Roberts, *D-Day Through French Eyes: Normandy 1944*, 4.

In 2007 there were 468 cities worldwide that had a population of over one million people.[327] As the urban environment continues to expand, so does the risk for catastrophic loss of life and damage to infrastructure from military operations. As such, there is little room for error as military commanders employ bombs and other fires capabilities in these mega-cities. Especially as new domains of warfare, such as cyber and space, emerge in the 21st Century, military leaders, across all services, must be able to differentiate between theory, doctrine, and real capability. They must also thoroughly understand military technology, its effects, and its limitations. This understanding must include other service capabilities. Finally, military leaders must train to consider and adapt tactics and operations based on collateral damage calculations.

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[327] DiMarco, *Concrete Hell: Urban Warfare from Stalingrad to Iraq*, 581.

GLOSSARY

Departments. Administrative divisions of France

Generalfeldmarschall. German Field Marshal/General of the Army

General der Panzertruppen. German Lieutenant General of a Panzer Corps

Generaloberst. German General

General der Artillery. German Lieutenant General of Artillery

Generalleutnant. German Major General

Generalmajor. German Brigadier General

Hitlerjugend. Hitler Youth

Luftwaffe. German Air Force

Oberbefehlshaber West. Highest German ground headquarters of the Western Front

Oberkommando der Wehrmach. The German Armed forces High Command

Panzer or Panzerkampfwagen. German Tank

Panzer Abteilung. German Tank Battalion

Sinistrés. French term for disaster victim

SS-Standartenführer.

Widerstandsnest. Resistance Nest

BIBLIOGRAPHY

21st Army Group HQ. "Notes on the Operations of 21 Army Group, 6 June 1944-5 May 1945." Headquarters British Army of the Rhine, September 1, 1945.

Ambrose, Stephen. *D-Day, June 6, 1944: The Climatic Battle of World War II*. New York, NY: Simon & Schuster, 1994.

Army Air Forces Historical Offices. *The Early Operations of the Eighth Air Force and the Origins of The Combined Bomber Offensive (AAFRH-18)*. U.S. Air Force Historical Study. Headquarters, Army Air Forces, October 1946.

Baldoli, Claudia, and Andrew Knapp. *Forgotten Blitzes: France and Italy under Allied Air Attacks 1940-1945*. London: Continuum International Publishing Group, 2012.

Baldoli, Claudia, Andrew Knapp, and Richard Over, eds. *Bombing States and Peoples in Western Europe 1940-1945*. London: Continuum International Publishing Group, 2011.

Barber, Noel. *The Week France Fell*. New York: Stein and Day Publishers, 1976.

Beevor, Antony. *D-Day, The Battle for Normandy*. New York, NY: Penguin Books, 2009.

Biddle, Tami Davis. "Bombing by the Square Yard: Sir Arthur Harris at War, 1942-1945." *The International History Review* 21, no. 3 (September 1999): 626–664.

Bourque, Stephen Alan. *Beyond the Beach*. Annapolis, MD: Naval Institute Press, 2018.

Brereton, Lewis. "Ninth Air Force Invasion Activities, April Thru June 1944." Ninth Air Force, February 17, 1945.

British Bombing Survey Unit. "The Strategic Air War Against Germany 1939-1945." British Bombing Survey Unit, July 1949.

Buckley, John. *Monty's Men: The British Army and the Liberation of Europe*. New Haven: Yale University Press, 2013.

———, ed. *The Normandy Campaign 1944 Sixty Years On*. Abingon, Oxon: Routledge, 2006.

Caddick-Adams, Peter. *Sand and Steel, The D-Day Invasion and the Liberation of France*. Oxford, UK: Oxford University Press, 2019.

Cappelluti, Frank. "The Life and Thought of Giulio Douhet." Rutgers University, 1967.

Carell, Paul. *Invasion! They're Coming!* Translated by David Johnston. Atglen, PA: Schiffer Publishing Ltd., 1995.

Chandler, Alfred, and Stephen Ambrose, eds. *The Papers of Dwight David Eisenhower*. Vol. I, *The War Years*. John Hopkins Press, 1970.

———, eds. *The Papers of Dwight David Eisenhower*. Vol. III, *The War Years*. John Hopkins Press, 1970.

———, eds. *The Papers of Dwight David Eisenhower*. Vol. IV, *The War Years.* John Hopkins Press, 1970.

———, eds. *The Papers of Dwight David Eisenhower*. Vol. V, *The War Years*. John Hopkins Press, 1970.

Charlton, L.E.O. *War from The Air*. London: Thomas Nelson and Sons, 1935.

Churchill, Winston. *Closing the Ring*. The Second World War. Cambridge, MA: The Riverside Press, 1951.

———. *Triumph and Tragedy*. The Second World War. Cambridge, MA: The Riverside Press, 1953.

Citino, Robert. *The Wehrmacht's Last Stand, The German Campaigns of 1944-1945*. Lawrence: University Press of Kansas, 2017.

Clout, Hugh. "Destruction and Revival: The Example of Calvados and Caen, 1940-1965." *Landscape Research* 24, no. 2 (July 1999): 117–139.

Collingham, Lizzie. *The Taste of War, World War II and the Battle for Food*. New York, NY: The Penguin Press, 2012.

Copp, Terry. *Fields of Fire, The Canadians in Normandy*. Toronto: University of Toronto Press, 2003.

Crane, Conrad. *Bombs, Cities, and Civilians - American Airpower Strategy in World War II*. Lawrence: University Press of Kansas, 1993.

Craven, Wesley F., and James L. Cate, eds. *Europe: Argument to V-E Day, January 1944 to May 1945*. Vol. Three, *The Army Air Forces in World War II*. Chicago: University of Chicago Press, 1951.

———. *Plans and Early Operations January 1939 to August 1942*. Vol. One, *The Army Air Forces in World War II*. Chicago: University of Chicago Press, 1951.

———. *Europe: Torch to Pointblank, August 1942 to December 1943*. Vol. Two, *The Army Air Forces in World War II*. Chicago: University of Chicago Press, 1949.

Dahlstrom, Michael P. "The Role of Airpower in the Overlord Invasion, An Effects-Based Operation." Air University, 2007.

Darlow, Stephen. *D-Day Bombers: The Veterans' Story*. London: Grub Street, 2004.

Davies, Arthur. "Geographical Factos in the Invasion and Battle of Normandy." *Geographical Review* 36, no. 4 (October 1946): 613–631.

Davies, Norman. *No Simple Victory, World War II in Europe 1939-1945*. New York, NY: Penguin Group, 2006.

Davis, Richard G. *Bombing the European Axis Powers, A Historical Digest of the Combined Bomber Offensive 1939-1945*. Alabama: Air University Press, 2006.

———. *Carl A. Spaatz and the Air War in Europe*. Washington, DC: Center for Air Force History, n.d.

Dodd, Lindsey. "'Relieving Sorrow and Misfortune'? State, Charity, Ideology and Aid in Bombed-Out France, 1940-1944." In *Bombing, States and Peoples in Western Europe 1940-1945*, 75–98. London: Continuum International Publishing Group, 2011.

Dodd, Lindsey, and Andrew Knapp. "How Many Frenchmen Did You Kill? British Bombing Policy Towards France (1940-1945)." *French Historical Studies* 22, no. 4 (2008).

Doolittle, James H. "Jimmy," and Carol Glines. *I Could Never Be So Lucky Again*. New York: Bantam Books, 1991.

Douhet, Giulio. "Command of the Air." In *Roots of Strategy*, Book 4, 263–408. Mechanicsburg, PA: Stackpole Books, 1999.

Dumons, Maurice. "Aspects de l'économie d'une région française: La Basse-Normandie." *La Revue adminsitrative* 10, no. 56 (March 1957): 201–204.

Eckhertz, Holger. *D Day Through German Eyes*. Germany: DTZ History Publications, 2016.

Eisenhower, Dwight. *Crusade in Europe*. New York, NY: Da Capo Press, 1977.

Fabyanic, Thomas A. "A Critique of United Sates Air War Planning 1941-1944." 1973.

Fahrenwald, Ted. *Bailout Over Normandy*. Havertown, PA: Casemate Publishers, 2012.

Falconer, Jonathan. *Bomber Command Handbook, 1939-1945*. London: Sutton Publishing Limited, 1998.

Fennel, Jonathan. *Fighting the People's War, The British and Commonwealth Armies in the Second World War*. United Kingdom: Cambridge University Press, 2019.

Finney, Robert T. *History of the Air Corps Tactical School*. Washington, DC: Military Studies Press, 1992.

Footitt, Hilary, and John Simmonds. *France 1943-1945*. New York, NY: Holmes & Meier, 1988.

Ford, Ken. *Caen 1944, Montgomery's Break-out Attempt*. Campaign 143. Oxford, United Kingdom: Osprey Publishing, 2004.

Foshee, Ralph G. "Under the Influence: What Factors Shaped the Character of America's Strategic Bombing Campaign in World War II?" Monograph, School of Advanced Military Studies, 2019.

Freeman, Roger A. *The Mighty Eighth War Diary*. London: Jane's Publishing Company, 1981.

———. *The Mighty Eighth War Manual*. London: Jane's Publishing Company, 1987.

Funk, Arthur Layton. "Caught in the Middle: The French Population in Normandy." In *D-Day 1944*, edited by Theodore A. Wilson, 238–258. Lawrence: University of Kansas Press, 1994.

Futrell, Robert F. *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907-1964*. Montgomery, AL: Air University, 1971.

Gavin, Catherine. *Liberated France*. New York: St. Martin's Press, 1955.

Gildea, Robert, Olivier Wieviorka, and Anette Warring, eds. *Surviving Hitler and Mussolini, Daily Life in Occupied Europe*. Oxford, UK: Berg, 2006.

Glick, Reuven, and Alan Taylor. "Collateral Damage: Trade Disruption and the Economic Impact of War." *The Review of Economics and Statistics* 92, no. 1 (February 2010): 102–127.

Graves, Donald E. *Blood and Steel, The Wehrmacht Archive: Normandy 1944*. London: Frontline Books, 2013.

Gray, Peter. "Caen - The Martyred City." In *The Normandy Campaign 1944: Sixty Years On*, 158–169. Abilene, KS: Routledge, 2006.

Greenfield, Kent. *American Strategy in World War II*. Baltimore: John Hopkins Press, 1963.

Greer, Thomas H. *The Development of Air Doctrine in the Army Air Arm, 1917-1941*. Montgomery, AL: DIANE Publishing, 1955.

Groves, P.R.C. *Our Future in the Air: A Survey of the Vital Question on British Air Power.* London: Hutchinson and Co., 1922.

Hanks, Tom. *Band of Brothers*, 2001.

Harrison, Gordon. *The European Theater of Operations: Cross-Channel Attack*. United States Army in World War II. Washington, DC: Center for Military History, n.d.

Harvey, Maurice. *The Allied Bomber War 1939-1945*. Kent, UK: Spellmount Ltd, 1992.

Hastings, Max. *Bomber Command*. London: The Dial Press, 1979.

———. *OVERLORD, D-Day & The Battle for Normandy*. New York, NY: Simon & Schuster, 1984.

Headquarters Department of the Army. Field Manual 3–0, *Operations*. Washington, DC: Government Publishing Office, 2017.

———. Army Techniques Publication 3-06, *Urban Operations*. Washington, DC: Government Publishing Office, 2017.

Heinrichs, Waldo. "A History of the VIII U.S.A.A.F. Fighter Command." 66th Fighter Wing, July 24, 1944.

Hitchcock, William I. *The Bitter Road to Freedom, The Human Cost of the Allied Victory in World War II Europe*. New York, NY: Simon & Schuster, 2008.

———. "The Price of Liberation." *MHQ: The Quarterly Journal of Military History* 21, no. 3 (2009): 20–29.

Hoffmann, Stanley. "The Effects of World War II on French Society and Politics." *French Historical Studies* 2, no. 1 (1961): 28–63.

Holland, James. *Normandy '44, D-Day and the Epic 77-Day Battle for France*. Great Britain: Bantam Press, 2019.

Homer Haskins, Charles. *The Normans in European History*. Boston: Houghton Mifflin Company, 1915.

International Committee of the Red Cross. "Convention (IV) Relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949." Accessed May 5, 2020. https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/Treaty.xsp?documentId=AE2D398352C5B028C12563CD002D6B5C&action=openDocument.

Jackson, Julian. *France, The Dark Years*. Oxford, UK: Oxford University Press, 2001.

Joint Chiefs of Staff. Joint Publication 3-09.3, *Close Air Support*. Washington, DC: Government Publishing Office, 2014.

———. Joint Publication 3–60, *Joint Targeting*. Washington, DC: Government Publishing Office, 2018.

Kesternich, Iris, Bettina Siflinger, James Smith, and Joachim Winter. "The Effects of World War II on Economic and Health Outcomes Across Europe." *The Review of Economics and Statistics* 96, no. 1 (March 2014): 103–118.

Kitson, Simon. "Criminals or Liberators? French Public Opinion and the Allied Bombing of France, 1940-1945." In *Bombing, States, and Peoples in Western Europe 1940-1945*, 279–297. London: Continuum International Publishing Group, 2011.

Konvitz, Josef. "Bombs, Cities, and Submarines: Allied Bombing of the French Posts 1942-1943." *The International History Review* 14, no. 1 (February 1992): 23–44.

Kyte, George. "War Damage and Problems of Reconstruction in France, 1940-1945." *Pacific Historical Review* 14, no. 4 (1946): 417–426.

Lazarou, Elena, and Philippe Perchoc. "Mapping Threats to Peace and Democracy Worldwide, Introduction to the Normandy Index." Edited by Étienne Bassot and Monika Nogaj. European Parliamentary Research Service, May 2019.

Le Mémorial De Caen. "Caen-Normandie Mémorial." Accessed February 17, 2020. https://normandy.memorial-caen.com/.

———. "Falaise Memorial Civilians at War." Falaise Memorial Civilians at War. Accessed February 17, 2020. https://www.memorial-falaise.com/.

MacIssac, David. "Voices from the Central Blue: The Air Power Theorists." In *Makers of Modern Strategy*, 624–647. Princeton, NJ: Princeton University Press, 1986.

Matloff, Maurice. "Allied Strategy in Europe, 1939-1945." In *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, 677–702. Princeton, NJ: Princeton University Press, 1986.

———. *Strategic Planning for Coalition Warfare 1943-1944*. United States Army in World War II. Washington, DC: Center of Military History, 1994.

Maule, Henry. *Caen, The Brutal Battle and Breakout from Normandy*. Great Britain: David and Charles Publishers, 1976.

Messenger, Charles. *"Bomber" Harris and the Strategic Bombing Offensive, 1939-1945*. London: Arms and Armour Press, 1984.

Mets, David. *Master of Airpower, General Carl A. Spaatz*. Navato, CA: Presidio Press, 1988.

Middlebrook, Martin, and Chris Everitt. *The Bomber Command War Diaries*. New York, NY: Viking Books, 1985.

Military Analysis Division. *The United States Strategic Bombing Survey (European War)*. Washington, DC: Government Printing Office, 1945.

Mitchell, William. "Winged Defense." In *Roots of Strategy*, Book 4,409–516. Mechanicsburg, PA: Stackpole Books, 1999.

Montgomery, Bernard. "High Command in War." 21 Army Group, June 1945.

———. *The Memoirs of Field-Marshall the Viscount Montgomery of Alamein, K.G.* Cleveland, OH: The World Publishing Company, 1958.

Montgomery, Bernard, and Trafford Leigh-Mallory. "Use of Heavy Bombers in a Tactical Role." SHAEF, March 12, 1945.

Morgan, Frederick E. "COSSAC Directive (43) 32." Center for Military History, July 7, 1943. France 228.01. Historical Reference Collection.

———. "Operation 'OVERLORD' Appendices to COSSAC (43) 28." SHAEF, n.d.

Murray, Scott. *Aerial-Precision Development Past, Present, and Future*. Montgomery AFB, AL: Air University, 2007.

Murray, Williamson. "Strategic Bombing. The British, American and German Experiences." In *Military Innovation in the Interwar Period*, 96–143. New York, NY: Cambridge University Press, 1996.

Murray, Williamson, and Allan R. Millett. *Military Innovation in the Interwar Period*. New York, NY: Cambridge University Press, 1996.

Office of the Assistant Chief of Air Staff, Intelligence. "Strategic Bombing of Axis Europe, January 1943-September 1944, Bomb Damage to Axis Target Systems." Analysis Division, European Branch, December 1, 1944.

Office of the Chief of the Army Air Forces. "AWPD/1 Munitions Requirements of the Army Air Forces." War Department, August 12, 1941. Air Force Historical Research Center.

Office of the Secretary, General Staff, Historical Sub-Section. "History of COSSAC (Chief of Staff to Supreme Allied Commander) 1943-1944." Supreme Headquarters, Allied Expeditionary Force, May 1944. Accessed May 9, 2020. http://www.history.army.mil/documents/cossac/Cossac.htm.

Operations Research Section. “Analysis of VIII Bomber Command Operations from the Point of View of Bombing Accuracy. 1st January 1943- 15th October 1943.” Headquarters VIII Bomber Command, November 1, 1943.

Overy, Richard. *The Air War 1939-1945*. New York: Stein and Day Publishers, 1980.

———. *The Bombers and the Bombed, Allied Air War Over Europe, 1940-1945*. New York, NY: Penguin Books, 2013.

———. *The Bombing War*. London: Penguin Books, n.d.

———. *Why the Allies Won*. New York, NY: W.W. Norton & Company, Inc., 1995.

Paridon, Seth. “The Eighth Air Force vs. The Luftwaffe.” The National WWII Museum | New Orleans. Accessed September 12, 2019. https://www.nationalww2museum.org/war/articles/eighth-air-force-vs-luftwaffe.

Parker, R.A.C. *Struggle for Survival, The History of the Second World War*. Oxford, UK: Oxford University Press, 1989.

Pogue, Forrest C. *The European Theater of Operations: The Supreme Command*. United States Army in World War II. Washington, DC: Center of Military History, 1954.

Région Normandie. “Normandie Pour La Paix.” Normandie Pour La Paix. Last modified February 17, 2020. https://normandiepourlapaix.fr/en.

———. “Normandy World Peace Forum.” Normandie Tourisme. Accessed February 17, 2020. http://en.normandie-tourisme.fr/calendar-of-events/june/the-normandy-world-peace-forum-943-2.html.

Richards, Denis. “R.A.F Narrative, The Liberation of North West Europe, Volume I, The Planning and Preparation of the Allied Expeditionary Air Force For the Landings in Normandy.” Air Historical Branch, 1946.

———. “R.A.F Narrative, The Liberation of North West Europe, Volume II, The Administrative Preperations.” Air Historical Branch, 1946.

———. “R.A.F Narrative, The Liberation of North West Europe, Volume III, The Landings in Normandy.” Air Historical Branch, 1945.

Richards, Dennis. *The Hardest Victory, RAF Bomber Command in the Second World War*. New York, NY: W.W. Norton & Company, Inc., 1994.

Roberts, Mary Louise. *D-Day Through French Eyes: Normandy 1944*. Chicago: The University of Chicago Press, 2014.

Robinson, Debbie. "The Bombing of France 1939-1945." Bombing, States and Peoples in Western Europe 1940-1945. Accessed September 29, 2019. https://humanities.exeter.ac.uk/history/research/centres/warstateandsociety/projects/bombing/france/.

Ryan, Cornelius. *The Longest Day, The Classic Epic of D-Day*. New York, NY: Simon & Schuster, 1959.

Saunders, Tim. *Juno Beach, 3rd Canadian & 79th Armoured Divisions*. Montreal: McGill-Queen's University Press, 2004.

Scaparrotti, Curtis M. "No-Strike and the Collateral Damage Estimation Methodology." Joint Chiefs of Staff, October 12, 2012.

Severloh, Hein. *Wn62: A German Soldiers Memorie of the Defense of Omaha Beach, Normandy, June 6, 1944.* Germany: HEK Creativ Verlag, 2011.

Smith, Malcolm. *British Air Strategy Between the Wars*. London: Clarendon Press, 1979.

Smith, W. B. "SHAEF Directive (44) 22, Operation 'Overlord.'" SHAEF, March 10, 1944.

Spielberg, Steven. *Saving Private Ryan*, 1998.

Stacey, C. P. *The Victory Campaign, The Operations in Northwestern Europe 1944-1945*. Vol. III, *Official History of the Canadian Army in the Second World War*. Ottawa: The Queens Printer and Controller of Stationery, 1960.

Stormont, Captain John. *The Combined Bomber Offensive, April through December 1943*. U.S. Air Force Historical Study, March 1946.

Strachan, Hew. "Essay and Reflection: On Total War and Modern War." *The International History Review* 22, no. 2 (2000): 341–370.

Sunderman, James F., ed. *World War II In the Air, Europe*. New York: Bramhall House, 1963.

Symods, Craig. *Operation Neptune, The D-Day Landings and the Allied Invasion of Europe*. Oxford, UK: Oxford University Press, 2014.

Taylor, Alan. "World War II: Daring Raids and Brutal Reprisals - The Atlantic." Accessed September 11, 2019. https://www.theatlantic.com/photo/2011/08/world-war-ii-daring-raids-and-brutal-reprisals/100127/.

Tedder, Arthur. *Air Power in War*. Westport, CT: Greenwood Press, Inc., 1975.

———. *With Prejudice, The War Memoirs of Marshal of the Royal Air Force, Lord Tedder. G.C.B.* Boston, MA: Little, Brown and Company, 1966.

Todd, Walter. "Eighth Air Force Tactical Operations in Support of Allied Landings in Normandy, 2 June-17 June 1944." Headquarters Eighth Air Force, November 6, 1944.

Trew, Simon. *Battle For Caen*. Battle Zone Normandy 11. Phoenix Mill: Sutton Publishing Limited, 2004.

———. *Operation Epsom*. Battle Zone Normandy 9. Phoenix Mill: Sutton Publishing Limited, 2004.

USAF Historical Division. "Tactical Operations of the Eighth Air Force 6 June 1944 - 8 May 1945." Air University, 1952.

———. "The Development of the Heavy Bomber 1918-1944." Air University, 1951.

———. "The Employment of Strategic Bombers in a Tactical Role 1941-1951." Research Studies Institute, Air University, April 1954.

"U.S. Air Force: Roles, Functions, Capabilities, Limitations" Presented at the C309, Command and General Staff College, September 10, 2019.

U.S. Army Center of Military History. "Normandy." Last modified March 21, 2020. https://history.army.mil/brochures/normandy/nor-pam.htm.

Verrier, Anthony. *The Bomber Offensive*. London: B.T. Batsford Ltd., 1968.

Vinen, Richard. *The Unfree French Life Under the Occupation*. London: Penguin Books, 2006.

Voldman, Danièle. "La Destruction de Caen En 1944." *Vingtième Siècle. Revue d'historie*, no. 39 (September 1993): 10–22.

Wakelam, Randall T. *The Science of Bombing, Operational Research in RAF Bomber Command*. Toronto: University of Toronto Press, 2009.

Warren, John C. *Airborne Operations in the World War II, European Theater*. U.S. Air Force Historical Study. Montgomery AFB, AL: Air University, September 1956.

Webster, Charles, and Noble Frankland. *The Strategic Air Offensive Against Germany, 1939-1945*. Vol. 1, *Preparation*. London: Naval and Military Press, 1961.

Wieviorka, Olivier. *Divided Memory, French Recollections of World War II from the Liberation to the Present*. Stanford, CA: Stanford University Press, 2012.

———. *Normandy, The Landings to the Liberation of Paris*. Translated by M. B. DeBevoise. Cambridge, MA: The Belknap Press of Harvard University Press, 2008.

Wilson, Theodore A. *D-Day 1944*. Lawrence: University Press of Kansas, 1971.

Wilt, Alan. "The Air Campaign." In *D-Day 1944*, edited by Theodore A. Wilson, 134–154. Lawrence: University Press of Kansas, 1994.

———. "The Significance of the Casablanca Decisions." *The Journal of Military History* 55, no. 4 (October 1991): 517–529.

Winter, Jay. "From War Talk to Rights Talk Exile Politics, Aerial Bombardment and the Construction of the Human Rights Project during the Second World War." In *Bombing, States and Peoples in Western Europe 1940-1945*, 317–332. London: Continuum International Publishing Group, n.d.