

**Missed Opportunities: First Canadian Army and the Air Plan
for Operation Totalize, 7-10 August 1944**

by

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the requirements for the degree of Master of Arts**

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Abstract

First Canadian Army's fighting fitness in the Battle of Normandy has long been a point of debate among military historians. Because Operation Totalize, 7-10 August 1944, did not result in the early conclusion of the campaign, some suggest that the Canadians could have fought more effectively. The operation was, however, characteristic of earlier battles in Normandy which necessitated the expenditure of tremendous fire-power to overcome strong German defences.

Tactical bombing by strategic air forces was an experiment with no pre-war doctrinal precedent, but one to which Allied commanders turned in hopes of expediting success. Heavy air support was a crucial component in the plan for Totalize, but it has received insufficient attention in other histories. A focus on the role of air power in Totalize suggests that previous explanations for the operation's failure are in need of revision.

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Finally, I want to thank my Dad, for teaching me the value of an education. His influence was directly responsible for my decision to follow the path of scholarship in the first place.

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Note on Style

Military nomenclature can be rather confusing, as there does not seem to be a set of universal conventions. In this thesis, certain patterns will be apparent which are modelled after the usage in selected works of military history. Definite articles (*i.e.* 'the') have usually been omitted when discussing formations from brigade-level and up, while they have been retained for battalions and regiments. Names of armies and air forces have been spelled out, (*e.g.* First Canadian Army) but numerals are used for army groups and formations from corps-level down (*e.g.* 2nd Canadian Division).

Whenever possible, German titles and ranks have been retained rather than substituting the English versions, although rough translations of foreign terms are given. In a few instances, specific terminology requires definition. In these cases, explanations will be provided in a footnote at the first occurrence of the term. Certain other terms are employed in the sense that was common in the contemporary armed forces (*e.g.* 'appreciate' and 'exploit'), rather than in their somewhat different modern usages.

**This work is dedicated in memory of Jack and Nan, and to my Mom.
I hope it will provide some answers that are long overdue.**

Introduction

When First Canadian Army found itself confronted by a brick wall of German resistance south of Caen during the latter half of the Battle of Normandy, it faced a strong defence in depth which stubbornly refused to allow the breakthrough to Falaise that would signal the ultimate German defeat in France. With its defensive forces dug in and well-camouflaged on higher ground that permitted greater visibility, the German army was frequently able to hold off vastly greater numbers of attacking Canadian, British, and Polish divisions fighting under the command of General Bernard L. Montgomery's 21st Army Group. Despite the Allies' overwhelming advantage in quantity of men and materiel, First Canadian Army became locked into a war of attrition, searching for a way to punch through gun lines featuring strong anti-tank weapons that were extremely effective in slowing movement on the eastern flank of the Normandy bridgehead to a grinding pace.

It was to Lieutenant-General Guy Simonds, in command of 2nd Canadian Corps, that the responsibility fell to find a way to overcome the defenders and advance up the Caen-Falaise road in early August 1944. Simonds' answer was to use the devastating airborne fire-power that heavy bombers could provide to compensate for tactical problems he faced on the ground. In a plan that was at once complex and innovative but also showed the influence of

previous operations and British tactical doctrine, Operation Totalize (7-10 August 1944) called for an attack in two phases. First, a night attack would break through the Germans' forward defensive positions after heavy bomber strikes on the flanks of 2nd Corps' axis of advance.¹ In Phase II the next day, a second defensive position was to be assaulted by two fresh armoured divisions, again supported by heavy bomber strikes. The armoured divisions would then break out into the Germans' rear area and drive on to the town of Falaise.

Operation Totalize (final plan)

Phase I: Beginning at 2330 hours 7 August 1944, 2nd Canadian and 51st Highland Infantry Divisions, with under command, respectively, 2nd Canadian and 33rd British Armoured Brigades, attack south of Caen astride the road to Falaise, preceded by heavy bomber strikes on flank targets including the towns of May-sur-Orne, Fontenay-le-Marmion, La Hogue, and Secqueville-la-Campagne. The assault is to breach a forward German defensive line and capture positions in rear which will provide a base for continued attack in Phase II.

Phase II: Beginning at 1300 hours 8 August 1944, 4th Canadian and 1st Polish Armoured Divisions attack from the positions secured in Phase I, to breach a secondary German line extending from Bretteville-sur-Laize to St. Sylvain, again preceded by heavy bomber strikes. The final objective of 2nd Canadian Corps is the town of Falaise.

In the event, 2nd Corps was unable to exploit a momentary breakthrough and instead ground to a halt little more than half-way to Falaise. An opportunity to expedite the successful conclusion of the Battle of Normandy was missed, and historians have therefore judged Totalize to have been a failure. Too many questions have been left unanswered by

¹The axis of advance was the centre line about which the corps arrayed its divisions during its attack. The term can also apply to smaller formations and units, such as brigades or battalions.

previous histories, however. A re-evaluation of the operation from the planning stages through to its conclusion is thus essential if a number of myths surrounding it are to be replaced with rational explanations.

This mythology has arisen because discussion of the reasons why 2nd Corps failed to take Falaise has been rather cursory. Perhaps the chief cause of the lack of serious and extensive study of Totalize has been the inclusion of most accounts within works having a larger focus. For example, C.P. Stacey's *The Victory Campaign*, the starting point for virtually every analysis of Totalize, cannot afford to devote exhaustive attention to one operation in an official history that covers the entire campaign in Northwest Europe. John A. English's *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* offers Totalize as an example of the inefficiency and ineffectiveness of First Canadian Army, but again only spares one chapter.²

Explanations for 2nd Canadian Corps' failure to achieve its ambitious objectives in Operation Totalize are inextricably tied to a wider debate about the Battle of Normandy as a whole. General arguments concerning the campaign have been advanced to the effect that the Canadians were badly trained and poorly led. The British have been similarly judged. Montgomery has often been criticized for his inability to take full advantage of initial successes in operations going back to the Eighth Army's campaign in North Africa. Other arguments extol the tactical brilliance of a German Army that fought superbly in defence, even

²C.P. Stacey, *Official History of the Canadian Army in the Second World War Volume III, The Victory Campaign: The Operations in North-West Europe 1944-1945* (Ottawa, 1960); John A. English, *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* (New York, 1991).

though its eventual defeat was assured because the Allies could throw an overwhelming weight of resources into the *Materialschlacht*, the battle of materiel. This theory of a bumbling British-Canadian Army Group defeating a more efficient, more dynamic, better-trained, and better-led (at the *tactical* level, not the strategic level) German Army only through “brute force” has almost become the conventional wisdom on the Normandy campaign.³

While this judgment is based on strong elements of fact, a few historians have objected to it as being too simplistic on a number of grounds. Some have contended that not only did the Canadians take on and destroy the best that the Germans had to offer—the S.S. Panzer Divisions—but that the Battle of Normandy was won more quickly than even Montgomery had predicted before D-Day. Terry Copp, meanwhile, has argued that almost all offensive operations in Normandy, not just those of First Canadian Army, were costly affairs that fell short of their objectives.⁴ The nature of the terrain and the strength of defences made the campaign one of attrition, in which technology had become the true master of the battlefield. As tanks were to figure so prominently in offensive plans, the greatly improved hitting power of anti-tank guns made prepared positions extremely difficult to crack. The task was made all the more difficult because the Allies’ main battle tank, the M4 Sherman, was inadequately armoured to stand up to either the long 75-mm *Kampfwagenkanone* (KwK) mounted on the Mark V Panther tanks, or the notorious 88-mm which was deployed as a stationary anti-tank gun as well as in the Mark VI Tigers and in self-propelled *Jagdpanzers* (‘tank hunters’).

³John Ellis, qtd. in Marc Milner, “Reflections on Caen, Bocage and the Gap: A Naval Historian’s Critique of the Normandy Campaign,” *Canadian Military History* 7:2 (Spring 1998), p. 7.

⁴Terry Copp, paper on Operation Tractable presented at the 9th Laurier Military History Colloquium, Laurier Centre for Military Strategic and Disarmament Studies, Wilfrid Laurier University, 1-2 May 1998.

Against these formidable weapons, the only way for the thin-skinned Sherman to survive on the battlefield was to avoid being targeted.⁵ This technological deficiency, in part, forced the Allied commanders to the realization that they had to adopt unorthodox assault tactics if they were to drive the Germans out of Normandy.

Tactical doctrine for an assault in the era of armour and air power had been a topic of debate within the British and Canadian Armies (as well as the American) and their journals during the interwar period. The most important arguments concerned the respective roles of the two new arms in relation to infantry. Progressive officers like British Major-General J.F.C. Fuller saw tanks not just as infantry-support weapons, but as a means to institute mobile warfare by using speed to paralyse enemy defences, thus avoiding the static positional warfare of the trenches that characterized the Great War. Differences of opinion were perhaps sharpest in regard to the 'proper' employment of air power, whether this was to be for close tactical support of troops on the battlefield, or as a method of striking the enemy's homeland through strategic bombing. The lack of a proven and accepted body of knowledge governing the interaction of the various arms on the battlefield meant that the armed forces of the Allied nations would have to undergo a learning process even as they battled a highly professional German military machine that had a head-start in thinking about the answers to such questions, spurred as it was by the bitterness of defeat in 1918 and having tested new doctrine during the Spanish Civil War.

During the Second World War, the two applications of air power would in fact be combined. A process of improvisation and experimentation began in Italy in early 1944 that

⁵*Ibid.*

led to the use of Allied strategic bomber forces to strike tactical targets. Lacking an offensive doctrine that was adequate to overcome the problems they faced on the ground, commanders like Simonds resorted to heavy bombers in hopes of blasting a hole through forward defences. The Allies refined the method behind this new form of tactical air support throughout the rest of the war, but results were mixed. Sometimes bombers made a valuable contribution to the ground battle, as in Operation Cobra, the American breakout from Normandy that began on 24-25 July 1944. Other times, the 'heavies' arguably did more harm than good, as at Monte Cassino (15 February and again on 15 March 1944) and Caen (7 July 1944). The use of heavy bombers on the battlefield has been compared to the use of a sledgehammer to kill a fly, when a fly swatter would have been much more accurate, flexible, easy to use, and economical in terms of results achieved for effort expended. Ian Gooderson has supported the wartime arguments made by many senior RAF officers that the Tactical Air Force was the weapon designed for close ground support, not the heavy bombers. He concluded, based on operational research findings, that the latter were not altogether effective or suitable as battlefield attack aircraft.⁶

Historians have devoted insufficient attention to the role of air power in Totalize. In explaining why the operation failed, they have instead allowed themselves to become tangled up with the 'novelties' of the operation, such as the use of armoured personnel carriers or the direction-keeping trials and tribulations of the blind night attack that launched the battle. They have also focused on the use of inexperienced divisions by 2nd Canadian Corps. C.P.

⁶Ian Gooderson, "Heavy and Medium Bombers: How Successful Were They in the Tactical Close Air Support Role During World War II?" *Journal of Strategic Studies* 15:3 (1992), pp. 367-399.

Stacey, Chester Wilmot, and George Stanley are among those who have argued that experienced armoured divisions would have been able to make better progress against 12th S.S. Panzer Division on 8 August. English insisted that Simonds, by waiting for the air strike, allowed a six-hour pause that morning which gave the defenders time to recover before Phase II began. There has been much speculation about whether he should have called off the bombers and turned his armour loose, as well as the question of whether he could have if he had wanted to. Some argue that heavy bombers should not have been used, or that they should have been used differently. J.L. Granatstein thought the operational plan was simply too complicated for the 'green' 4th Canadian and Polish Armoured Divisions.⁷ Guy Simonds and 2nd Corps have thus been faulted on the basis of tactics, planning, and even command style.⁸

Relatively little attention has been given to the fact that Phase II was marred when bombers of the Eighth United States Army Air Force (USAAF) dropped their loads short, striking Canadian, British, and Polish positions. The bombing mishap of 8 August 1944 was responsible for the deaths of 65 Allied soldiers and the wounding of 250, all members of 2nd Canadian Corps. There has nevertheless been a marked tendency to overlook and minimize the consequences of this incident, for a number of plausible reasons. One is the admirable

⁷See, for example, Stacey, *The Victory Campaign*; Chester Wilmot, *The Struggle for Europe* (London, 1965); George F.G. Stanley, *In the Face of Danger: The History of the Lake Superior Regiment* (Port Arthur, Ont., 1960); English, *op cit.*; Roman Johann Jarymowycz, "Canadian Armour in Normandy: Operation 'Totalize' and the Quest for Operational Maneuver," *Canadian Military History* 7:2 (Spring 1998), 19-40; J.L. Granatstein, *The Generals: The Canadian Army's Senior Commanders in the Second World War* (Toronto, 1993); among others.

⁸Historians have given too much weight to the opinions of Kurt Meyer, commander of the 12th SS during Totalize, which will be discussed below.

refusal of soldiers to make excuses or to complain (at least in print), preferring instead to quietly do what was needed to carry on. Simonds himself reported at the time that the ability of 2nd Corps to carry out the operation was not greatly affected by the bombing error. G.W.L. Nicholson, in the official history of the Royal Canadian Artillery (RCA), wrote that “[w]ithin a little more than an hour the badly-hit 2nd Canadian and 9th British AGRA’s were ready once again to function with their customary effectiveness.”⁹ As one veteran of the Fort Garry Horse explained, “[t]he bombing mishaps were traumatic and detrimental, but the regiment’s essential discipline and morale enabled the [troops] to surmount the shock and disruption and to ‘get on with it’.”¹⁰

One might feel inclined to simply accept the verdict given here, but for two issues. First, the historiography surrounding Totalize has examined the operation from the mutually-exclusive perspectives of either: (a) what happened on the ground, or (b) what happened in the air. This has been done to an unacceptable extent because, in keeping with the traditions of military historiography, most accounts have been written either for didactic purposes—teaching officers in staff colleges—or as part of regimental histories with narrowly-defined audiences. As a combined operation, Totalize deserves to be analysed as such, with greater equilibrium between air and ground considerations. The second issue directly concerns the failure of 2nd Corps to break through the German secondary positions during the prolonged second phase from 8-10 August. A number of medium artillery regiments (part of the Army Groups Royal Artillery referred to by Nicholson) were hit by the American

⁹G.W.L. Nicholson, *The Gunners of Canada: The History of the Royal Regiment of Canadian Artillery Volume II 1919-1967* (Toronto, 1972), p. 319.

¹⁰Frank Davidson, personal correspondence, 31 October 1998.

bombs in the rear areas, including the 4th Medium Regiment, R.C.A., which was waiting to move up to fire in support of the Polish Armoured Division, which was also hit. Also struck with heavy casualties was the North Shore Regiment, which participated in the abortive assault on Quesnay Wood two days later that effectively brought Totalize to an end. It is possible that the bombing incident was more detrimental than history has recorded.

A closer examination of Operation Totalize is clearly required. In the process of writing their separate accounts, neither army nor air force historians have looked carefully enough at the relationship between ground and air doctrines and the planning process. This is a key failing because the two services had to cooperate closely during the operation, and the inclusion of heavy bombers was a fundamental determinant of the success or failure of Totalize. Instead, historians have minimized the consequences of the short bombing on the ground troops, and neglected to delve deeply into the question of just what exactly the bombing attacks were meant to accomplish. The latter poses a difficult problem, as the evidence is often contradictory and confusing. The expressed intention for the bombing attack in Phase I was to interdict the areas on the flanks of the axis of advance and thus prevent an armoured counter-attack, but it was known by Canadian intelligence that there were few if any German tanks in the front-line positions. Another complicating factor that has not been explored was the tasking of Eighth Air Force to make the second phase attack instead of the Royal Air Force (RAF). Yet another question requiring an answer concerns 'The Pause.' On the basis of Kurt Meyer's testimony six years after the fact, historians have criticized Simonds for allowing the lengthy pause between the end of Phase I on the morning of 8 August and the beginning of Phase II that afternoon. Was the pause necessary,

inevitable, or perhaps even intentional? Conventional wisdom (*à la* Kurt Meyer) says, resoundingly, “No”: the pause could have been obviated if only Simonds’ corps had been less plodding or fought more like the Russians. This judgment, too, deserves scrutiny.

One other issue needs to be addressed. The degree to which the myths surrounding Totalize have been accepted has been largely responsible for historical judgments of Guy Simonds’ generalship. Contrary to what some historians have argued, portrayals of Simonds as a cold, ruthless commander who was “not very good” and “never learned, any more than Montgomery did” are too harsh.¹¹ Plans for the use of heavy bombers to provide close tactical support from the Battle of Normandy until the end of the war show evidence that Simonds did learn from previous mistakes and found a way to bring the maximum amount of fire-power to bear on the battlefield. In this regard, he can be considered the heir of Lieutenant-General Sir Arthur Currie, an earlier, and also rather uncelebrated, Canadian corps commander who found ways to expend ammunition in place of men’s lives.

* * *

Of the second phase bombing mishap, one historian’s assessment is typical: “Though the attack inflicted far greater damage upon the enemy, it was not as effective as expected.”¹²

¹¹Brereton Greenhous, review of *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command*, by John A. English, *Canadian Defence Quarterly* 21:2 (October 1991), p. 50.

¹²English, *op cit.*, p. 278.

This investigation is the result of an attempt to learn how my grandfather died, and it was undertaken because the explanations contained in the history books were inadequate. As one historian said, questions like “What happened on 8 August 1944?” and “Why?” deserve a more rational answer than “Sometimes mistakes happen in war.” In trying to find the answers to these questions, the original intention for this thesis was to tell the story of the Phase II bombing incident primarily from the perspective of the soldiers who experienced it. This approach reflected a desire to learn what it must have been like for the men on the ground during the Normandy campaign as well as the obviously more personal motivation alluded to above. As the research progressed, however, the source material to support this approach proved inadequate. Most of the men who lived through the bombing were far too busy to write down what had happened, and after more than 50 years could not recall specific details. In addition, examination of the questions surrounding the planning of the combined air and ground operation increasingly revealed evidence of experimentation, improvisation, and confusion. In fact, my own confusion tended to increase as the research progressed, and it became even more evident that Totalize had not been sufficiently explored. The result of this process has been to impart a different focus on the work than had been intended, one that leans more toward what could be called ‘Headquarters History.’ This departure, to better address some fundamental questions concerning the planning of Totalize, ultimately (and somewhat ironically) led me to a better understanding of what happened on the day my grandfather was killed.

Soldiers underneath the bombers resorted to humour to try and deal with the horror of being bombed by their own air force: “When the Luftwaffe comes over, the Allies duck;

when the R.A.F. comes over, the Germans duck; but when the Americans come over—everyone ducks!” It is inadequate, however, to assign sole blame for the tragedy to two USAAF squadrons that misidentified their targets. The work that follows will give a long-overdue explanation for the accidental deaths of 65 soldiers in the service of Canada.

Chapter 1: Improvising Doctrine

*Doctrine: “the definition of the aim of military operations; the study of weapons and other resources and the lessons of history, leading to the deductions of the correct strategic and tactical principles on which to base both training and the conduct of war”.*¹

“To begin at the beginning”, William H. McNeill once said in a lecture on technology and war.² To indulge in an oversimplification, the process that resulted in this research began on 8 August 1944, around 1325 hours, when a bomb dropped from an American B-17 Flying Fortress landed in the wrong place and killed a member of the 10th Canadian Armoured Regiment (the Fort Garry Horse). Seven of his regimental comrades were among the many other casualties of the short drop near Caen. In order to learn how Canadian and Polish positions approximately 8 miles behind the front line came to be bombed by a friendly air force, it is necessary to move beyond questions about the event itself. The beginning, in this case, is to be found in the doctrine that influenced the planning and conduct of Operation Totalize.

Understanding the process that led to the employment of heavy bombers in First Canadian Army’s attempt to smash the German defences south of Caen requires more than just looking at the sort of tactics Canadian or British officers thought could defeat the German Army in Normandy. Totalize was a combined operation, of course, and the other party to the

¹Shelford Bidwell and Dominick Graham, *Fire-Power: British Army Weapons and Theories of War 1904-1945* (London, 1982), p. 2.

²William H. McNeill, “Men, Machines, and War,” *Men, Machines, and War*, eds. Ronald Haycock and Keith Neilson (Waterloo, Ont., 1988), p. 3.

occasion, besides the army, was the air force—the air forces of two nations, in fact: Britain's Royal Air Force (RAF), under whose command the Royal Canadian Air Force was committed to battle, and the United States Army Air Forces (USAAF). Complicating the investigation were issues related to the army's attack doctrine, air force doctrine regarding close ground support, and even the differences over air power doctrine between the RAF and USAAF. Before examining the air force perspective on ground support, one should, logically, first consider army assault doctrine.³

For Britain, as an island state, the maintenance of sea power had traditionally been of greater importance than the maintenance of strong land forces. Because a large standing army was not required to guarantee Britain's security, the size of the army was limited and its role was generally one of imperial policing. The intellectual development of the British Army suffered, compared to that of European powers like Germany and France, because of its second-place status behind the Royal Navy. This condition, which retarded the development of doctrine, was evident at the most basic level in the years preceding the Great War. The very purpose for the existence of an army was uncertain. In the event of a general European conflict, what sort of force would Britain contribute? Should the army be built in expectation of playing a primary or secondary role on the Continent? Historically, the economic policies necessary to ensure the continuation of Britain's power at sea limited the scope of the contribution that would be made to any allied effort on land. The size of the force committed to the Western Front in the First World War nevertheless grew, out of strategic necessity,

³For this purpose, the term *army* should be understood to refer to both the British Army and the Canadian Army, as the latter historically depended greatly on the experience of the former and was equally influenced by British ideas.

from about seven to 60 divisions.⁴

The war would teach the British Army many painful tactical lessons.⁵ It was evident to some early in the war that offensively, the British did not understand “the principle of co-operation, and did not grasp how to co-ordinate the different arms. The art of orchestrating the fire of different weapons was not studied”. It was not until the latter half of the war that “the close interaction between fire and manoeuvre” was appreciated as the method by which battles were won.⁶ In place of cooperation was a rivalry between the different arms, often based on nothing more than a consideration of the social class of officers in a particular regiment. These attitudes of exclusiveness persisted in the British forces throughout the inter-war years, and the inter-service rivalries that were their offspring inhibited the assimilation of old lessons. Another costly learning process was therefore required during the Second World War.

Britain was a nation spiritually and economically exhausted in the years following World War I, having committed vast human and material resources to the struggle, and people understandably wanted to forget about war. Collective shock resulting from the trauma of the Great War coloured the international literary mood. A wave of anti-war sentiment was expressed in works such as Erich Maria Remarque’s *All Quiet on the Western Front* (1929) and Charles Yale Harrison’s *Generals Die in Bed* (1930). The general literature of the Great

⁴Bidwell and Graham, *op cit.*, p. 1.

⁵The difference between strategy and tactics can sometimes be a very fine line. Strategy can be simply defined as the management of troops and materiel above the level of the battlefield as part of the wider conduct of a military campaign. Tactics then refers to the management of troops and materiel on the battlefield, in the presence of the enemy, or for immediate objectives.

⁶Bidwell and Graham, *op cit.*, pp. 2-3.

War has promoted a popular view of sheep led to the slaughter by incompetent officers, although such notions have lately been revised by authors like Bill Rawling.⁷ A similar malaise was manifested within the British Army itself. Military history was neglected, and writers tended to dwell “morbidly on the bitter defeats” of 1914 to 1916 instead of focusing on the adaptation and successes of 1917 and 1918.⁸ Official accounts of a number of the major battles did not appear until the late 1930s.⁹ Within this context, analysis of tactical problems was less than dynamic. It was not until 1931 that a committee of senior army officers under Lieutenant-General W.M.St G. Kirke was tasked to study the lessons of the war for the British General Staff, and the question of whether those lessons had been assimilated into the Field Service Regulations. The Kirke Report did not have great impact on an army that preferred tradition to progress. Military thought about the last war therefore stagnated, and no great effort was expended in considering the character of the next war.¹⁰

For the Kirke Committee and other military thinkers who did ponder the tactics of the assault, one problem presented itself as the foremost obstacle. After the success of an initial attack, how was the momentum to be maintained so as to exploit a breach in the defensive line and continue to advance into the enemy’s rear areas and beyond? The German offensive of the spring of 1918, for example, succeeded in routing the British Fifth Army and after

⁷Bill Rawling, *Surviving Trench Warfare: Technology and the Canadian Corps, 1914-1918* (Toronto, 1992).

⁸Bidwell and Graham, *op cit.*, p. 132.

⁹Official histories of the defensive battles during the German offensive of March-June 1918 were published in 1935, 1937, and 1939. That describing the Last Hundred Days appeared in 1947, and Cambrai was not covered until 1948. See Bidwell and Graham, *op cit.*, p. 133. A.F. Duguid’s first volume of Canada’s official history did not appear until 1938.

¹⁰Bidwell and Graham, *op cit.*, pp. 187-188.

making huge gains, the enemy threatened Paris as in 1914. As the Allies fell back and regrouped, however, the offensive stalled. German supply lines became stretched and the exhausted attackers ground to a halt. It was this inability to sustain advances in the face of strong defensive fire-power that made the Great War the grinding, static battle of attrition that it was. Forward-thinking officers like J.F.C. Fuller looked to developing technology as the key to restoring mobility on the battlefield.

Tanks originated during the First World War as infantry support weapons whose main value lie in their ability to overcome two obstacles that had rendered the infantry immobile: machine-gun fire and barbed wire. As early as 1918, Fuller recommended the use of tanks as weapons of mobile warfare in their own right, for deep penetration of the enemy's rear areas in order to paralyse his communications and command networks.¹¹ Fuller published a number of books and articles in the inter-war period that established his reputation as "the leading authority on armoured warfare."¹² His advocacy of tanks was based on his understanding of the nature of war itself. He later explained, in *Armament and History*, that martial superiority depended on two factors. The first was the range of the weapons employed: a weapon with a longer "reach" can be "brought into action first" with obvious advantage. The other factor was movement: "An army superior in activity can always anticipate the motions of a less rapid enemy, and bring more men into action than they can at any given point, though inferior in number." Because of the mobility offered by the internal combustion engine combined with the caterpillar track, Fuller argued that these were the

¹¹J.F.C. Fuller, *Armament and History* (New York, 1945), p. 140.

¹²Bidwell and Graham, *op cit.*, p. 169. Fuller published *Tanks in the Great War* (1920) and *On Future Warfare* (1928), among other works during the inter-war years.

elements around which military organizations should be built: infantry would then be brought to battle in armoured personnel carriers, with guns mounted in armoured, tracked vehicles.¹³

Some Canadian military thinkers also pondered the possible impact of new technologies on the battlefield. In a series of articles published in *Canadian Defence Quarterly* in 1938 and 1939, Canadian Captain Guy Simonds expressed views on assault tactics that relied on the lessons of the Great War even as they anticipated new methods of fire support. The influence of Fuller's ideas is evident in Simonds' search for a way to turn a "break-in" into a "break-through."¹⁴ Foremost in Simonds' mind was the need for cooperation between the various arms of infantry, artillery, and armour that constituted a modern army. Artillery barrages would still be necessary to neutralize enemy infantry and machine-gunners, but the capabilities of the tank made it the weapon of choice to lead the assault. Simonds argued that tanks were more effective than infantry in the attack because anti-infantry weapons, particularly the machine gun, were more effective than anti-tank guns. While the former could fire indirectly on fixed lines, and therefore continue to cover ground regardless of conditions of visibility, the latter needed to see the target and fire an aimed shot. Because tanks were impervious to shell splinters and machine-gun fire, they could "take better advantage of covering fire" than infantry. Tanks, Simonds wrote, should lead the assault "on every occasion when the ground permits of their employment". Infantry were still needed in close cooperation, however, to clear tank obstacles covered by fire, to "mop-up"—that is, clear

¹³Fuller, *Armament*, pp. 7-10.

¹⁴In histories of the Normandy campaign, most writers refer to Operation Cobra as a 'break-through' by the American VII Corps on the forward defensive position, followed by a 'break-out' towards Paris. It is in this sense that the terms will subsequently be used, although Simonds continued with the terms 'break-in' and 'break-through.'

the enemy out of bypassed positions—and to consolidate the areas captured. The relationship was to be mutually-supporting, as infantry “are very vulnerable if exposed to an immediate counter-attack by tanks before they have had time to organize consolidation.” Because it took time to set up a defensive position with towed anti-tank guns, for their protection “infantry must depend upon accompanying friendly tanks which mount an anti-tank gun.”¹⁵

Because of their inherent mobility, tanks could thoroughly disorganize defenders behind the front line, thereby hindering their withdrawal and fostering the conditions necessary for the break-out. In one article that foreshadowed the basis of planning for later operations in Normandy, Simonds speculated that the development of the tank could give it the “range and endurance” to accomplish this task, but that concurrent improvements in anti-tank guns would “make the unsupported tank assault of the future as costly as the unsupported infantry assault of the past.” Commanders and their staffs would again face the question of how to maintain momentum. Simonds’ prescient answer to this potential problem—in January 1939—was air power:

Air bombing may develop to the stage where massed air craft, converging from distant aerodromes, can provide a sustained bombardment of the necessary accuracy and intensity to give covering fire to troops. This would obviate the difficulty of a secret concentration of masses of artillery close to the front of attack.¹⁶

Five and a half years later, Simonds would put this idea to the test.

There was another potential method of providing fire support during the assault, however, that should be explored even though British doctrine precluded it. The self-propelled artillery

¹⁵G.G. Simonds, “The Attack”, *Canadian Defence Quarterly* v. 16 (October 1938-July 1939), pp. 379-390.

¹⁶G.G. Simonds, “What Price Assault Without Support?”, *Canadian Defence Quarterly* v. 16 (October 1938-July 1939), p. 147.

piece (SP), marrying the fire-power of the field gun to the mobility of the tank, first appeared during the Great War and was developed further during the inter-war years. The Germans used their *Sturmgeschütz* ('assault gun') for direct infantry support early in the Second World War, but then realised the value of the mobile gun in an anti-tank role. One might well ask why more tanks were not simply produced, considering that the German tanks were able to mount guns, in the Panthers and Tigers at least, which were more than capable of destroying the best tanks the Allies had by the time of the Normandy campaign. A key factor was the relative expense of the tank as compared to the SP, which, lacking a fully-traversing turret, could be manufactured more cheaply and in larger numbers.

As for the British Army, the SP remained first and foremost a field artillery piece. Royal Artillery doctrine since the First World War was governed by adherence to the principle of concentration of fire-power. Any suggestion of decentralization of control of the guns into 'penny packets' was stubbornly attacked. To use SPs in the manner of the *Sturmgeschütz* would have meant apportioning small numbers of guns to forward units, and depriving the Royal Artillery of its devastating ability to bring large numbers of guns to bear on a single target in a short time. While it was grudgingly conceded later, based upon experience in the North African desert, that SPs belonged "really more to the armoured brigade than to the C[ommander] R[oyal] A[rtilery]" because of their mobility, the Royal Artillery was not happy about the decentralization. This was "an evil which must be accepted".¹⁷ Armoured divisional artillery was subsequently structured to include three regiments of 25-pounder field

¹⁷A.L. Pemberton, *The Development of Artillery Tactics and Equipment* (War Office, 1951), p. 172.

guns, one of which would be self-propelled. British SPs were not to be used to seek and destroy enemy tanks in the American fashion, although 21st Army Group in Normandy did have the M10, which mounted a 3-inch anti-aircraft gun—or a 17-pounder anti-tank gun—on a Sherman tank chassis. The British SP field gun “was not designed for firing on the move [and] was not armed with machine-guns”¹⁸ so it could not defend itself against enemy infantry. It was thought that a “suitable role” would be to engage “tanks that stood off and neutralized our forward localities. . . .” The SPs were therefore never expected to provide direct fire-support to tanks on the leading edge of an assault. They were used as conventional towed pieces, “deployed in indirect fire positions well behind the tanks.”¹⁹ The British Army, in any case, did not assimilate during the inter-war years Fuller’s doctrine of mobility, with its requirement for large numbers of armoured fighting vehicles. The only theatre in which such a force would be employed was Europe, and there was no expectation that a major Continental commitment would be made a second time.

After the declaration of war in September 1939, the British Army did not become engaged in serious fighting until the spring of 1940. Forced onto the defensive in the Battle of France, British assault doctrine—such as it was—did not receive much of a test. As the war dragged on, tactical methods that evolved in the early fighting in North Africa had unfortunate consequences. The open flanks of the desert battles required the British to rely on dispersion of their forces in order to cover more ground, contrary to the principle of concentration.

¹⁸*Ibid.*, p. 181.

¹⁹Bidwell and Graham, *op cit.*, p. 184. *Direct* fire is that which is aimed at a visible target. Gunners providing *indirect* support could not see the target, but had their fire corrected by a Forward Observation Officer (FOO).

Eighth Army was handicapped in its battles with the Afrika Korps because effective assault tactics were sorely lacking, according to one British officer:

Our real weakness was the failure to develop tactics for a concentrated attack employing tanks, artillery and infantry in depth on a narrow front. Time and time again tanks motored or charged at the enemy on a broad front until the leading troops were knocked out by enemy tanks or anti-tank guns: the momentum of the attack immediately failed. Such artillery as was supporting the tanks indulged in some spattering of the enemy . . . after which the tanks motored about or charged again with the same results as before . . . the infantry taking no part, their task being to follow up and occupy the objective after it had been captured by the tanks.²⁰

The ongoing struggle required the British Army to redefine its doctrine. After Montgomery took command of Eighth Army in August 1942, concentration of force again became the rule, and his success in the desert provided evidence of the effectiveness of massed British firepower. The rule would continue to stand after Montgomery returned to England to prepare for the Normandy invasion as Commander-in-Chief (C-in-C) of 21st Army Group.

Some time before that, however, British officers studying the battles that led to their ejection from Europe in 1940 asked hard questions about the performance of the British forces as compared to the Wehrmacht. For example, why could the British Army not have “the same support in the field from their air force as the Germans” received from the Luftwaffe? The effectiveness of the *Stuka* dive-bombers was overrated, according to Richard P. Hallion,²¹ and one artillery brigadier went so far as to ask “what could dive-bombers do in the actual zone of combat that artillery could not?”²² Still, it was recognized that air power

²⁰*Ibid.*, p. 225. Bidwell and Graham quote Lord Michael Carver, who went on to command the 4th British Armoured Brigade in Normandy. He wrote in the early 1950s.

²¹Richard P. Hallion, *Strike from the Sky: The History of Battlefield Air Attack 1911-1945* (Washington, 1989), *passim*.

²²Bidwell and Graham, *op cit.*, p. 199.

could make a devastating contribution to the land battle. Deciding upon its proper employment, however, was to prove an arduous process fraught with disagreement stemming from inter-service rivalry, wider questions of strategy, and eventually much personality conflict.

Sorting out the problems of air doctrine requires, first of all, an understanding of the two subordinate concepts of *tactical* air power and *strategic* air power. Tactical air power was that which provided support to the army on the battlefield by engaging enemy troops, including artillery and tanks as well as infantry concentrations. Also included within the scope of tactical air support was interdiction, or air strikes to deny the enemy the use of ground, equipment, or supplies. The idea of tactical air support was not a new one on the eve of the Second World War. The use of aircraft to support ground forces began during the Great War, and their main functions in this role were reconnaissance, strafing enemy trenches or rear areas with machine-gun fire, dropping small bombs, and the maintenance of air superiority. Providing tactical support was thus the primary focus of air forces at that time, partly because air arms were not independent of the armies to which they were attached.²³ In mid-1918 Britain's RAF was the first independent air force to be established, but the American air service would remain subordinate to the U.S. Army until after the Second World War. The state of technology was another factor, as the nascent stage of development limited the aircraft's strategic potential. Britain and Germany nonetheless made significant strides during the war in developing aircraft with sufficient range and payload to fulfill a strategic role.

²³Hallion, *op cit.*, pp. 40-41.

Strategic air power, which was advocated by airmen like Sir Hugh Trenchard in Britain and the Italian General Giulio Douhet, stressed the use of bombers to strike targets deep within the enemy's homeland, thus hindering his ability to continue to fight and demoralizing the citizenry. RAF officers who favoured the idea of strategic air power over that of tactical support for the army were in the ascendant immediately following the First World War. They argued that "based on the limited precedents of 1917 and 1918, . . . future wars could be settled quickly, cheaply, and relatively painlessly through the 'knock-out blow'—an unstoppable and devastating bomber attack on an enemy's commercial and industrial centres."²⁴ Their belief in the bomber's invincibility led to the conclusion that the exercise of strategic air power promised to be "the most effective and economical method of waging a future war". To Fuller, writing in 1923, it seemed also to be a more humane way to conduct warfare:

If a future war can be won at the cost of two or three thousand of the enemy's men, women and children killed, in the place of over 1,000,000 men and incidentally several thousands of women and children, as was the case in France during the recent war, surely an aerial attack is a more humane method than the existing traditional one?²⁵

Following the same principle of war—concentration of effort—that guided the Royal Artillery, adherents to strategic bombing theory insisted that air resources should be concentrated to carry out strategic attacks. Air forces should not be divided and squandered performing battlefield support duties for the army, which had its own weapons to provide fire support.

²⁴Brereton Greenhous *et al.*, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force Volume III* (Toronto, 1994), p. 166.

²⁵J.F.C. Fuller, *The Reformation of War*, qtd. in Charles Messenger, "The Influence of Technology on Airpower, 1919-45," *Men, Machines, and War*, eds. Ronald Haycock and Keith Neilson (Waterloo, Ont., 1988), p. 98.

Aircraft for reconnaissance were the one allowance.²⁶

A number of limited conflicts during the inter-war period provided testing grounds for nascent air doctrines, the most significant of which was the Spanish Civil War of 1936-1939. Ground attacks, especially strafing and interdiction bombing of enemy transport, proved successful throughout the conflict. Strategic bombing theory was tested when Italian forces fighting with the fascist General Francisco Franco bombarded the city of Barcelona for three days in March 1938. Intensive bombing of the city had been expected to bring about the surrender of the defenders, who had appeared to be on the verge of collapse. Although the attacks damaged much of the city and caused over two thousand casualties, resistance was galvanized and the Republican forces “fought on with renewed enthusiasm.”²⁷ The bombardment thus failed to produce the results predicted by Douhet, although the effect it had on the defenders would prove to be typical of future strategic bombing campaigns.

The lessons that the Spanish Civil War held for the application of tactical air power were studied by the German Luftwaffe, which had also aided Franco’s Nationalists. They were ignored, meanwhile, by the RAF and the United States Army Air Corps, which had not participated in the conflict. Senior airmen in Britain and the US adhered to Douhetian arguments that air power alone could swiftly conquer an enemy nation.²⁸ For all their assertions as to the effectiveness of strategic bombers, the RAF did not undertake any studies on “how strategic bombing was actually to be done” until 1937. Its official history recorded

²⁶Bidwell and Graham, *op cit.*, pp. 185-186.

²⁷James S. Corum, “The Spanish Civil War: Lessons Learned and Not Learned by the Great Powers,” *Journal of Military History* 62:2 (April, 1998), p. 329.

²⁸*Ibid.*, pp. 327-328.

that there was “no clear idea what was operationally possible, what targets could be reached, how far they could be hit, what would happen to them if they were hit, or what were likely to be the casualties incurred.”²⁹

One explanation for the continued promotion of strategic bombing was that such a role offered the RAF a rationale for the maintenance of its status as an independent service. Tactical support would obviously require the air force to work in close cooperation with the army, and might even imply a degree of subordination to the needs of ground forces. Strategic bombing was completely divorced from army considerations at the operational level, and this separation of missions was a basis for claims by US airmen to independence from the army.³⁰

The outbreak of war in 1939 saw the armies and air forces of both Britain and the US “[dining] at separate tables.”³¹ German doctrine, by comparison, dictated that the primary role of the of the air force was tactical. In the early 1930s, the Luftwaffe had seen dive-bombers as strategic weapons that could make precision strikes within enemy territory, but in Spain it had used them to provide close support to ground forces.³² Following the Spanish Civil War, German doctrine continued to emphasize the use of tactical air power to develop the speed of an assault, which would be the key concept of *Blitzkrieg*. The Luftwaffe was to be a complement to the army, rather than a fully-independent service, and as such its

²⁹Qtd. in Bernard Brodie, *War and Politics* (New York, 1973), pp. 457-458.

³⁰Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, 1993), p. 131.

³¹A metaphor applied to the separate arms of the British Army—infantry, cavalry, and artillery—in 1914, but equally applicable to this case. Bidwell and Graham, *op cit.*, p. 3.

³²Hallion, *op cit.*, p. 104.

bombers were “to act as flying field artillery and cover the assault of the cutting-edge of the army—its armoured divisions.”³³ This philosophy, in addition to the experience gained in Spain, gave the Germans a head-start in developing command and control procedures for the tactical application of air power. While they were able to employ these techniques with startling effect in 1939 and 1940, the British and Americans did not even begin to evolve a means for the efficient and responsive operation of tactical air forces until after Adolf Hitler had conquered Europe.

The doctrine which governed the use of British—and to a lesser extent, American—air power on the outbreak of war in fact rejected the German example. Air support was not to be called on to engage targets within range of artillery or other ground weapons. In 1936, future Marshal of the RAF John Slessor stated that “as a general rule . . . aircraft are not normally battle-field weapons”.³⁴ They were “intended primarily for the attack of *rear* areas”. Slessor was, however, one of the air officers more disposed to the idea of army cooperation, and he even went so far as to suggest, while commanding an Army Cooperation Wing in 1936-1937, the use of aircraft to support armour during an assault. His notion of a cab-rank system, in which aircraft hovered above the battlefield until called on for impromptu support, anticipated developments that would not even begin to appear until 1942.³⁵ Slessor was nonetheless in the minority amongst senior British airmen. To those who formulated official doctrine, the “tactical and operational integration” required by air and ground forces working

³³J.F.C. Fuller, *The Conduct of War 1789-1961* (New Brunswick, NJ, 1961), p. 245.

³⁴Qtd. in Hallion, *op cit.*, p. 64.

³⁵*Ibid.*, pp. 64-65.

in close cooperation was “anathema”. With stereotypical conservatism, British airmen insisted, and continued to insist even in 1945, that “strategic bombing was *the* war-winning weapon”.³⁶

The British had chosen a policy of ‘precision’ bombing at the opening of hostilities. The reasons for the move away from the Douhetian prescription for attacks against civilian morale are unclear, but it seems that public opinion held indiscriminate bombing of civilians to be repugnant. There was also wide-spread fear that if the RAF instigated such a bombing campaign, the Luftwaffe would retaliate against British cities. Targets were accordingly limited to those of strictly military value such as German naval units, but this air strategy soon proved ineffective. Daylight bombing at this stage of the war was prohibitively costly in aircraft losses, and by March 1940 Bomber Command had switched to night operations in order to even its chances against German interceptors. Both civilians and the government gradually built up their resistance to an initial squeamishness at dropping bombs “on the German mainland” as they watched the Luftwaffe execute air attacks which caused large numbers of civilian casualties first in Warsaw and then in Rotterdam. Two days after the latter attack, on 15 May 1940, Bomber Command was authorized to hit strategic targets—oil refineries and the railway network—in Germany’s Ruhr valley, but aircrews were ordered to return home without bombing if they could not locate their specific aiming points.³⁷

After the Luftwaffe bombed London on the night of 24/25 August 1940, the desire for revenge superseded other concerns about what was pardonable in wartime. Air Chief

³⁶Greenhous *et al.*, *op cit.*, p. 172.

³⁷David Ian Hall, “‘Black, White and Grey’: Wartime Arguments for and against the Strategic Bomber Offensive,” *Canadian Military History* 7:1 (Winter 1998), pp. 10-11.

Marshal Sir Charles Portal, as Air Officer Commanding-in-Chief (AOC-in-C) of Bomber Command, had pressed for a strategy of attacking the will of the German people to continue the war, and the inability to find and hit precision targets due to navigational and aiming problems related to the lack of visibility had as much to do with his attitude as the theories of Douhet or Trenchard. Portal was promoted Chief of the Air Staff (CAS) in October 1940, and his views were confirmed in August 1941 when the British War Cabinet's Butt Report showed that no more than one aircraft in five bombed within five miles of a specific target.³⁸ The Air Ministry gradually accepted the fact that the RAF "could not prosecute the war successfully with [its] existing technology so long as the self-imposed restrictions designed to limit collateral damage were maintained."³⁹ Entire cities thus replaced precision targets when 'area' bombing became official policy in February 1942. A new directive to Bomber Command was accompanied by the appointment of Air Chief Marshal Sir Arthur Harris as its AOC-in-C. Since Bomber Command could not make precision attacks, it was instructed to attack the major industrial centres, most of which were located in the Ruhr. Singled out for special attention was the town of Essen, which offered targets such as the Krupp armament works.⁴⁰

Harris had come to believe that the only proper employment of Bomber Command was in night-time area bombing, ostensibly to knock out German industry and shake civilian morale but also to kill as many Germans as possible. The policy that governed the use of

³⁸Greenhous *et al.*, *op cit.*, Part Four: "The Bomber War," *passim*.

³⁹Hall, *op cit.*, pp. 11-13.

⁴⁰*Ibid.*



Figure 1: Lancaster bomb bay loaded with 500-lb HE bombs for a raid on the Ruhr, 1944.

Bomber Command throughout the rest of the war thus evolved as much from a desire to retaliate and destroy the civilian population's will to continue to fight as from the inherent inaccuracy of bombing operations. Pre-war theories about the bomber's capability proved fallacious, but strategic bombing was the only way that the Allies could hit back while

Germany remained dominant in Europe. Technological improvements such as Oboe (a radio navigation aid) and H2S (a ground-imaging radar used to improve aiming capabilities) introduced in 1942 and 1943 finally made it possible to find and hit selected targets consistently, even at night and through cloud cover. New four-engine heavy bombers like the Handley-Page Halifax and the Avro Lancaster had also entered service beginning in 1941. With these new tools in hand, 'Bomber' Harris would only be diverted from his preferred course of action reluctantly and infrequently.

American air doctrine generally shared the orientation of the RAF, so that when it came to a choice between strategic or tactical targets the "U.S. Army Air Force bought the RAF's priorities off the peg, as it were, much to the annoyance of the U.S. Army itself."⁴¹ In the US, pre-war technological limitations had determined air doctrine as much as conscious choices about the proper orientation of air forces had affected aircraft development programs in Germany and Britain. American doctrine in the 1930s logically favoured a policy of daylight precision bombing because at that time the means had not yet been devised for striking strategic targets under the cover of darkness. To that end, development programs were geared to produce "highly accurate" heavy bombers. Due to the long distances inherent in missions against the enemy homeland, bombers would have to fly without fighter escort, and would need to either "outrun or outgun" enemy interceptors.⁴² Accordingly, the workhorse of the American strategic bomber force, the B-17 Flying Fortress, was heavily armoured and featured defensive armament in quantity. While serving as a special observer in London in

⁴¹Dominick Graham, "Observations on the Dialectics of British Tactics, 1904-1945," *Men, Machines, and War*, eds. Ronald Haycock and Keith Neilson (Waterloo, Ont., 1988), p. 70.

⁴²Davis, *op cit.*, p. 30.

1940, Carl Spaatz, then a colonel but destined to command the entire American strategic air effort later in the war, studied the conduct of the air war over France and Britain. He concluded that the Luftwaffe, oriented as it was to army cooperation, would not be able “to prevail against the ‘real air power’ developed by the British. German bombers were inadequately armed and lacked capabilities for heavy bombing attacks.”⁴³ In short, although the official responsibility of the Air Corps throughout most of its history to that point was the provision of support to the army, officers like Spaatz agreed with their RAF counterparts’ predilection for strategic bombing.

Official American policy changed in April 1940 when Field Manual 1-5 was promulgated as the doctrinal basis for air training and operations. It gave a new priority to strategic bombing campaigns to “decisively defeat important elements of the enemy armed forces” or to “deprive the enemy of essential war material.”⁴⁴ After the US entered the war in December 1941, its air policy differed from the British in only one major area. While agreeing to undertake a combined strategic bomber offensive at the Casablanca Conference in January 1943, the US rejected area bombing on the grounds of “humanitarian principles”, insisting instead upon a policy of precision daylight bombing of industrial sites vital to the German war effort.⁴⁵

As doctrine encompasses both tactics and the apportioning and development of material

⁴³Robert Frank Futrell, *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907-1964* (Maxwell Air Force Base, Alabama, 1971), p. 53.

⁴⁴Qtd. in Davis, *op cit.*, p. 131.

⁴⁵DeWitt S. Copp, *Forged in Fire: Strategy and Decisions in the Air War Over Europe* (Garden City, NY, 1982), pp. 214; 346.

resources, the mistaken pre-war assumptions about air power that were the source of aircraft development decisions had serious consequences for the Allies. In Britain, as in the US, the faith placed in bombers allowed the air forces to neglect the development of fighter aircraft throughout the 1930s. The Spanish Civil War revealed “the vulnerability of bombers to modern fighters”, but those lessons went largely unheeded.⁴⁶ It was evident by the end of 1940, however, that fighters would have to secure air superiority if bombers and other ground-attack aircraft were going to survive. Because the RAF had not drawn this conclusion in the pre-war period, it was unable to intervene with great force during the battle for France. While tactical support was provided with startling results by the Luftwaffe’s fighter-bombers during the Wehrmacht’s early successes in the fall of 1939 and the spring of 1940, “years of penury and false doctrine . . . had reduced the RAF to a condition of virtual irrelevance. . . . [O]nly fighters in large numbers could have affected the Battle of France, and only fighters (in barely adequate numbers) succeeded in averting defeat in the equally decisive Battle of Britain.”⁴⁷

Insofar as they admitted the need for varied applications of air power, both the British and American air forces subscribed to the notion that specialized aircraft types were required for reconnaissance, pursuit, ground-attack, and strategic bombardment. As the air war progressed, however, it became clear that just as bombers could not survive without the achievement of air superiority, fighters were better able to accomplish these other tasks and still remain in the sky, due to their superior speed and agility. Aircraft such as the

⁴⁶Corum, *op cit.*, pp. 331-332.

⁴⁷John Terraine, Introduction to Charles Carrington, *Soldier at Bomber Command* (London, 1987), p. viii.

Supermarine Spitfire, which was designed as an interceptor, were thus adapted for reconnaissance or ground-attack missions later in the war. The necessity for such versatility went unrecognized by the British and Americans in the first two years of war, but neither was it grasped by the Germans until after the Battle of Britain. Luftwaffe General Karl Drum wrote after the war that although the development of a special close-support force was “one of the most important [concepts] ever evolved by the German *Luftwaffe*”, the effort devoted to dive-bombers and attack aircraft might have been better applied to fighters. The *Stuka* was “not critical for the success of German forces in 1939-40” but more versatile aircraft could have altered the outcome of the Battle of Britain.⁴⁸

The RAF was able to win air superiority in the skies over Great Britain, but the Germans had proven the need for cooperation between ground and air forces if the land war was to be won. The RAF remained reluctant, however, to admit the necessity of even a “minimal degree of . . . army co-operation”. It agreed to the provision of “reconnaissance and artillery-spotting” for the army, but these were “the least of [its] priorities.” RAF intransigence was so great that the senior officer of the Royal Canadian Air Force overseas explained to the British Air Ministry as late as May 1942 that such cooperation “‘still hardly exists’ because of the ‘strong bias of senior Air Force officers’ in favour of strategic bombing.”⁴⁹ Tactical support was slow in developing, despite directives like the one issued from the British Army’s General Headquarters (GHQ) Home Forces in April 1942 that aimed at training the “Army and RAF formations to work together in battle with the fullest knowledge of each other’s

⁴⁸Qtd. in Hallion, *op cit.*, pp. 111-112.

⁴⁹Greenhous *et al.*, *op cit.*, pp. 227-229.

possibilities, limitations and procedures”’. One factor contributing to this problem was the “lack of any weapon-system both powerful and precise enough to be useful on the battlefield that could be carried into combat by fighters or fighter-bombers”, which made closer ground-air integration a dubious proposition. Rocket-projectiles, for example, did not become operational until 1943. Another determinant was the overall shortage of fighters and other types of tactical aircraft, resulting from the doctrinal choices made in favour of bombers during the mid-1930s. Although the need for ground-support aircraft was evident by 1942, it could not be met immediately because the process that began with new designs and culminated with the introduction of a new type into service took about five years.

In March 1942, a storm blew up surrounding the debate in the British House of Commons on that year’s Air Estimates. Sir Archibald Sinclair, the Secretary of State for Air, had “pronounce[d] a panegyric on Army Co-op[eration]” which belied the actual state of affairs. General Sir Alan Brooke, the Chief of the Imperial General Staff, knew better and complained to the Chiefs of Staff Committee about the lack of progress in developing a workable and satisfactory system of air support. The frustration of the army was such that Brooke protested: “If the Air Ministry is unable to ensure that in future the [Army/Air] Requirements have been met, there will be no alternative but for the Army to be given its own Army Air Arm on a basis similar to that of the Fleet Air Arm.” Charles Carrington, the army’s liaison officer at Bomber Command, blamed RAF indifference for the unsatisfactory state of cooperation, as well as the low priority afforded the army in aircraft acquisition. Number 2 Group, for example, “consisted of miscellaneous types that might or might not prove suitable for Army support.” It must be remembered that as late as 1942, Bomber Command faced a

shortage of aircraft. Because strategic bombing was the Air Ministry's chosen policy, it was also the RAF's priority, so the army had to settle for those aircraft which could be spared. Allocation of aircraft for tactical support would not improve until the requirements for strategic bombing were met, and even then there would be a lag because of the time required to set up new production lines. As Carrington reflected, the army's expectations were "at rock bottom. Almost nothing available, nothing in production and very little in prospect."⁵⁰

Beyond the problems of aircraft availability and the perceived indifference of the RAF, until 1942 there did not exist a satisfactory system of communication between ground and air forces. This deficiency was rectified by a system developed by Brigadier Sir John Woodall, the Senior Air Staff Officer (SASO) of Army Co-operation Command, and perfected in North Africa by Eighth Army and the Western Desert Air Force. Woodall's Air Support Signals Unit (ASSU) system agreed with the principles of concentration of force and centralization of command. An Army Air Control Centre, initially to be located at corps headquarters but subsequently established at the army level, would relay requests to the tactical air force (TAF), which would then dispatch the aircraft. The communication network consisted of 'tentacles' with air liaison officers who linked the control centre with forward ground units. Woodall's system reduced the time lag between request and air strike from approximately three hours to under 30 minutes. Further refinements of the ASSU system included the provision of "special tentacles equipped with suitable radio sets for voice communication with

⁵⁰Carrington, *op cit.*, pp. 80-81. For an example of the sort of doctrinal, political, and bureaucratic difficulties that complicate the production of any new weapon system, see R.G. Haycock, "Creating Volcanoes Everywhere: Australia's Owen Gun Story," *Men, Machines, and War*, eds. Ronald Haycock and Keith Neilson (Waterloo, Ont., 1988).

aircraft in flight”, Forward Control Posts using air force pilots at the front line to direct aircraft onto their targets, and later, a contact-tank with a radio link which could communicate with the TAF from the ‘sharp end.’ This system was used throughout the remainder of the war and was “copied almost exactly” by the USAAF.⁵¹ Major-General Elwood R. Quesada’s IX Tactical Air Command was thus able to provide General George S. Patton’s Third U.S. Army with “Armoured Column Cover” during the dash to Paris following the break-out from the Normandy bridgehead in July 1944. Patton’s lead elements had outstripped the range of their artillery support, but Quesada’s force was able to provide air cover from dawn to dusk.⁵²

British experience in the desert had re-confirmed the notion that the air force’s top priority must be to destroy the enemy’s air force and gain air superiority. There could be no other application of air power until that condition was met, whether it be for tactical or strategic purposes. By the time RAF Army Co-operation Command was disbanded on 1 June 1943 in order to create Second Tactical Air Force, the former’s AOC-in-C, Air Chief Marshal Sir Arthur S. Barratt, had articulated an operational doctrine that specified the “basic tenets of aiding ground formations”:

That full air support is an essential requirement in all land operations undertaken against an enemy possessing air power. . . .

That the paramount factor in providing such support must be the attainment and retention of mastery in the air. . . .

That such mastery is attained primarily by the Fighter which by day is superior to all other types of lesser performance and armament. . . .

That, accordingly, all air action must be related to fighter action, and that, therefore, centralised control must be exercised by the Royal Air Force over Fighter Bombers and

⁵¹Bidwell and Graham, *op cit.*, p. 267.

⁵²Hallion, *op cit.*, p. 199.

specialised types for ground attack and reconnaissance.⁵³

By the spring of 1944, the need for close cooperation between the army and air force had finally been conceded. Second TAF had been assigned to provide support for Montgomery's 21st Army Group during Operation Overlord, the cross-Channel invasion of occupied Europe. New aircraft were in service, foremost among them the Hawker Typhoon. The Typhoon had been designed as an interceptor but was adapted to serve as a fighter-bomber, as were the Spitfire and the Hawker Hurricane, the two standouts from the Battle of Britain. Second TAF was composed of 2 Group (light bombers), 83 Composite Group (fighters and light and medium bombers), and 84 Composite Group. 83 Group would support Second British Army, which was chosen to make the assault in the British zone on D-Day, and 84 Group would support First Canadian Army once the latter became operational. Control of Second TAF remained with the RAF, but to facilitate close cooperation its headquarters was to be co-located with that of 21st Army Group—at least in theory—as were those of 83 and 84 Groups with their respective armies. Theory did not always translate into practice, however. Although Air Marshal Sir Arthur Coningham, the commander of Second TAF, had led the Desert Air Force that worked with Eighth Army, he and Montgomery had “fallen out at the end of the North African campaign and did not have a cooperative personal relationship.”⁵⁴

In preparation for Overlord, Montgomery wrote to Second Army's commander, Lieutenant-General Sir Miles Dempsey, expressing his conception of the method by which cooperation between army and air should be assured. His letter of 4 May 1944 began by

⁵³Qtd. in Greenhous *et al.*, *op cit.*, pp. 254-255.

⁵⁴Greenhous *et al.*, *op cit.*, p. 306.

noting the “definite gulf” between “the Armies and their supporting air forces” which was partly due to the fact that they had not yet seen combat together and been “welded” by necessity into “one fighting machine”. He drew on his experience in North Africa and Italy, which had taught that if “real unity” between the two were to be achieved,

- (a) The two HQ, Army and Air, must be side by side, or adjacent.
- (b) Army HQ may on occasions throw off a Tac HQ; but Main Army must always be with Air HQ.
- (c) Army HQ must never plan a move of HQ without first consulting Air HQ. The deciding factor in the location of Main Army will be whether it will suit Air HQ. There must be give and take on both sides; but the Army staff must realise that Air HQ requires to have telephone communication to airfields, and this is often the ruling factor in the location of the combined HQ.
- (d) Before the Army staff initiates or takes any action the first question must always be:

“How will this affect the air?”

The appropriate branch of the staff at Air HQ must be consulted especially on administrative matters.

The Chief of Staff at Army HQ, and the SASO at Air HQ, must be in constant touch at all times.

Similarly for the heads of the operations and intelligence staffs.

- (e) . . . Formation and unit commanders, and the regimental officers and men, must be taught to realise that without the help of the air they cannot win the land battle; and they must understand the repercussions that follow from this statement of fact.
- (f) On the air side, every pilot in air forces allotted specifically for the support of an Army must realise that his sole job is to help the Army win the land battle. . . . This side of the problem is I know being tackled energetically by the air commanders.⁵⁵

Montgomery’s letter is rather ironic, considering that he and Coningham did not, in fact, co-

⁵⁵Reproduced in Carlo D’Este, *Decision in Normandy* (New York, 1994), Appendix A.

locate their headquarters in Normandy.

With the army and air force order of battle established, it was necessary to define the objectives for the application of Allied air power once the second front was opened in Europe. The first priority obviously would be the establishment of air superiority, which had been virtually guaranteed by D-Day as a result of the attrition of German fighters defending against the combined bomber offensive. The second priority would be to “limit the enemy’s ability to sustain ground warfare and to hasten thereby his defeat”. This was to be accomplished by “direct attack upon the enemy’s troops, guns, transport, and supplies within the immediate tactical area”, by “attack on his dumps and depots directly supplying the battle area”, and “by limiting his means of transport to a level below requirements for supply, reenforcement [sic], and troop mobility”.⁵⁶ Second TAF, specifically, was to “attack all enemy [ground] movement, tanks, infantry, M[otor] T[ransport], forming up places, O[bservation] P[osts], dug in tanks and [Heavy Anti-Aircraft] [positions] on the immediate battle front.”⁵⁷ British doctrine had finally accepted the need for the complementary use of ground and air forces, and the next battle for France would be a far different affair than that of 1940.

Despite all the progress that had obviously been made, inter-service rivalries nevertheless continued to prevail within the British Armed Forces, and the deleterious effects of this fact will become evident as the Battle of Normandy and its aftermath are considered. Yet on the

⁵⁶Public Record Office (hereafter PRO) Air 20/8173, “The Use of Allied Air Forces After the Establishment of the Bridgehead”.

⁵⁷National Archives of Canada (hereafter NAC) RG 24 vol. 10818 file 225C2.093 (D2), Air Support - 2 Cdn Corps.

eve of Overlord, the Allies had created a structure for the application of force such as the world had never seen. It would be naive to expect that a military machine of this magnitude and complexity could be created without going through a sharp learning curve. If there is any truism to be recalled at this point, it is not Stanley Baldwin's claim that "the bomber will always get through", but that armed forces begin to fight the current war with the tools and tactics of the last. It could not be foretold in 1939 that pre-war conceptions of the impact of strategic bombing would be proven false, or at the very least inconclusive. The Spanish Civil War had rendered dubious the theories of airmen like Douhet and Trenchard, but even they had not imagined the horrors that would be visited on cities like Hamburg or Dresden, which revealed the notions about a more humane way to conduct warfare to have been profoundly naive. The state of technological development had not yet progressed, between 1936 and 1939, to the point where it was possible to send a thousand, four-engine heavy bombers against a single target, and then do so again the next night. To paraphrase Sir Arthur Harris, they would not know what strategic bombing could accomplish until they tried it on a sufficiently large scale.

As for the German victories in 1939 and 1940, not only were they ephemeral, but their *Blitzkrieg* doctrine was also less than perfectly successful, as General Drum explained. The Germans may have used their air power more effectively than the British or French, but it was on land that the Wehrmacht was so formidable in 1939, and this had not changed in 1944 or even in 1945. The disparity between German and Allied preparedness for war was the result of more than just doctrine. It was a function of the respective nations' military, political, and social characters, particularly since the Great War's end.

Although unprepared for war in 1939, in terms of both the material resources and the doctrine required to win it, the British learned from their mistakes and the Americans did as well. The lessons of the earlier war, demonstrating the absolute requirement for mutual support between the different arms, were gradually re-absorbed. Mistaken assumptions about the relative importance of bombers as opposed to fighters had been corrected, if only partially—a few purists continued in their belief that the war could be won by bombing Germany ‘back into the stone age.’ It had taken almost five years of war for the Allies to develop the prerequisite tools for any attempt to liberate Europe, and they could not have been developed outside the crucible of combat. On the eve of the greatest combined military operation in history, it is clear that British air and ground doctrines had each moved a long way since Dunkirk. Because the services still clung to pre-war rivalries and suspicions, however, there remained a few lessons to be learned.

Chapter 2: Setting A Precedent

With the appointment of Lieutenant-General F.E. Morgan as Chief of Staff to the Supreme Allied Commander in March 1943, the planning for the invasion of occupied Northwest Europe began. Any invasion attempt would be impossible unless the Allies were able to win air superiority—"that degree of dominance . . . which permits the conduct of air operations . . . without prohibitive interference' by the enemy"—over the battle zone. The destruction of the Luftwaffe therefore became a matter of supreme importance in and of itself, apart from any benefits it would have for strategic bombing missions to Germany. Bomber Command and the USAAF were accordingly directed to attack aircraft production facilities, and to destroy the Luftwaffe in the air as well as its bases on the ground. This task was facilitated during the winter of 1943-44 when the P-51 Mustang, a long-range fighter, became available to escort American day bombers.¹ The Allies were so successful in achieving this objective that by D-Day, 6 June 1944, German air power had ceased to be a factor of any real importance. The achievement of air supremacy meant that Allied air forces would be free to operate with impunity in Normandy, thereby permitting new applications of air power as the campaign wore on. When a stalemate seemed to develop on the ground, the armies looked

¹Brereton Greenhous *et al.*, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force Volume III* (Toronto, 1994), p. 255.

to the strategic bomber forces as a means of augmenting the fire-power they could bring to bear on the battlefield in hopes of breaking the deadlock. Army planners hoped to satisfy two basic aims by using bombers for tactical support. One was obvious: killing Germans and destroying their weapons and equipment. The other was interdiction, or denying the use of ground or infrastructure such as roads and bridges vital to enemy operations. In Operation Totalize, bombers would be called upon to satisfy both objectives. That they came to be used in such fashion was the result of decisions made a year and a half earlier.

At the Casablanca Conference on 21 January 1943, Britain and the US had agreed to stage a combined bomber offensive against Germany. The Combined Joint Chiefs of Staff “approved a brief, seven point policy directive addressed jointly to the Eighth Air Force and RAF Bomber Command” that called for US day bombing in concert with RAF night attacks. Item Six of the directive would prove consequential for the later employment of Bomber Command and Eighth Air Force. It read: “When the Allied Armies re-enter the Continent, you will afford them all possible support in the manner most effective.” This ambiguous statement “left open the use of air power for tactical or strategic employment or both.”²

It was decided at the May 1943 Trident Conference in Washington that “the Allied heavy-bomber forces would be used in direct support of Operation Overlord”. The fundamental position of Bomber Command’s Sir Arthur Harris and General Carl Spaatz, commanding the U.S. Strategic Air Forces in Europe, with respect to heavy bombers remained unchanged. They felt that the continued bombing of Germany would hasten the end of the war by

²DeWitt S. Copp, *Forged in Fire: Strategy and Decisions in the Air War Over Europe* (Garden City, NY, 1982), p. 353.

destroying the industrial and material resources that were vital to the war effort. Harris and Spaatz therefore opposed the employment of their forces in support of a land campaign. This was not simply a question of strategy. A diversion of the heavy bomber effort to tactical support also meant the curtailment of air force autonomy. Nonetheless, on 14 April 1944 Bomber Command and Eighth Air Force were placed under the direction of General Dwight D. Eisenhower and SHAEF (Supreme Headquarters, Allied Expeditionary Force) for Operation Overlord. From that point until the beginning of the invasion, they would be responsible for bombing attacks to knock out roads, railways, bridges, and airfields under the 'Transportation Plan,' which was expected to "cut off enemy forces in the invasion area from their sources of supply and reinforcement".³ Harris and Spaatz each had specific objections to the diffusion of their forces under the Transportation Plan. Spaatz argued that the German oil and rubber industries should be the main targets for strategic bombing, because without these commodities the enemy would be immobilized. Harris, on the other hand, dismissed such 'panacea' targets and continued to press for all out area bombing.

The Transportation Plan was nonetheless thoroughly successful in delaying the movement of German forces into Normandy after D-Day. The heavy bombers had turned northern France into a "vast 'railway desert'",⁴ and one of the effects was the necessity for German armoured and motorized forces to travel by road, thus wearing out tank tracks and precious rubber tires before reaching the battlefield. James A. Huston described one outcome of the interdiction effort:

³Greenhous *et al.*, *op cit.*, pp. 790-791.

⁴Carlo D'Este, *Decision in Normandy* (New York, 1994), p. 107.

It took the German 275th Infantry Division a week to travel the 150 miles from Fougères to the front. Two panzer divisions, shifting from the east, traveled from Poland to France in no more time than it took them to move from eastern France to Normandy. Men of a German Air Force unit left The Hague by train on 18 June and, after a circuitous tour through Holland, Belgium, the Rhineland, and eastern France, were unable to reach the battle area before 3 July.⁵

Such difficulties greatly added to the attrition of German strength in Normandy. So did the constant presence of the tactical air forces, which forced German units to travel at night lest they become targets for Allied fighter-bombers. The commander of Army Group 'B', *Generalfeldmarschall* Erwin Rommel, complained of the effect of Allied air power on his ability to oppose the expansion of the Normandy bridgehead: "Our operations . . . are rendered exceptionally difficult, and in part impossible, by the strong and often overwhelming superiority of the enemy Air Force".⁶ Rommel knew before the assault landings that if the invasion was to be defeated, the Allies could not be allowed to establish a secure lodgment area. This was done, of course, but Rommel was offered a second opportunity in the form of the great storm in the English Channel from 19 to 22 June which brought all Allied supply efforts to a stop and effectively grounded the air forces. This would have been "the ideal moment for Rommel to strike", but he was unable to concentrate sufficient forces for the necessary massive counter-attack "without the benefit of three of the SS Panzer divisions then en route to Normandy".⁷ Rommel's impotence allowed the Allies time to repair the damage to the Mulberry artificial harbour at Arromanches and resume the build-up of 21st Army

⁵James A. Huston, "The Tactical Use of Air Power in World War II: The Army Experience," *Military Review* 32 (July 1952), p. 35.

⁶Qtd. in Greenhous *et al.*, *op cit.*, p. 298.

⁷D'Este, *op cit.*, pp. 232-233. The panzer divisions were: 1st SS, from Belgium; 9th SS and 10th SS, from the Eastern Front.

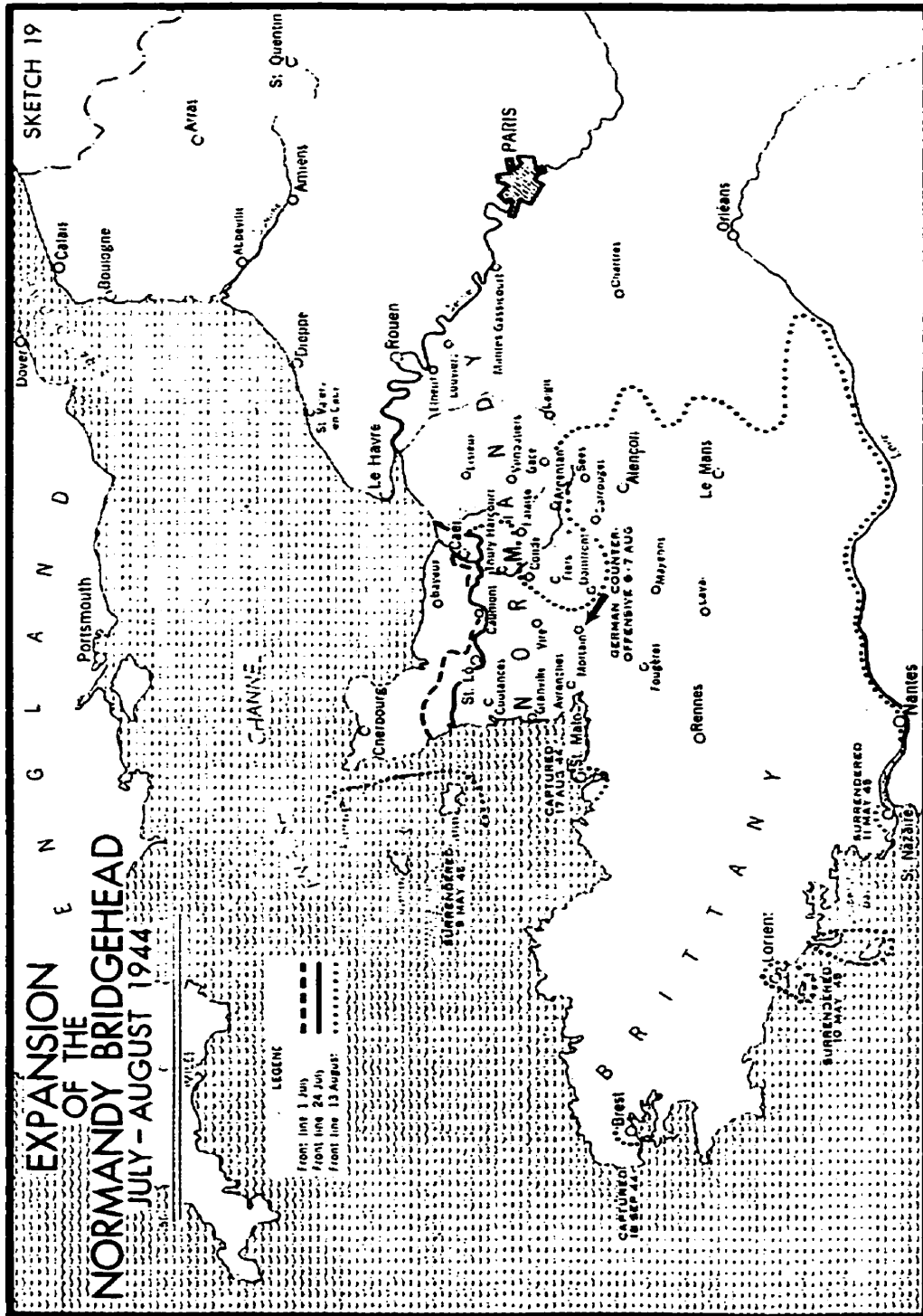
Group.

For all the problems the Germans were experiencing, their defence of Normandy was, for the most part, exceptionally stout. The objective of Second British on D-Day had been the city of Caen, approximately seven miles inland. Caen was a vital transportation centre, and it was the 'hinge' of the German positions in Normandy. As such, it was in the Caen sector that the Germans maintained their strongest defences throughout the campaign. Opposing 21st Army Group on this front was the bulk of the German armoured divisions in France. At different times, 21st and 116th Panzer Divisions, as well as 1st S.S. *Leibstandarte Adolf Hitler* ('bodyguard'), 9th S.S., 10th S.S., and 12th S.S. *Hitlerjugend* ('Hitler Youth') Panzer Divisions had each been committed near Caen, often simultaneously. General Dempsey's Second Army was stopped short of the city on D-Day, and the bridgehead remained relatively static into the first week of July, with the British and Canadians holding the line just outside the northern suburbs. After failing to take Caen the first day, Montgomery's strategy had been to build up an appropriate concentration of force before making a sustained attempt to push the Germans out of Normandy.⁸ As it turned out, the capture of Caen and its southern suburb of Vaucelles was not complete until 18 July, and Montgomery has been frequently criticized in the historical literature as well as by his contemporaries for his failure to 'get on.'⁹

Dempsey was not the only army commander who was stalled following D-Day. First U.S.

⁸The protracted controversy over Montgomery's intended strategy in Normandy are beyond the scope of this work. See D'Este, *op cit.*; Terry Copp and Robert Vogel, *Maple Leaf Route: Falaise* (Alma, Ont., 1983), among other works.

⁹See C.P. Stacey, *Official History of the Canadian Army in the Second World War Volume III, The Victory Campaign: The Operations in North-West Europe 1944-1945* (Ottawa, 1960), p. 156; D'Este, *op cit.*, *passim*, among others.



Map 1: Expansion of the Normandy bridgehead, from Stacey, *The Victory Campaign*, p. 253.

Army under General Omar N. Bradley was also bogged down, in the hedgerows of the *bocage* country on the western flank of the bridgehead. Following Operation Epsom, which began on 26 June and gained little territory, Montgomery issued a directive on 30 June in which he proposed to occupy the bulk of the German armour opposite Second Army by making a series of 'holding' attacks.¹⁰ By pinning the panzer divisions down at Caen, he would assist Bradley's effort to break out in the American sector. As the Americans consolidated their grip on the Cotentin Peninsula and pushed south, however, Montgomery came under pressure from Eisenhower to make greater progress on the eastern flank. Before Epsom, Montgomery had suggested using 1st Airborne Division to assist in the capture of Caen, but Air Chief Marshall Sir Trafford Leigh-Mallory, commanding the Allied Expeditionary Air Forces—with authority, at least in theory, over all air operations in support of Overlord—had refused the use of parachute forces. Instead, he proposed on 14 June to soften up the defences with a heavy bomber strike.

It was “only the second time anyone had proposed the use of strategic bombers in *direct support* of a ground operation.”¹¹ The first occasion had been at Monte Cassino in the Italian theatre. The monastery at the top of the hill was bombed on 15 February 1944, and a month later heavy and medium bombers struck the town at its foot. Neither attack produced satisfactory results. Before the bombers arrived on 15 March, the infantry pulled back from the front line for safety, and a pause ensued while it moved back up after the last bomb fell. The German defenders thus had time to recover and dig out their weapons. The debris

¹⁰Terry Copp, *A Canadian's Guide to the Battlefields of Normandy* (Waterloo, Ont., 1994), p. 82.

¹¹D'Este, *op cit.*, p. 226.

provided cover for the defenders and obstructed the attackers, and craters caused by the high explosive bombs prevented tanks from advancing in support.

On 15 June, Tedder, Coningham, and Air Vice-Marshal Harry Broadhurst—83 Group's AOC—vetoed the use of heavy bombers. Although the operation Leigh-Mallory proposed against Caen did not occur, on the day of his meeting with Montgomery 337 heavy bombers had made an inconclusive attack on 2nd Panzer Division near Caen. The heavy bombers were employed again on 30 June, when 266 aircraft dropped 1100 tons of explosives on a cross-roads at the town of Villers-Bocage, in an interdiction strike that prevented a German counter-attack against British positions.¹² As Eisenhower and Churchill became increasingly impatient, Montgomery pressed for the use of heavy bombers at Caen to support his attack of 8 July. In a letter to Montgomery on the 7th, Eisenhower had assured him that “our air” would provide the “maximum assistance . . . even if it were determined to be necessary to resort to area bombing in order to soften up the defense. . . .”¹³ Eisenhower's intervention seems to have settled the matter in favour of the air strike. Because pre-war air doctrine had focused on strategic bombing, however, the technique to do what Montgomery and Leigh-Mallory were proposing, with Eisenhower's blessing, had not been devised. They were, in effect, improvising a new form of heavy air support for which there existed scant precedent.

The advantage to the army was the ability of heavy bombers to supplement conventional fire plans with large payloads of high explosive, causing destruction “out of all comparison

¹²J.R.C. de Normann, “The Use of the Strategic Bomber Forces over Normandy: Success or Failure?”, *British Army Review* (August 1990), p. 16; Stacey, *The Victory Campaign*, p. 156.

¹³Stacey, *The Victory Campaign*, p. 156.

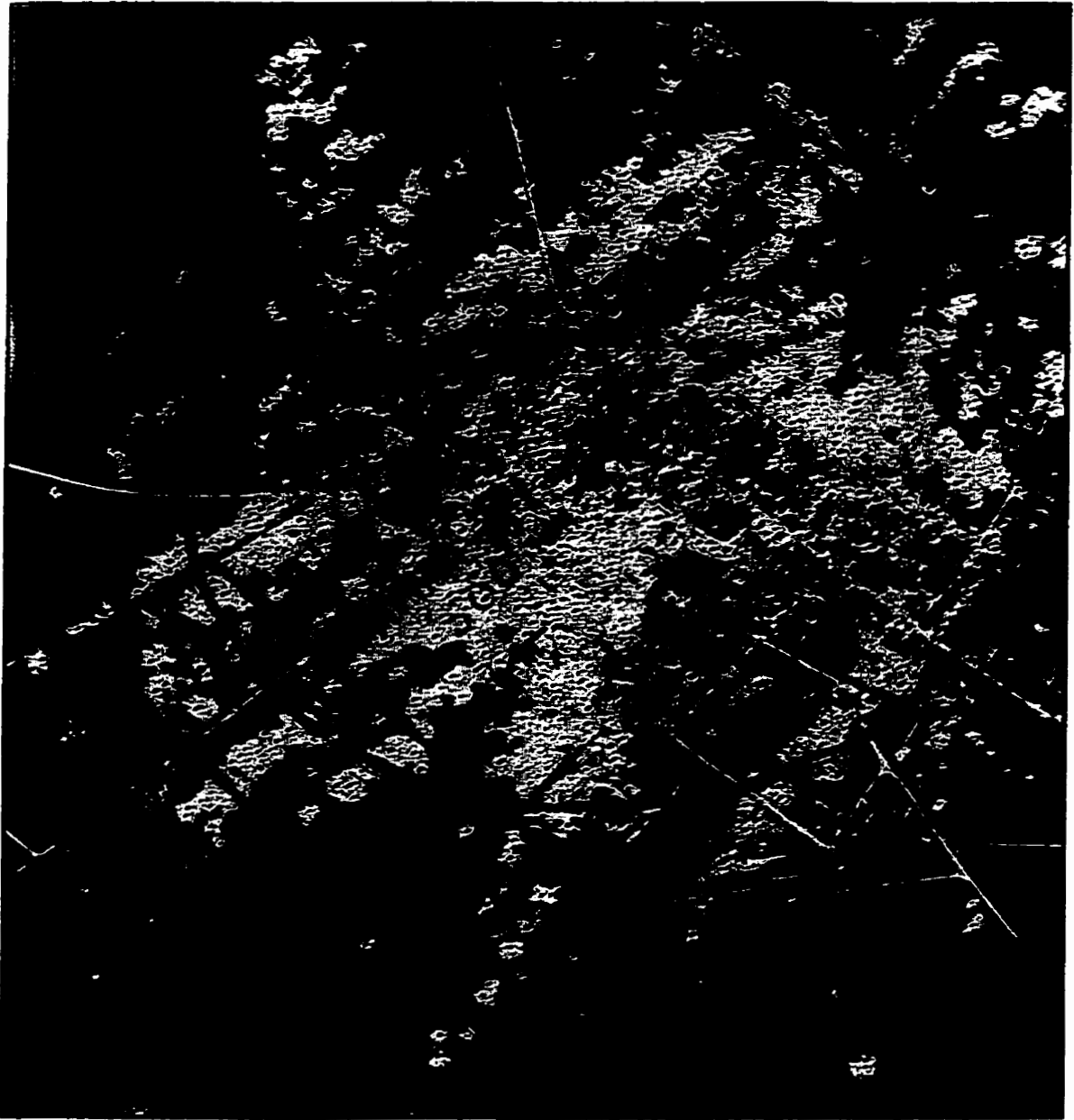


Figure 2: Results of the bombing attack on Villers-Bocage, 30 June 1944.

with that attainable by any artillery concentration that can at present be contemplated. . . .”¹⁴

The use of heavy bombers for the tactical support of a ground operation was not a task that was favourably regarded by either Harris or Spaatz, however. They insisted that the very nature of heavy bombers made them unsuitable for close support: the aircraft had not been designed for such a purpose, a suitable method of attack did not exist, nor had the aircrews been trained for it. Ian Gooderson has argued that whereas fighter-bombers could fly in cab-rank, on call for impromptu support, heavy bomber targets were fixed before aircraft left the ground in England and could not be altered thereafter. The resulting inflexibility did not allow for changes in the tactical situation, such as the dispositions of enemy forces. Another problem was that the ‘heavies’ had to fly in looser formation than medium bombers, thus producing a wider bomb-dispersal pattern on the ground. What this meant in practice was that they were less able to hit smaller targets such as troop and equipment concentrations.¹⁵

These arguments notwithstanding, Montgomery got the air support he wanted, as Leigh-Mallory arranged for Bomber Command to attack the northern outskirts of Caen on the evening of 7 July in preparation for the ground assault that followed the next morning. Neither Harris nor Spaatz had any real choice, of course, because they were both working under the direction of SHAEF, and Eisenhower “had never concealed his intention to use both

¹⁴21 Army Group No. 2 Operational Research Section (ORS) Report No.14, “Heavy Bombing in Support of the Army”. Taken from a forthcoming compilation of ORS reports to be published by Wilfrid Laurier University’s Centre for Military Strategic and Disarmament Studies in Waterloo, Ontario.

¹⁵Ian Gooderson, “Heavy and Medium Bombers: How Successful Were They in the Tactical Close Air Support Role During World War II?”, *Journal of Strategic Studies* 15:3 (1992), pp. 367-399.

Eighth Air Force and Bomber Command as a kind of heavy artillery”.¹⁶ Despite Harris’ objections to close-support missions, he had been ordered in March 1944 to make some experimental raids on French railway marshalling yards. Charles Carrington recorded that the attacks “were so remarkably accurate that, as [Professor Solly] Zuckermann [Leigh-Mallory’s scientific advisor] told me personally, they far surpassed in precision, by night, anything that the Americans could achieve by day.” With the capability of Bomber

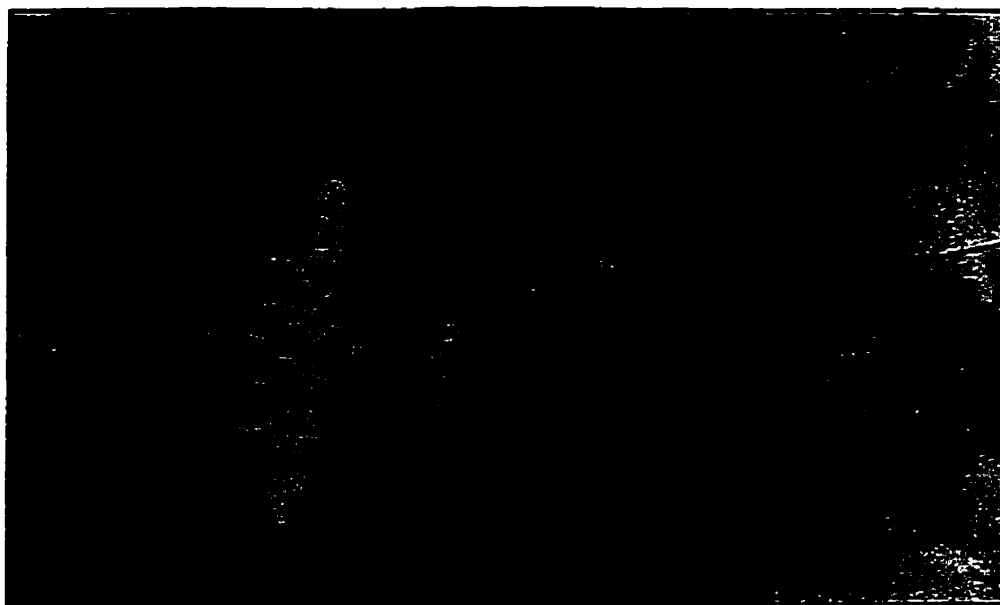


Figure 3: Lancasters were accurate enough to hit bridges, as this attack with a 22,000-lb bomb shows.

Command to hit precision targets thus established, its employment on the battlefield was a foregone conclusion. Regardless of his preferences Harris was a professional, and he carried out his orders as efficiently as was practicable. Carrington judged him thus: “As I came to know him better, . . . I realized that he was not unco-operative, not hostile to the interests

¹⁶Greenhous *et al.*, *op cit.*, p. 811.

I represented. When committed to a combined operation with Army or Navy, even if he had opposed its inception, he gave his full support; he never shirked; he never compromised with half-measures.”¹⁷

Eisenhower’s deputy at SHAEF, Air Chief Marshall Sir Arthur Tedder, was not as quick to swallow his differences with both Leigh-Mallory and Eisenhower, probably because his position allowed him more scope to disagree. The AEAF Historical Record noted that Tedder “believed that the heavy bombers should not be used in the battle except in exceptional circumstances to prevent a crisis, to break up an enemy attack, but not to prepare for an attack by our own troops.” Tedder did not want to set a precedent that “would encourage the Army to ask on every occasion for heavy bomber support”, thus diverting the strategic air forces “from their proper tasks.”¹⁸

This disagreement was part of a larger conflict between Allied air and ground commanders that had as much to do with personality conflicts as with military strategy and command organization. Leigh-Mallory had established his reputation as Air Officer Commanding (AOC) of the RAF’s 12 Group, and then as AOC-in-C of Fighter Command before his appointment as AOC-in-C of the Allied Expeditionary Air Forces. In the latter position he ostensibly controlled all tactical air support for Overlord, but when Harris and Spaatz not only questioned his competence but refused to acknowledge his authority to direct their forces, Eisenhower had Tedder supervise the employment of the strategic bombers in support of ground operations. Leigh-Mallory therefore had to negotiate with Tedder, who

¹⁷Charles Carrington, *Soldier at Bomber Command* (London, 1987), pp. 131-134.

¹⁸Qtd. in D’Este, *op cit.*, p. 310.

was “convinced that neither the army nor Leigh-Mallory fully understood the limitations of air support on the battlefield or the role of air power outside the battle area.”¹⁹ This command relationship bode ill for close cooperation between the strategic air and ground forces because, according to Carrington, Tedder showed “little sympathy with the soldiers in their troubles and, surrounded as he was with crises in the higher direction of war, he seems to have paid little attention to the mechanics of Air Co-operation with the Army.”²⁰

The contested chain of command that directed the strategic air forces during the campaign was largely the result of the ambiguous directive that had initially appointed Leigh-Mallory to his position. As he wrote in his official Despatch to the Supreme Allied Commander in November 1944, “a definition of the role of the strategic air forces was not covered in the original Directive to me, but was deferred to a later date. However, my plans were made on the assumption that I should be able to count on the full support of the strategic air forces when it was required.”²¹ Further complicating the command structure was the fact that Coningham, in command of Second TAF and the advanced headquarters of AEF as Leigh-Mallory’s deputy, like Tedder had little use for his superior or for Montgomery.²² Neither Leigh-Mallory nor Montgomery had wanted Coningham for command of the TAF, with the result that Montgomery frequently by-passed him in arranging 21st Army Group’s air support.

¹⁹Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, 1993), p. 460.

²⁰Carrington, *op cit.*, pp. 120-121.

²¹Directorate of History and Heritage (hereafter DHH) 85/829, “Air Operations by the Allied Expeditionary Air Force in N.W. Europe from November 15th, 1943 to September 30th, 1944.” Despatch from A.C.M. Sir Trafford Leigh-Mallory to the Supreme Allied Commander in November, 1944. Reproduced in the *London Gazette*, 31 Dec. 1946.

²²Greenhous *et al.*, *op cit.*, p. 306.

So much for Montgomery's letter to Dempsey of 4 May in which he had called for the closest cooperation between army and air headquarters.



Figure 4: Coningham, Montgomery, and Leigh-Mallory in Normandy.

This command soap opera had concrete ramifications for the planning of Bomber Command's tactical missions, as the abnegation of Leigh-Mallory's initial proposal to bomb Caen illustrated. Again, the main problem in establishing close cooperation seems to have derived from inter-service attitudes of exclusiveness. Whether Leigh-Mallory preferred to

assist Montgomery to the fullest potential because of his beliefs about appropriate air doctrine or simply to spite Tedder is a moot point. The result, according to Tedder, was “that Leigh-Mallory’s large assurances to Montgomery encouraged the unhealthy tendency of the Army to rely on air-power for support of a kind which it could not confer.”²³ As for Harris’ relations with the two senior airmen connected with Overlord, Leigh-Mallory and Tedder, he does not “seem to have had any great fondness” for either of them.²⁴

In any case, Bomber Command provided close tactical support for the first time during Operation Charnwood on 7 July 1944. Close support can be defined as the bombing of targets of direct significance to a battle in progress or one whose launch was imminent. No one knew exactly what to expect from what was, in effect, an experiment, and precautions were taken accordingly. Pending further experience, the bomblines were set 6000 yards ahead of the forward troops “in order to limit the dangers of friendly fire.” Bomber Command also insisted on carrying out the attack in daylight so that the aiming points could be assured, given the proximity to the troops preparing to take Caen. At 2150 hours on 7 July, 467 bombers commenced dropping 2562 tons of high explosive with time fuses delayed to explode the next morning in conjunction with the ground assault. The results of the bombardment suggested that further development of the doctrine governing their employment in such tasks was needed. The ground attack included 3rd Canadian Division fighting under the command of Second Army’s 1st British Corps, higher Canadian commands not yet having become operational. Because 1st Corps was held so far back and did not commence its attack until

²³Qtd. in Davis, *op cit.*, p. 468.

²⁴D’Este, *op cit.*, p. 213.

first light on the following morning, six hours after the bombing run, any surprise or shock value that may have derived from it was lost.²⁵ Rubble impeded the infantry's advance and



Figure 5: Canadian troops moving through Caen following the Chamwood bombing. 10 July 1944.

²⁵Greenhous *et al.*, *op cit.*, pp. 812-813.

offered cover to the defenders, as at Cassino. Once again, craters presented anti-tank obstacles. There had been some debate over how the bombs should be fused, and it was argued that instantaneous detonation would not have the desired effect on dug-in enemy positions. The effect of the craters had not been foreseen, and as Montgomery was to write in his memoir, *Normandy to the Baltic*, “this problem had to be decided by experience”.²⁶ So, too, did the entire procedure.

The exact tactical purpose of the bombing, moreover, has remained in question. Terry Copp and Bill McAndrew note, in *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army, 1939-1945*, that the “intended relationship between bombing ‘four map squares on the northern outskirts of Caen’ and an infantry attack on a ring of fortified villages outside the target zone has never been made clear. The bombing had no effect on German resistance.”²⁷ Carlo D’Este has argued that the major fault in the bombing plan was that it was a “hasty” addition to an already established artillery fire plan, and that if “bomber support was to be effectively employed the entire fire plan had to be integrated at the start of planning and not at the last moment.”²⁸ For the soldiers of 1st Corps, however, there was “much enthusiasm . . . for this new kind of fire support”. Canadian infantrymen reportedly “found the ‘smoke and flame wonderful’,” and it was said to have “improved their morale 500 per cent.”²⁹

²⁶Qtd. in de Normann, *op cit.*, p. 17.

²⁷Terry Copp and Bill McAndrew, *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army, 1939-1945* (Montreal: McGill-Queen’s UP, 1990), pp. 116-117.

²⁸D’Este, *op cit.*, p. 317.

²⁹Greenhouse *et al.*, *op cit.*, pp. 812-813.

Charnwood delivered the northern half of Caen to 21st Army Group, but the suburbs south of the river Orne were still in German hands. While the Americans struggled through the *bocage* on the western flank of the Normandy bridgehead, Montgomery ordered the first major armoured operation on Dempsey's front. The objectives of Operation Goodwood were entirely unclear. Montgomery, under continuing criticism for the delays in expanding the Allies' lodgement area, spoke of Goodwood in terms that raised expectations of a break-out, but at the same time he described it as a "holding operation", designed to attract the German armoured reserves to the eastern flank in preparation for Bradley's impending Operation Cobra further west. When Goodwood made unimpressive gains, Montgomery proclaimed that he had never intended it to do any more. The fighting in Goodwood was heavy, with concurrently heavy casualties. As a holding operation, Terry Copp and Robert Vogel suggest that "the cost was far too high" and "as a break-out operation it was a dismal failure".³⁰

Goodwood was notable in that it can be considered a precursor of Operation Totalize. Guy Simonds' 2nd Canadian Corps had become operational as part of Dempsey's Second Army on 11 July, and it had under command the 2nd and 3rd Canadian Infantry Divisions. Simonds also commanded 2nd Canadian Armoured Brigade, with the tanks of the Sherbrooke Fusiliers, Fort Garry Horse, and 1st Hussars providing support to the infantry. 2nd Corps had secondary responsibilities during Goodwood, as the main attack was to be made by the 7th, 11th, and Guards Armoured Divisions. The infantry would then follow to consolidate and create a firm base for further operations to break into the open country south of Caen. The British Army still thought of the tank as a weapon to be used for infantry support or "for

³⁰Copp and Vogel, *op cit.*, p. 42.

exploitation of a gap made by the infantry”, so the tactics to be used were something of a departure from the norm.³¹ It may have taken the Allies five years to mount an attack in a manner reminiscent of the *Blitzkrieg* of 1939-1940, but they now had a form of air support that the Germans could only envy. Goodwood called for heavy bomber strikes on the flanks of the army’s axis of advance to isolate the corridor through which it would pass, with medium bombers dropping fragmentation bombs—which would not crater the ground—on ‘soft’ targets such as infantry and gun positions directly in front of the leading troops. In this manner, German strong points which might otherwise hold up the advance would be obliterated without making the area impassable to the tanks spearheading the assault. The medium bomber strikes in front of the leading units would compensate for the lack of artillery support once the tanks had advanced out of range.³²

Operation Goodwood opened on the morning of 18 July 1944 with “one of the most awesome air attacks ever launched on ground troops”.³³ Over 3000 tons of bombs were dropped, and the bomblines, at some points, was only 900 yards in front of the troops. The results of the air attack were mixed. Bomber Command had hit “most of its targets squarely”, and a British Bombing Analysis Unit that examined the battlefield reported that one area “resembled the surface of the moon.’ It found the rusting remains of an entire Panzer company—fifteen tanks and twelve half-tracks. . . .”³⁴ As for the American heavy bombers,

³¹*Ibid.*, p. 42.

³²*Ibid.*, p. 40; D’Este, *op cit.*, pp. 353-360.

³³Greenhous *et al.*, *op cit.*, p. 311.

³⁴Davis, *op cit.*, p. 462.

only 26% of the 1425 tons of bombs they dropped were on target.³⁵ Most “scattered over the countryside. In the ensuing ground assault, Allied troops encountered particularly stiff resistance in the American target areas.”³⁶ Second Army experienced other difficulties as well. All three armoured divisions had to use one solitary road and bridge to move up through Caen, and the resultant traffic congestion made it “impossible to reinforce success”. The ground advance did not begin until 0745 hours, “ninety minutes after the heavy bombers had finished their work”,³⁷ so the Germans were again given time to recover. The air plan had also failed to organize the air strikes in successive waves timed to advance deeper into the German defensive zone as the British divisions made progress, so fire support after the initial bombardment was inadequate.

As for the general use of heavy bombers to provide ground support, a British Operational Research Section report on Goodwood stated that all of the soldiers it interviewed “were unanimous in their desire for more bombing support.” It suggested that the “tactical development of the battle indicated the desirability of a bombing timetable which is progressive so that targets in depth are bombed just before the assault upon them.”³⁸ In this fashion, air bombardment would resemble the creeping barrages of the First World War. Although the attack completed the capture of Caen and gained some ground to the south, it

³⁵U.S. Air Force Historical Study No. 88, “The Employment of Strategic Bombers in a Tactical Role, 1941-1951,” (Air University, 1953), p. 81. DHH 81/882 mfm.

³⁶Davis, *op cit.*, p. 462.

³⁷Greenhous *et al.*, *op cit.*, p. 814.

³⁸21 Army Group No. 2 ORS Report No. 6, “Bombing in Operation Goodwood”. Taken from a forthcoming compilation of ORS reports to be published by Wilfrid Laurier University’s Centre for Military Strategic and Disarmament Studies in Waterloo, Ontario.

could not have been anything more than a disappointment to Montgomery and Dempsey, considering the massive amount of fire-power—over 4500 aircraft and 500 guns—that had been assembled in support.³⁹ The air plan for Goodwood was unsuccessful, and perhaps too much was expected of it, but it is clear from the target selection and the reduction of the time-lag after the bombing that the lessons of earlier air attacks were being incorporated.

Montgomery had secured the support of the largest air armada in history to that point for Goodwood, but the process of drawing up the air plan had not been seamless. The RAF had objected to it because previous attempts to provide similar support at Cassino and Caen “had been disappointing.” The air force did not acquiesce until the army insisted that because of heavy enemy opposition and the depth of the expected penetration, “the operation could not take place at all unless maximum air support could be given.”⁴⁰ The cooperation between the army and the air force continued to be less than complete, and attitudes were as much to blame as faulty planning for performances that did not live up to expectations. Carrington explains, for example, how high explosive was used on the flank targets, ostensibly because the craters it caused would not impede the armoured advance. He argues that in reality, a low level of commitment led the RAF to cut corners:

‘Cratering acceptable’ was a piece of Air Force insolence. . . . It meant that, if the Bomber Chiefs were to be diverted from Industrial bombing to help the Army out of a difficulty, they need not go to the trouble of studying the problem and of reloading with an appropriate type of bomb, but would take off with their normal bombload, commonly 1000lb bombs with delayed-action fuses, designed for disrupting the foundations of solid masonry. The Americans had already introduced a fragmentation bomb with an instantaneous fuse for Army support, but Bomber Command would have none of it.

³⁹Copp and Vogel, *op cit.*, p. 42.

⁴⁰DHH 693.013 (D3), *British Army of the Rhine Battlefield Tour First Day: 8 Corps Operations East of Caen, 18-21 July 1944 “Operation Goodwood,”* p. 27.

'Cratering' must be accepted unless the Army made trouble by insisting that it was 'unacceptable' in some particular instance.⁴¹

Carrington's view of the decision-makers at Bomber Command is probably too harsh, but there is no doubt that the degree of cooperation that obtained between army and air was grudgingly rather than freely given. An example is found in Carrington's anecdote about the aftermath of Goodwood, in which Air Vice-Marshal R.D. Oxland, the SASO responsible for coordinating the army's heavy air support, went to France

with Professor Zuckermann to study the effects of the bombing, but refused a place for me in his party and told me nothing when he came back, beyond a general remark, which I heard him repeat in the mess, that 'the soldiers he spoke to in France were so ashamed of themselves when they saw the Lancasters flying straight through the flak, whereas they took cover when a single machine gun opened fire'. That was about all he had to say.⁴²

Carrington does not disguise his contempt for Oxland in *Soldier at Bomber Command*, so one must be wary about giving his opinions too wide a currency. But the fact is worth noting that as army liaison officer at Bomber Command, Carrington's working relationship with the SASO responsible for arranging air support had to be collaborative rather than adversarial. Because it was not, the maximum benefits were not derived from the partnership. Perhaps the lessons of air support could have been learned more quickly if the situation had been otherwise.

As the stalemate continued on Second Army's front, neither had there been any significant change in the status quo in First U.S. Army's sector south of the Cotentin Peninsula. Bradley had been unable to make much headway during an abortive offensive in late June, and after

⁴¹Carrington, *op cit.*, p. 159.

⁴²*Ibid.*, p. 160.

the bombing of Caen he decided that air power could be the answer to his problem as well.⁴³ His decision to use bombers for Operation Cobra was partly related to a shortage of ammunition for the Americans' 105-mm howitzers.⁴⁴ Another factor was excessive wear to the guns due to high rates of fire since June.

In any case, Bradley intended to mount a narrow-front attack across the St. Lô-Périers road using bombers "to virtually wipe out some German division opposing part of our line and then punch a hole through". He wanted to use fragmentation bombs exclusively because after a breach was created in the German line by the infantry of VII Corps, the break-through was to be exploited by armoured and motorized divisions of VIII Corps.⁴⁵ Troops would be withdrawn a mere 800 yards from the bomblines in order to reduce the lag between the time of the last bomb and the start of the advance. Negotiations with Eighth Air Force determined that the margin would be 1200 yards, and the safe zone would be increased because the heavy bombers would not hit the leading edge of the target area, a rectangle 7000 by 2500 yards alongside the road. Fighter-bombers would, however, cover the gap. The road served as the startline for the attack, but it had also been chosen as the bomblines because it was thought to be an easily distinguishable feature. Bradley had nevertheless insisted that the aircraft make an approach parallel to the bomblines in order to minimize the danger to his forward troops in the event of a short drop.⁴⁶ Eighth Air Force objected to the concept of a

⁴³D'Este, *op cit.*, pp. 337-343.

⁴⁴British and Canadian artillery regiments began to replace the 105's they had been issued for the invasion with towed 25-pounders in July, in order to conserve ammunition for the American guns.

⁴⁵Chester Wilmot, *The Struggle for Europe* (London, 1965), pp. 389-393.

⁴⁶Davis, *op cit.*, pp. 464-466.

parallel approach, on the grounds that it would require them to fly over a greater area of enemy territory, with a corresponding increase in their exposure to anti-aircraft fire. They also argued that it would be impossible to make their drops in the short period of time Bradley required if they flew parallel to the front. Leigh-Mallory dismissed these objections, and Bradley ordered the operation to commence on 24 July under the impression that the plan was set.⁴⁷

In the event, poor weather in Normandy on the 24th resulted in the operation's postponement, but the decision had come too late to call back bombers that were already in flight. As with the Anglo-Canadian forces, ground troops had no direct communications with pilots in the air. Some aircraft did not make their attack runs because cloud cover reduced visibility over the target areas, but approximately 352 did release their bombs. Contrary to what Bradley believed had been agreed upon, pilots approached on a course perpendicular to the startline. A number of them dropped short and struck American troops, killing 25 men and wounding 131. Bradley and Leigh-Mallory were both upset, in particular over the direction in which the bombing runs had been made. The air force, for its part, "refused to accept responsibility" and professed that "no agreement was ever made to bomb parallel to the St. Lô-Périers road. . . ."⁴⁸ Bradley reluctantly acquiesced in the matter of the approach direction when the attack was recommenced the next day, but he did so in a bitter mood, believing that the air force had acted in bad faith. Cobra resumed on the 25th with strikes by over 1500 B-17s and B-24s, and more short drops killed another 111 Americans and

⁴⁷*Ibid.*, p. 469.

⁴⁸D'Este, *op cit.*, pp. 402-403.

wounded 490.⁴⁹

Cobra represented the first occasion where significant casualties were taken by friendly ground forces as a result of close air support by heavy bombers. However regrettable the incident, Eighth Air Force claimed that the “bombs which fell outside the target area . . . were within the normal expectancy of errors.”⁵⁰ Characteristics inherent to the method of operation of these particular aircraft were largely responsible. It will be recalled that American air doctrine had expected strategic bombers to fly their missions without escort and to depend on their own fire-power and tactics for survival. Adaptation to tactical support did not change their basic methods. Standard procedure for Eighth Air Force called for all planes in a formation to drop their bomb loads along with their lead plane, which alone made corrections in aim for range and lateral drift. Formations were “kept tight to maximize each aircraft’s defensive power and the compactness of its bomb patterns, [so] the danger of midair collision would have greatly increased had each bombardier made the necessary corrections”.⁵¹ This technique also produced an elongated bomb pattern on the ground, which made concentrations on specific targets harder to achieve.

During the attacks on the 25th, human errors were thus compounded by bombing techniques devised for strategic operations: “[o]ne bombardier had trouble with his bomb-sight and recomputed visually, with poor results; another failed to identify vital landmarks properly; and a command pilot failed to observe the order to drop by bomb group, ordering

⁴⁹Davis, *op cit.*, pp. 470–474. Casualty statistics vary depending on the source of information.

⁵⁰D’Este, *op cit.*, p. 403.

⁵¹Davis, *op cit.*, p. 477.

'bombs away' when his wing leader, several hundred yards ahead of the pilot's formation, dropped his bombs".⁵² The procedures employed by Eighth Air Force therefore had the unfortunate side-effect that an error made by one plane's crew could be magnified through its repetition by those following. The RAF's procedure differed in that it used 'Pathfinder' aircraft and master bombers to identify targets, drop luminous target indicators, and correct bombing errors by re-directing oncoming pilots, who would then bomb the target-indicator concentrations. Cobra illustrated the grave consequences of the errors which were an inescapable part of the learning curve. A fundamental cause of the mishap on 24 July, the miscommunication between army and air force regarding the bombers' direction of approach, could, however, have been prevented if closer cooperation had been in evidence. The two services were obviously still dining at separate tables.

Both Bradley and Eisenhower reacted strongly against the further use of heavy bombers for close support, at least initially. The latter apparently reverted to a more orthodox view about the respective roles of air power and artillery, and proclaimed: "I gave them a green light on this show but this is the last one".⁵³ Second thought and a closer consideration of the bombers' contribution to the overall operation softened his position later on. The effect of the bombing on German formations caught within the target area was devastating. Panzer Lehr, the division that bore the brunt of the attack on 24 July, "suffered serious losses", but when the attack was aborted the Germans believed that they had repulsed a major American attack. The next day, fighter-bombers hit outposts near the St. Lô-Périers road, followed by

⁵²*Ibid.*, p. 475.

⁵³Qtd. in D'Este, *op cit.*, p. 403.

the heavy-bomber strike along the “entire depth of the German infantry positions”.⁵⁴ Panzer Lehr’s commander, Fritz Bayerlein, described what happened on the ground in the midst of a hurricane of destruction:

The planes kept coming over, as if on a conveyor belt, and the bomb carpets unrolled in great rectangles. My flak had hardly opened its mouth, when the batteries received direct hits which knocked out half the guns and silenced the rest. After an hour I had no communication with anybody, even by radio. By noon nothing was visible but dust and smoke. My front-lines looked like the face of the moon and at least 70 per cent of my troops were out of action—dead, wounded, crazed or numbed. All my forward tanks were knocked out, and the roads were practically impassable.⁵⁵

Despite wreaking such havoc within the German defences, the Americans advanced less than two miles on the 25th and strong resistance was offered on the 26th as well. The Americans finally broke through on the 27th, once the Germans had run out of reinforcements with which to plug the gaps in their positions created during the attack.⁵⁶

The Cobra bombing attacks reiterated the ability of heavy bombers to significantly affect the morale of the troops on the ground, both friendly and German. The importance of the morale factor hardly needs explication in a context where men must contend with the terror of artillery, rifle, and machine-gun fire, where they must adapt themselves to the simple law which demands that they kill or be killed, and where they are frequently required to give up the relative safety of a slit trench and expose themselves to the enemy. Charnwood had provided an example of the positive morale effects of heavy tactical bombing for Allied

⁵⁴Wolfgang Pickert, “The Impact of Allied Air Attacks on German Divisions and Other Army Forces in Zones of Combat”, 1958, pp. 71-72. DHH 81/951 mfm.

⁵⁵From U.S. Army interrogation, qtd. in Wilmot, *op cit.*, p. 391.

⁵⁶D’Este, *op cit.*, p. 403; Wilmot, *op cit.*, pp. 392-393.

troops, and Cobra showed how adverse the effects could be on the other side of the bomblines.

Bayerlein said that the bombing attack of 25 July, which lasted three hours,

had a shattering effect on the morale of the troops. . . . The long duration of the bombing, coupled with the feeling of inability to offer any resistance, created a feeling of utter helplessness and depression, of weakness and inferiority. In the case of most of the personnel, morale was thus so badly shaken that . . . they surrendered when they had the chance. . . . The shock effect of the heavy bombings in many cases resembled the physical effects of . . . serious wounds. Many men . . . lost their reason, others were paralyzed and unable to act. I myself was in the center of the bombed areas on both 24 and 25 July and thus could personally observe the terrible impact of the bombing on troop morale. I had been in the focal points of battle in several theaters of war during World War II, but this was the worst I had ever experienced.⁵⁷

Some artillerymen had apparently refrained from firing their guns out of fear that their locations would be given away, thus inviting attacks from Allied bombers. Interrogation of prisoners of war revealed that German troops were especially discouraged by the utter disappearance of their own air forces from the theatre of war.⁵⁸

By 28 July, Bradley had evidently realised the value of the bombers' contribution to Cobra, and he wrote to Eisenhower accordingly. Eisenhower, too, came to see the mishap in perspective when he later wrote about the campaign in Northwest Europe:

The closeness of air support given in this operation, thanks to our recent experiences, was such as we should never have dared to attempt a year before. We had indeed made enormous strides forward in this respect, and from the two Caen operations [Charnwood and Goodwood] . . . we had learnt the need for a quicker ground follow-up on the conclusion of the bombing, for the avoidance of cratering and for attacks upon a wider range of targets to the rear and on the flanks of the main bombardment area. Our technique, however, was still not yet perfected, and some of our bombs fell short, causing casualties to our own men. Unfortunately, perfection in the employment of comparatively new tactics, such as this close-support carpet bombing, is attainable only through the

⁵⁷Qtd. in Pickert, *op cit.*, pp. 76-77.

⁵⁸DHH 181.009 (D1058), Informational Intelligence Summary, 30 August 1944. Issued by the Assistant Chief of the Air Staff, Intelligence, USAAF.

process of trial and error, and these regrettable losses were part of the inevitable price of experience.⁵⁹

Operation Cobra had proven the consequences that could follow from the employment of weapon-systems as complicated as strategic bombers when the underlying doctrine was denied. As the airmen had maintained, the 'heavies' had never been designed for the tasks which they were now being required to carry out. Cobra had also shown, however, that they could make a significant difference to an unfolding battle on the ground if the defenders were concentrated inside the target areas, as was Panzer Lehr.⁶⁰ In light of the heavy losses that were exacted for each small gain in the battle to expand and then break out of the Normandy lodgement area, it is difficult to see why a commander should not have employed every weapon at his disposal in the attempt to get the job done. Considering that every operation entailed casualties, the use of bombers came to be seen from a cost-versus-benefit perspective.

On the eastern flank, the risks entailed by such a perspective were deemed to be worth taking because of the peculiar tactical difficulties imposed by the terrain. Surrounding Caen is a gently rolling plain, with a series of slopes rising gradually to the town of Falaise, about 20 miles to the south. One of the ongoing arguments about the campaign concerns the question of whether the area south of Caen constituted good 'tank country.' It consists of wide open stretches punctuated with "creeks, rivers, defiles, gullies, ridges, hills and ravines". Although most of the water barriers, like the Orne, hardly merit the name 'river,' they served

⁵⁹*Supreme Commander's Dispatch for Operations in Northwest Europe, 6 June 1944-8 May 1945*. SHAEF, n.d. Qtd. in Richard P. Hallion, *Strike from the Sky: The History of Battlefield Air Attack 1911-1945* (Washington, 1989), p. 211.

⁶⁰Gooderson, *op cit.*, p. 386.

as considerable tank obstacles. To quote Canadian Brigadier General Radley Walters (who was a major during the Normandy campaign), “good tank country is where there are few anti-tank guns.”⁶⁰ To another Canadian Armoured Corps veteran, Brigadier William Murphy, “tank country was that country which afforded the best going, and contained successive features permitting good fields of fire from hull-down positions”—meaning positions where the tank’s hull is protected by a rise in the ground, leaving only the turret and main armament exposed for firing. The area about Caen was, by Murphy’s definition,



Figure 6: The German 88-mm anti-tank gun was the most feared of the Normandy campaign.

⁶⁰Qtd. in Roman Jarymowycz, “The Naval Historian as Tourist”, *Canadian Military History* 7:4 (Autumn 1998), pp. 7-8.

good tank country, but it was also “just such country that was the best protected by anti-tank weapons”, and the Germans had a lot of them.⁶² Rather than tank country, this was gun country, as Marc Milner has recently argued.⁶³

It was the clear fields of fire that enabled the Germans to turn the potential of their superior anti-tank weaponry into such a priceless advantage. Having occupied the area throughout the war, they knew where anti-tank positions could best be established to stop Allied armour. Dug in and hidden on the high ground, the Germans had most of the approaches covered by their guns so that accurate and deadly fire would greet any intrusion. The success of offensive operations was therefore dependent on the ability to apply overwhelming fire in support of an assault, to kill or at least neutralize the defenders.

Although “artillery could shoot [attackers] on to a position,” getting there was only half the battle; staying there was the other. German tactical doctrine called for the recapture of any lost ground by immediate counter-attacks, usually delivered from the flanks and supported by armour and “endless mortar fire”.⁶⁴ As he contemplated his next battle, Guy Simonds decided that he needed heavy air support for both halves of the attack. Following the precedents of Charnwood, Goodwood, and Cobra, he called upon heavy bombers to target potential gun positions that had been identified by Canadian Intelligence, as well as likely German strongpoints and avenues of approach along the flanks, in order to overcome

⁶²William Murphy, “What is Tank Country?” *Canadian Military History* 7:4 (Autumn 1998), p. 69.

⁶³Marc Milner, “Reflections on Caen, Bocage and the Gap: A Naval Historian’s Critique of the Normandy Campaign,” *Canadian Military History* 7:2 (Spring 1998), pp. 7-17.

⁶⁴Copp and McAndrew, *op cit.*, p. 120. Mortars fire high-explosive bombs at high trajectories over short distances.

immediate opposition and preclude any attempted counter-move. All of the kinks had not been worked out of the new method of fire support, however. That method had been improvised and the technique subsequently refined, but army and air force planners were still in the experimental stage. It remained to be seen whether heavy bombers could reliably solve the problems faced by the army on the ground.

Chapter 3: Best-Laid Plans

In assessing the failure of an operation that was intended to match the American break-out on the western flank with a similar one on First Canadian Army's front, historians have judged the plan for Totalize to have been fundamentally flawed in that it was too complicated and too inflexible to allow for success. In order to repudiate such conjecture, it will be necessary to analyse in close detail the relationship between intelligence and the inter-service planning process. To clarify the intentions behind Guy Simonds' plan for Totalize requires tracing a complicated series of meetings and reports to ascertain what he knew at various points during that process, as well as understanding the parameters that were imposed upon him as the *quid pro quo* of a combined operation. Historians who have not done so attribute to Simonds, by default, a degree of control that he simply did not have. This method of analysis suggests that the tactics adopted were in fact the most logical, given the defensive obstacles 2nd Corps had to surmount. Only thus can the operation be evaluated fairly, and the deficits of previous histories remedied.

Simonds made air support a key element in his plan first and foremost because the tools with which he had to work were not adequate to overcome the German defences at a sustainable loss rate. The Allies' pre-war failure to seriously analyse the problems of

armoured warfare was the most serious debt that had to be paid during the battles in Normandy. Not expecting to make a grand continental commitment, neither the British nor the Americans had overly concerned themselves with the development of progressive tank designs before the war. The result was the great qualitative disparity between the Allies' main battle tank, the Sherman, and the larger German tanks. Fortunately for the Allies, the enemy possessed fewer Panthers and Tigers than the smaller and much less dangerous Panzer IVS, but those that were available made an impact beyond their numbers in moral effect alone. The Sherman's 75-mm main armament was ineffective at ranges greater than about 500 yards—suicidally short compared to the longer reach of the Tiger's 88, which was 2000 yards or greater. The effort to even the odds led the Americans to introduce a 76.2-mm gun, which still proved inadequate. A match for the heavier German armament was found with the conversion of British and Canadian Shermans to mount the 17-pounder, but these 'Fireflies' only constituted about 25% of the tank strength in 21st Army Group during the Battle of Normandy. By the end of July, for example, squadrons of the Fort Garry Horse had only been equipped with one Firefly per troop of four tanks.¹ The 17-pounder was also limited in that it only fired armour-piercing solid shot (AP), of little use against targets other than enemy armour. The Sherman's 75-mm gun could at least fire both AP and high explosive rounds.

The Sherman's 76-mm frontal armour was unable to withstand hits from German 88- and even 75-mm anti-tank guns. Operational research reports showed that of a sample of 65 hits by German AP shot, 62 resulted in penetration of the Sherman's armour. Of 12 hits by 88s,

¹A summary compiled from comments made by tank crews in the 2nd Canadian Armoured Brigade is quoted in Terry Copp and Robert Vogel, *Maple Leaf Route: Falaise* (Alma, Ont., 1983), p. 26.



Figure 7: A knocked-out German Mark V Panther with 75-mm gun.



Figure 8: A knocked-out Mark VI Tiger with 88-mm gun.

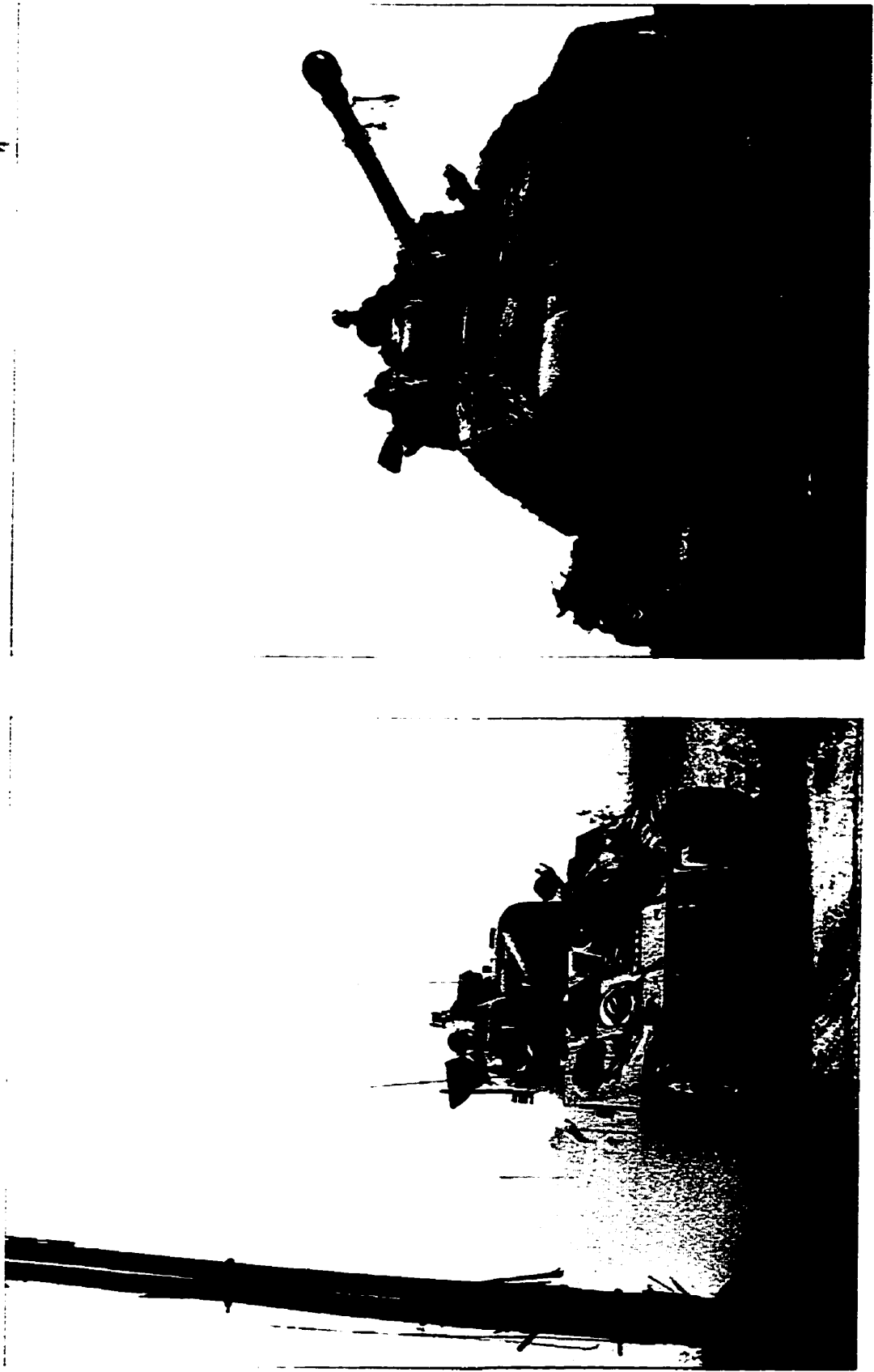


Figure 9: Sherman tank with 75-mm gun (left), and a Sherman 'Firefly' with 17-pounder (right).

all penetrated; the balance had been made by 75s. In the sample analysed, 62% of all hits knocked out tanks. The consequences for tank crews were deadly, as it was very unlikely that they would survive a direct hit. Even worse, the petrol-fuelled Shermans tended to burn much more easily than diesel-fuelled tanks. Analysis showed that of the 45 tank casualties, 82% of them had been 'brewed up.'² About the only saving grace was the fact that because the Allies had so many more tanks than the Germans, they could afford to lose a few hundred Shermans in an operation like Goodwood, whereas the Germans could not replace their tank casualties. This was small compensation, however, for the men who had to fight at such disadvantage.

Tactical doctrine suffered as a result of substandard equipment. The preferences of armour and infantry were often at odds, as Terry Copp and Robert Vogel explain:

[w]hat the infantry wanted from the tanks was close support, machine gun fire and mobile gunnery that could be brought into action immediately and directly against both enemy infantry and armoured targets. The tankmen knew that if they tried to meet these demands the German tanks and anti-tank guns would destroy them with ease. Consequently, armoured doctrine called for indirect support from the infantry, firing from the flank or the rear, hugging dead ground and avoiding enclosed or wooded areas. Tanks could help fire the infantry onto their objective but they dared not stay with the infantry when the Germans counterattacked. The defensive role was left to the anti-tank guns which were to be rushed forward as soon as the objective was seized. The irony of the most highly mechanized army in the world relying on towed anti-tank guns which had to be man-handled into position was evident to all.³

Chapter 1 focused on the debate within air forces over the 'proper' use of air weapons, and pointed to the consequences of the lack of a doctrinal guide once the war began. Obviously,

²21 Army Group No. 2 Operational Research Section, Report No. 12, "Analysis of 75 mm Sherman Tank Casualties Suffered Between 6th June and 10th July 1944," *Canadian Military History* 7:1 (Winter 1998), pp. 73-77.

³Copp and Vogel, *op cit.*, pp. 26-28.

the Anglo-Canadian armies engaged in the Normandy campaign suffered from a similar failure to coordinate the right weapon with the right tactics. The improvised use of strategic bombers did not make this problem go away, but by incorporating the 'heavies' into his plan for Operation Totalize, Guy Simonds attempted to compensate for the army's tactical weakness with additional fire-power. Because that fire-power could be applied either in conjunction with or independent of 2nd Corps' artillery, he hoped it would also alleviate the logistical problems of maintaining support during a break-out.

By late July, 21st Army Group seemed poised to make that break-out. The open ground south of Caen allowed "plenty of room for armoured formations to manoeuvre", and the bridgehead had been expanded enough to allow the build-up of forces that Montgomery had wanted before he felt strong enough to push the Germans back toward the frontiers of the Reich. On 23 July, First Canadian Army became operational under its General Officer Commanding-in-Chief (GOC-in-C), Lieutenant-General H.D.G. Crerar, and took over the eastern flank of 21st Army Group. He had under command Lieutenant-General John Crocker's 1st British Corps; he also had, from 31 July, Simonds' 2nd Canadian Corps, which had just been defeated with heavy casualties in its attempt to take Verrières Ridge in Operation Spring on 25 July. Following Operation Cobra, Montgomery had issued a directive on 27 July which specified that "large scale operations" were not to be undertaken on the Caen front because the Germans were too strong there. In light of the changed circumstances that issued from Cobra, it was essential that the enemy not be allowed to shift the strong armoured forces on the Caen front to the west where they might interfere with the developing American break-out. First Canadian Army was therefore to make additional, limited holding

attacks while Second Army prepared to deliver the “main blow on the eastern flank”. It accordingly launched Operation Bluecoat in the Caumont sector, south-west of Bayeux. It began on 30 July, but again, success was limited.⁴

The German armour had already started to move by that date, however. There had been seven panzer divisions on the Caen front on 26 July: 21st, 12th SS, 1st SS, and 10th SS were holding parts of the front line, with 116th, 2nd, and 9th SS in reserve. On 27 July, 2nd and 116th Panzer moved west to bolster the desperate Seventh German Army. Then, 9th S.S. and 10th S.S. Panzer Divisions moved to counter Bluecoat beginning on 1 August. During a meeting with Crerar on 29 July, Montgomery again “emphasized the importance of holding in place, as far as possible, the strong enemy forces facing the First Canadian Army.” Crerar accordingly directed Simonds to prepare a major attack along the Caen-Falaise road with the latter town as the objective.⁵ As events unfolded during the first week of August, Simonds’ operation took on an entirely greater significance than had originally been forecast.

Simonds was described by an army clerk as a “strict disciplinarian, [who] expected no less than excellence from everyone under his command. He looked like a soldier; he acted like a soldier. He was stern and he was clever. He stood for no nonsense.”⁶ His Chief of Staff, Brigadier N.E. Rodger, referred to his “precise and clear and far seeing mind”, his composure,

⁴*Ibid.*, p. 80.

⁵C.P. Stacey, *Official History of the Canadian Army in the Second World War Volume III, The Victory Campaign: The Operations in North-West Europe 1944-1945* (Ottawa, 1960) pp. 199-204.

⁶Oscar Lange, qtd. in Dominick Graham, *The Price of Command: A Biography of General Guy Simonds* (Toronto, 1993), p. 183.

self-control, and professionalism.⁷ He had more combat command experience than any of the other Canadian general officers serving in Normandy, Crerar included, yet this amounted to a mere six months leading the 1st Canadian Infantry and 5th Canadian Armoured Divisions in Sicily and Italy. He was one of the few elite officers in the Canadian Army, having attended the British Staff College at Camberley in 1936-1937. Of the teaching there he later said “[t]he essence . . . was not to indoctrinate officers with preconceived theories, but to make them think and come up with their own solutions to the problems of modern war”. Simonds was the sort of officer who took those lessons to heart. He was an intellectual, and considered by Montgomery to be the *only* Canadian general “fit to hold high command in war”. To Bradley, he was the “best of the Canadian generals”; and Lieutenant-General Brian Horrocks, whose 30th British Corps would serve under First Canadian Army during much of the fighting in the Rhineland later in the war, said Simonds was “a first-class commander with a most original brain and full of initiative”. Simonds also developed a reputation as a hard-driving commander who was ruthless in ‘sacking’ subordinates who did not produce results. One brigadier summed him up: Simonds was “not a man one could love. In my heart I knew, however, that I would rather serve under [his] type than under a more kindly but less driving commander; the former is much more likely to win the battle.”⁸

Simonds had set down an operational policy in February 1944 to guide training within his corps, which was preparing for the Allied advance that would follow the first stage of

⁷NAC RG 24 v. 10798, Personal diary of Brigadier N.E. Rodger, Chief of Staff, 2nd Canadian Corps.

⁸The officers noted are quoted in J.L. Granatstein, *The Generals: The Canadian Army's Senior Commanders in the Second World War* (Toronto, 1993), pp. 151, 146, 172-173.



Figure 10: Simonds, Churchill, Montgomery, and Dempsey examine a map near Caen, 22 July 1944.

Overlord—the securing of the lodgement area and the build-up of 21st Army Group. The policy noted the characteristics of the German defence system and tactics that were to be expected: the sparsely held line of outposts strongly supported by machine guns and mortars, and the inevitable armoured counter-attacks. Simonds explained that the

success of the offensive battle hinges on the defeat of the German counter-attacks, with sufficient of our own reserves in hand to launch a new phase as soon as the enemy strength has spent itself. The defeat of these counter-attacks must form part of the original plan of attack which must include arrangements for artillery support and the forward moves of infantry[-]supporting weapons—including tanks—on the objective.’

Simonds’ preferred method of assault was informed to a significant extent by the abilities and limitations of the artillery. Simonds was, originally, an artillery officer, and according

’Reproduced in Copp and Vogel, *op cit.*, p. 46.

to John A. English, his tactical doctrine “typified the proclivity of an artilleryist”.¹⁰ Attacking divisions were to operate on narrow frontages with forces disposed in depth, and this decision was related to the ability of divisional artillery to support only one of its three brigades at a time. Likewise, the divisional engineers could only open and maintain one two-way route to handle the division’s traffic. The narrow front and resulting depth of the division would give it “staying power”, which in turn would enable offensive operations to be planned with fewer phases. Simonds defined a phase as “the transfer of responsibility between units and formations and their commanders for continuance of operations”, and every new phase meant a pause while the transfer was carried out, which would give the enemy time to recover from the initial shock of an assault. Because counter-attacks would be supported by tanks and mortars, and the effective range of mortars caused them to be sited approximately 4000 yards behind the forward positions, the first phase of an assault must have planned objectives at least 4000 yards within the German positions if the mortars were to be put out of action before they could interfere with consolidation on the objectives.¹¹

Simonds also ordered that special consideration be given to determining the point at which artillery should be moved forward during the attack, because a pause would result during which the leading troops would be without full fire support. This question posed a dilemma: should attacking forces continue beyond their objectives in order to exploit the temporary opportunity presented by the enemy’s disorganization, thus incurring the risk of moving beyond the range of their fire support, or should they accept a pause and wait for the

¹⁰John A. English, *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* (New York, 1991), p. 271.

¹¹*Ibid.*, pp. 238-240. English discusses Simonds’ operational policy in detail.

guns to move up? As a rule, Simonds believed it necessary to wait for support. Given Allied air supremacy in Northwest Europe by the summer of 1944, it would be possible to alleviate the problem of the pause with the method that he had proposed in 1939: "This is the period," Simonds concluded, "at which the employment of all available air support is most useful to tide over the gap."¹² Simonds' pre-war thinking would thus provide the theoretical foundation for operations in Normandy. By using air support as a substitute for artillery, however, Simonds would be presented with the additional problem of coordinating air strikes with the ground assault. The degree of cooperation required by such tactics would prove elusive, given the state of communications technology in 1944 and the jealous guarding of jurisdiction within the air force.

Simonds' tactical doctrine may have looked fine on paper, but his corps had been roughly handled by the Germans during Operation Spring, which produced the bloodiest day for the Canadian Army, after Dieppe, in the entire war. Contradicting Simonds' ideas about narrow frontages was the experience gained by 3rd Canadian Division since D-Day, which taught that assaults were better launched on wide fronts so as to compel the enemy to disperse his defensive power.¹³ And for all the discourse on taking objectives and defending them against counter-attacks, how was this to be done? The first requirement was to breach the forward line of defensive positions, which, as in Cobra, was usually done with infantry divisions. Because of the infantry's vulnerability to the small-arms fire and fragments from mortar bombs that covered these positions, the initial breach could more easily be made by armour.

¹²Qtd. in Copp and Vogel, *op cit.*, p. 46.

¹³English, *op cit.*, p. 250.

The accepted role of the tanks, however, was the exploitation of the breach, and in any case, infantry were needed to neutralize the anti-tank guns in the rear areas if the tanks were not to be shot up like ducks in a gallery. According to historian George Stanley, if a breakthrough was to be successful, it would somehow be necessary to get the infantry safely through the more dangerous (to it) forward zone, "so that they could eliminate the guns and clear the way for the armoured formations".¹⁴ Once the forward line was breached and first phase objectives reached, how were the counter-attacks to be dealt with? One way to prevent reinforcements from interfering "was to isolate the objective area by boxing it in with [artillery] barrages".¹⁵ These were the two essential problems confronting Simonds when he began to plan Operation Totalize at the end of July.

Opposite the Canadian positions on the northern slope of Verrières Ridge, which had remained in German hands despite repeated attacks since Goodwood, were two lines of defence that would have to be broken before Falaise was reached. The forward position occupied the line from May-sur-Orne through Tilly-la-Campagne to La Hogue, and was dominated by the high ground at Point 122, about two miles to the rear. Previous attempts to take May and Tilly had been especially bloody and futile affairs. The second "partially prepared" position extended from Bretteville-sur-Laize to St. Sylvain, and was controlled by the high ground about Hautmesnil, somewhat less than a mile in rear. Both lay astride the Caen-Falaise road, which would serve as 2nd Corps' axis of advance. Photo reconnaissance had identified "a mass of small weapon pits and potential M[achine] G[un] sites" between the

¹⁴George F.G. Stanley, *In the Face of Danger: The History of the Lake Superior Regiment* (Port Arthur, Ont., 1960), p. 153.

¹⁵English, *op cit.*, p. 273.

two positions.¹⁶ Intelligence had been able to “accurately” locate the main gun areas that would provide further support to the German lines. Long-range batteries comprising sixty to seventy 88-mm guns and “about as many 20-mm A[nti] A[ircraft] guns” of Wolfgang Pickert’s 3rd Flak Corps occupied positions behind the secondary line.¹⁷ Across the Orne Panzer Group West faced Second Army, and Simonds recognized the importance to the Germans of holding these two defensive lines in order to guard their positions on the Orne.¹⁸

As of 1 August, the front-line defences were being held by 1st and 9th S.S. Panzer Divisions, which had been mainly responsible for defeating Operation Spring. Intelligence indicated that each division was keeping one of its two infantry regiments in the rear area to work on the secondary position and to “form the nucleus of a defence in the event of a ‘break in’”. Simonds assumed that in such an event, the Germans would “rely on being able to get tanks and SPs back” to improvise a defence on the rear position. The *Hitlerjugend* was believed to be in “close reserve opposite our front”, so it could be expected to counter-attack on 2nd Corps’ eastern flank.¹⁹ The Corps Intelligence Summary for 28 July also anticipated the arrival of an additional infantry division from Fifteenth Army, still waiting in vain for the ‘real’ invasion north of the Seine River in the Pas de Calais. Intelligence predicted that the Germans would have to replace the armoured divisions on the Caen front with infantry so that the former could be moved to stabilise the critical situation on Seventh Army’s front:

¹⁶DHH 87/243, Current Reports From Overseas #57, 30 September 1944.

¹⁷G.W.L. Nicholson, *The Gunners of Canada: The History of the Royal Regiment of Canadian Artillery Volume II 1919-1967* (Toronto, 1972), p. 313.

¹⁸Crerar Papers (CP), NAC MG 30 E157 v. 2, Appreciation for Operation “Totalize”, 1 August 1944.

¹⁹*Ibid.*

Three days ago the enemy appeared to be using his tanks to provide a screen behind which the infantry could dig defences. It was then believed, and was probably the case, that his infantry was spread very thin along the line. It is unlikely that the infantry positions discovered by [tactical reconnaissance] would increase in extent daily without him contemplating further infantry to man them.²⁰

Although they were 'spread thin,' the Germans would likely "concentrate their infantry around tactically important localities, and . . . leave gaps in parts of the line which they would cover by fire from automatic weapons and anti-tank guns".²¹ On 1 August, First Canadian Army Intelligence reported the "beginning of a third line . . . 2000 [yards] in length, two miles NORTH of POTIGNY".²² Simonds was therefore confronted by three potential defensive lines covered by an array of machine guns, *Nebelwerfers*—the dreaded 'moaning Minnies,' multi-barrel rocket projectors—and numerous artillery pieces including large numbers of the equally-notorious 88s. Though under strength in infantry, the fire-power and armoured counter-attacks which the Germans could bring to bear compelled Simonds to devise an innovative plan if a debacle like Operation Spring was not to be repeated.

Against this backdrop, Simonds produced a written appreciation for Operation Totalize on 1 August. It noted the German dispositions opposite the front of 2nd Corps, and explained the significance of the open terrain for the impending attack: it would offer little cover for infantry or tanks, and "the long range of [German] anti-tank guns and mortars, firing from carefully concealed positions, provides a very strong defence in depth". Because the original object of the operation had been to hold the German armour on the Caen front,

²⁰NAC RG 24 v. 13711, 2nd Cdn Corps Intelligence Summary #18 for 28 July 44.

²¹Current Reports From Overseas #57, 30 September 1944. DHH 87/243.

²²NAC RG 24 v. 13645, First Cdn Army Intelligence Summary #33 for 1 Aug 44.

the Canadians had “done everything possible to indicate that we intend to continue attacking”. Surprise could not be achieved, therefore, except in respect to the exact time and method of attack. The concept behind Simonds’ proposed method was strongly influenced by Operation Goodwood. On 18 July, he had watched as 20-30 tanks were destroyed within seconds of crossing the startline for the attack. Resolved to find a less costly method,²³ he told Crerar:

- 7 In essence, the problem is how to get armour through the enemy gun screen to sufficient depth to disrupt the German anti-tank gun and mortar defence, in country highly suited to the tactics of the latter combination. It can be done
- (a) By overwhelming air support to destroy or neutralize enemy tanks, anti-tank guns and mortars.
 - (b) By infiltrating through the screen in bad visibility to a sufficient depth to disrupt the anti-tank gun and mortar defence.

It requires practically the whole day bomber lift to effect (a) and if two defence zones are to be penetrated a pause with loss of speed and momentum must be accepted. It is considered that this may be avoided if the first zone is penetrated by infiltration at night but this can only be attempted with careful preparation by troops who are to do the operation.²⁴

Simonds’ appreciation requires some analysis. Because it was really up to the infantry to take care of the rear gun positions and thus enable the tanks to break through, part (b) above has received more attention from historians like Stacey and Stanley. Breaking through the front-line positions required the infantry to somehow bypass strongpoints like May-sur-Orne and Tilly-la-Campagne, a task which had proven considerably more difficult than had been foreseen by the brigadier who judged the latter to be a mere “two-company objective”.²⁵

²³Reginald H. Roy, *1944: The Canadians in Normandy* (Ottawa, 1984), p. 149.

²⁴Stacey, *The Victory Campaign*, pp. 208-209.

²⁵The Brigadier was Jim Jefferson, commanding the 10th Infantry Brigade of the 4th Canadian Armoured Division. Qtd. in English, *op cit.*, p. 253.

Repeated attempts to take Tilly had been repulsed both during and after Spring, with heavy casualties. Infiltration at night would sharply reduce the ability of German gunners to disrupt the advance, but as Simonds himself had noted in his pre-war article discussed in Chapter 1, machine guns were not sufficiently handicapped in darkness because they were capable of indirect fire.

The answer lay in an unorthodox method of attack. Simonds hinted in the appreciation that the attack would be made at night, supported by heavy bombers. The outline plan that he submitted with it called for the tanks to lead rather than support the infantry. To get the infantry through the front line, tracked, armoured personnel carriers would be used in combat for the first time. When the Royal Canadian Artillery converted from the 105-mm howitzer to the 25-pounder at the end of July, the self-propelled 105-mm 'Priests' with which it had been issued became superfluous.²⁶ Simonds had 76 of them stripped of their guns and converted into armoured personnel carriers, to be issued to the infantry brigades making the assault in the days preceding the operation. In this fashion, the infantry would be able to move through the forward defensive line in relative safety, then 'de-bus' before taking its objectives.

Simonds' notion of using air support to neutralize the enemy's counter-armour forces was feasible, as Cobra had shown, but only if German tanks and anti-tank guns were concentrated within the target areas. Apart from some shaking of the enemy's morale, bombs that fell in open fields accomplished little. The bomber targets specified in the outline plan would be the strong-points preventing the infantry from cracking the forward defensive line and through

²⁶Nicholson, *op cit.*, p. 310.

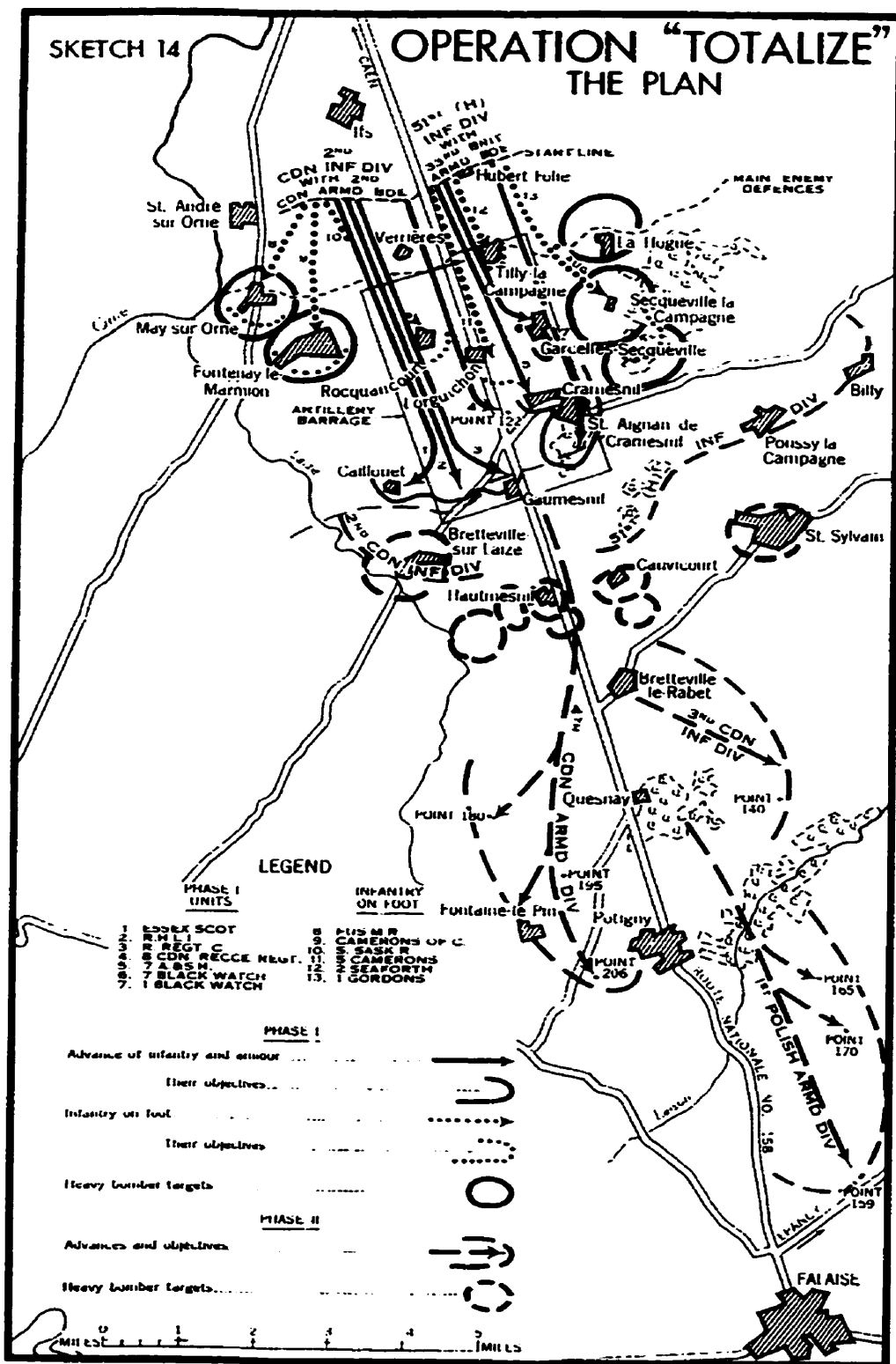
which Simonds expected the counter-attacks to be delivered: west of the road, the towns of May and Fontenay, which had been denied him since mid-July; and east of the road, a forest south of La Hogue which he suspected to be a tank harbour.²⁷ The Lancasters of Bomber Command were to “obliterate” these areas beginning at H-hour (the time the attack would commence), tentatively set for 2300 hours on 8 August. Between the two target areas lay, straddling the road, a narrow zone through which 2nd Corps’ armoured columns would advance.²⁸ Three years after the fact, Simonds gave a lecture during which he explained that he had “wanted [air support] in Phase I, to seal off the flanks of the very narrow corridor through which the armoured columns were to pass and, in particular, from enemy armour”.²⁹ It therefore seems that Simonds was less concerned with actually destroying the enemy in the target areas than with preventing him from interfering with the advance.

When the appreciation was written, 1st and 9th SS held the line in front of 2nd Corps with the bulk of their tanks and self-propelled guns. Bombing would, in theory, prevent them from counter-attacking into the flanks of Simonds’ armoured columns and possibly disorganizing the entire operation. Getting past the SS divisions in Phase I was expected to be the most difficult part of the operation. Once the leading infantry’s objectives were secure, a firm base would be available through which the armoured divisions could continue the assault.

²⁷David R. O’Keefe, personal correspondence based on “Bitter Harvest: A Case Study of Allied Operational Intelligence for Operation Spring, Normandy, July 25, 1944,” (MA thesis, University of Ottawa, 1996).

²⁸CP v. 2, Outline plan for Operation “Totalize”.

²⁹DHH 693.013 (D2), *British Army of the Rhine (BAOR) Battlefield Tour Operation Totalize: 2 Canadian Corps Operations Astride the Road Caen-Falaise 7-8 August 1944* (September 1947), p. 33.



Map 2: Operation Totalize—the Plan (final version), from Stacey, *The Victory Campaign*, p. 217. The bomber targets are circled.

As the advance would move out of the effective range of artillery near the second German defensive line, Simonds now had to solve the puzzle that had been pondered since the Great War: how to maintain the momentum of the attack. His appreciation stated that

If all available air support is used for the first "break in" there will be nothing for the second except diminished gun support, unless a long pause is made with resultant loss of speed. If on the other hand the first "break in" is based upon limited air support (heavy night bombers) all available gun support and novelty of method, the heavy day bombers and medium bombers will be available for the second "break in", at a time that gun support begins to decrease and it should be possible to maintain a high tempo to the operations.³⁰

The outline plan, in the second phase, called for "[a]ll available medium bombers to lay [a] 'fragmentation carpet'" along the Falaise road near the second line and "[h]eavy day bombers (Fortresses)" to drop high explosive on Bretteville, Gouvix, Hautmesnil, and Cauvicourt. Another attack with fragmentation bombs was proposed over a wider area stretching further south, to neutralize German gun positions.³¹ The idea of using day bombers to support the second phase of Totalize hearkened back to Simonds' 1939 articles in *Canadian Defence Quarterly*, and it applied the lessons of Goodwood, which had died out partly due to a lack of fire support in the latter stage of the operation. Bombing in Totalize would accompany the ground assaults, and was arranged in progressive waves timed to move with the troops.

On 2 August Crerar sent a planning schedule to Brigadier C.C. Mann, First Canadian Army's Chief of Staff, ordering conferences with Simonds and with 84 Group to decide the technical matters related to the bombing attacks. Air force doctrine by this point in the campaign called for Second Tactical Air Force to work with 21st Army Group, constituting

³⁰Stacey, *The Victory Campaign*, pp. 208-209.

³¹CP v. 2, Outline plan for Operation "Totalize".

together a “combined force operating under separate commanders but in furtherance of one combined plan”. This type of relationship was extended to subordinate formations, so Second Army’s air support was provided by 83 Group and First Canadian Army was to work with 84 Group. The final decision to commit air forces or put air plans into effect rested with the RAF, which would be “guided by Army as to military necessity of each task and priorities involved”. Requests by the army for support therefore went to its associated group, and those that were beyond the latter’s resources, such as heavy bomber strikes, were submitted through parallel channels: First Canadian Army to 21st Army Group, and 84 Group to Second TAF. Requests were then passed up from Army Group-TAF level to AEA and Leigh-Mallory, who finally coordinated with Bomber Command or Eighth Air Force.³² The rather involved chain of command had the practical effect of denying to the armies a direct communications link to the strategic bombers providing support on any given occasion.³³ The potential negative consequences of this fact had been revealed in Operation Cobra. If the tactical situation changed after the planes left the ground, or if there were any bombing errors, a flexible response while the planes were in the air would not be possible.

Until sufficient ground had been captured in Normandy to permit the construction of airfields and establish additional headquarters with their communications requirements, 83 Group provided air support for both Crerar and Dempsey using its own and 84 Group’s

³²CP v. 24, “Lecture to the Canadian Staff Course, Royal Military College, Kingston, Ont. 25 July, 1946”, by C.C. Mann.

³³Dominick Graham, *The Price of Command: A Biography of General Guy Simonds* (Toronto, 1993), p. 186.

resources. The latter became operational after the completion of Totalize.³⁴ Accordingly, Mann sent a tentative air plan over to 83 Group in preparation for an important army-air conference that would settle the preliminary details of the air support for Totalize. The conference, held at First Canadian Army headquarters on the 4th, was attended by Crerar, his staff officers, and Simonds—who had arrived for a later meeting with Crerar but was asked to sit in; C.A. Richardson, the Brigadier General Staff (Plans), 21st Army Group; Leigh-Mallory; Coningham; and the AOCs of 83 and 84 Groups, Air Vice-Marshal Harry Broadhurst and L.O. Brown.³⁵ Absent were any representatives from Bomber Command or Eighth Air Force, which would not become involved until after plans were considered at the TAF level. Procedural matters for the bombing were explained to the army officers, and Leigh-Mallory suggested that an additional target, St. Sylvain, could be included in the bombing program for the second phase. For technical reasons, he also explained that “better accuracy can be obtained by using the heavy bombers of Bomber Command” on the targets to be hit with high explosive. Simonds’ outline plan had called for “Fortresses”, but this specification may simply have been due to a habit of thought. Eighth Air Force was, after all, the day-bombing specialist.

The decisions taken at the conference concerning the timing of the attacks would force Simonds to adhere to a strict timetable. If it became necessary to alter the time of the air strikes, the army was told that “the RAF require 5 hours prior to H hour”, which Simonds had set for 2300, “if a 24 hours postponement is required” on D-Day (8 August). Five hours

³⁴CP v. 24, Mann lecture.

³⁵CP v. 2, Memorandum of Points Arising at Conference Held At HHQ First Cdn Army at 1700 B hrs 4 Aug 1944, dated 5 August 1944.

notice was also required for a postponement of the bombing in Phase II, slated for 1400 on D plus 1. "NO change" was possible, therefore, "after 0900 hours". This requirement would mean, in effect, that despite any changes in the tactical situation on the ground after 0900, the second phase bombing could not be aborted. Simonds would have to decide by that time whether or not to proceed with the air strike. The time constraints would determine the progress of the operation to a considerable degree, but this fact has been consistently overlooked by historians in writing their accounts of Totalize.

First Canadian Army received Montgomery's Directive M516 at 2100 hours that same day, officially ordering it to attack toward Falaise with the object of capturing as much terrain as possible and cutting off the enemy forces opposing Second Army across the Orne. Montgomery wanted the operation to begin no later than 8 August, but preferably by the 7th.³⁶ Mann then called 2nd Corps' Chief of Staff, Rodger, at 2300 hours to ask if D-Day could be moved up 24 hours. Totalize was then set to go on 7 August.³⁷

First Canadian Army's formal 'Request for Air Support' listed the purpose of the first phase bombing as the destruction of the "main enemy defensive localities and tank harbours on flanks of the attack". Targets one to five would be attacked with high explosive, which was effective against tanks and would also crater the ground, making it impassable to either tracked or wheeled vehicles. The ground advance would begin simultaneously with the air strikes, which were timed to last until H plus 45 minutes. Bombing in the second phase was

³⁶CP v. 2, 21 Army Group M516, 4 August 1944.

³⁷NAC RG 24 v. 10798, Rodger Diary.

to be more complicated. Cratering was accepted for targets six, seven, and nine, the “main centres of resistance in the enemy’s defensive system on the flanks of the attack”. H-hour was requested as 1400 on D plus 1, depending on the weather, with the bombing to be completed by H plus 30 minutes. Target eight, straddling the axis of advance, would have to be attacked by means of a “fragmentation carpet”. The change in bomb type was due to two factors. Cratering was unacceptable because it would impede the advance, and as most

Air Strike Targets: Operation Totalize (see Map 3)	
Phase I:	Phase II:
1) Fontenay-le-Marmion	6) Bretteville-sur-Laize
2) La Hogue	7) St. Sylvain
3) May-sur-Orne	8) Cluster of targets astride the Caen-Falaise road, including Cauvicourt and Hautmesnil
4) Secqueville-la-Campagne	9) Gouvix
5) Woods south of Secqueville, thought to be a tank harbour.	10-12) Larger area south of target 8 (not on map).

of the German armour was expected to be in the forward positions, high explosive should not, it was thought, be required. Secondly, the purpose of the attack was the “neutralization of enemy weapons” and infantry expected to garrison the second defensive position. Fragmentation bombs would not knock out tanks, but they could be quite effective against infantry and artillery given the right circumstances, as Cobra had demonstrated. Fragmentation attacks were also requested against the enemy’s “main gun areas” further south of the Bretteville-St. Sylvain line—targets 10 to 12—“at the time that the break through

MAP 7 AIR PLAN

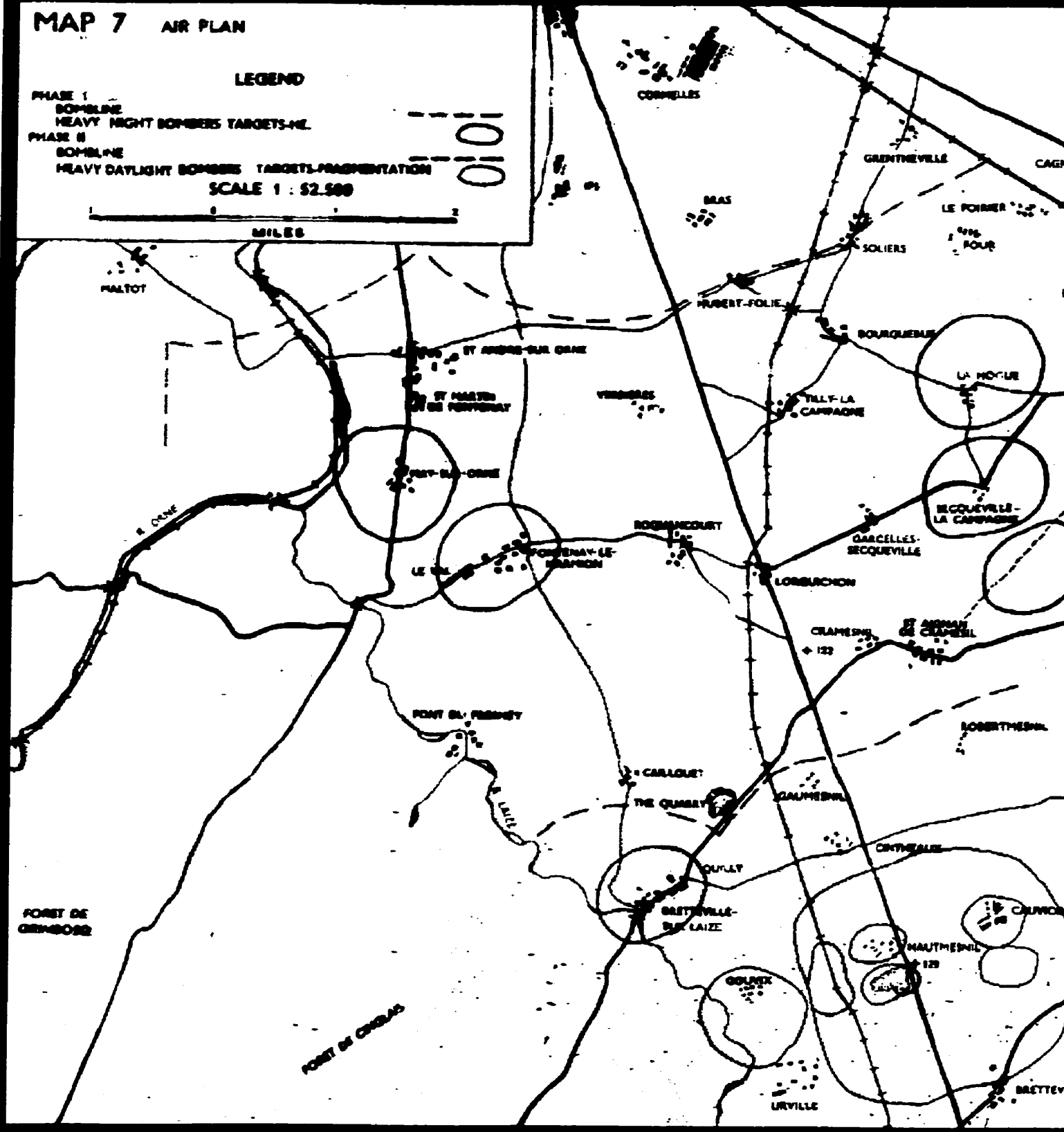
LEGEND

PHASE I
BOMBLINE
HEAVY NIGHT BOMBERS TARGETS-NE

PHASE II

BOMBLINE
HEAVY DAYLIGHT BOMBERS TARGETS-PROBATION

SCALE 1 : 52,500



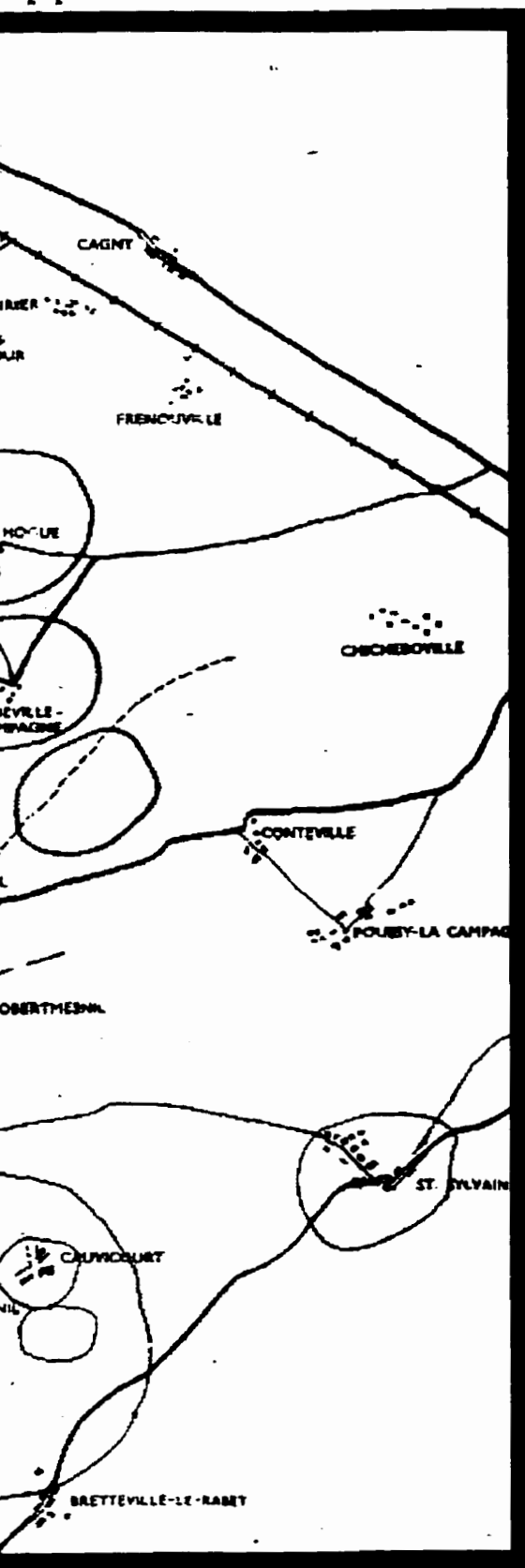
Targets

Phase I

- 1) Fontenay-le-Marmion
- 2) La Hogue
- 3) May-sur-Orne
- 4) Secqueville-La-Campagne
- 5) Woods south of Secqueville

Phase II

- 6) Bretteville-sur-Laize
- 7) St. Sylvain
- 8) Cluster of targets astride the Caen-Falaise road,
including Caucicourt and Hautmesnil
- 9) Gouvix
- 10-12) Not on map



Map 3: The Totalize Air Plan. DHH 693.013 (D2), British Army of the Rhine (BAOR) Battlefield Tour Operation Totalize.

is gaining momentum”.³⁸

A target intelligence report outlined the probable enemy dispositions within the target areas listed in the Request for Air Support. Target six, Bretteville-sur-Laize, was believed to be the headquarters for the western part of the defensive line, and two roads ran through the town to the Forêt de Cinglais, the main tank harbour in the area.³⁹ Targets seven (St. Sylvain), eight (a cluster of areas astride the road), and nine (Gouvix) contained infantry, machine guns, tanks, SPs, mortars, artillery, and anti-tank guns in various combinations and concentrations. The larger area of targets 10 through 12 showed few signs of occupation, but included “prepared inf[antry] def[ence]s” and “some bays suitable for reception of SP art[iller]y or t[an]ks”.⁴⁰ A map prepared for a 1947 officer’s battlefield tour showed that there was even more to the target areas than Canadian Intelligence knew (see Map 3). Bretteville-sur-Laize was another gun area, the quarry south of Hautmesnil (target eight) contained *Nebelwerfers*, and guns of Pickert’s 3rd Flak Corps were located just to the north. The map confirms 2nd Corps’ suspicions that the area to the south, encompassing Bretteville-le-Rabet and Grainville-Langannerie, did contain a major gun area.⁴¹ If these defences could be neutralized by bombing, there would be very little standing between 2nd Corps and Falaise.

While preparations for Totalize proceeded, the Germans were busy making changes to their order of battle in the Caen area that would eventually cause significant modifications to

³⁸CP v. 9, Operation “Totalize”—Request for Air Support 4 Aug. 44”.



³⁹Michael Reynolds refers to panzers “resting in woods by Bretteville-sur-Laize” in *Steel Inferno: 1st SS Panzer Corps in Normandy* (New York, 1997), p. 263.

⁴⁰CP v. 9, Operation “Totalize” Part IV—Target Intelligence, 5 Aug. 44.


⁴¹*BAOR Tour, Operation Totalize*. The BAOR was the force that occupied Germany following the war.

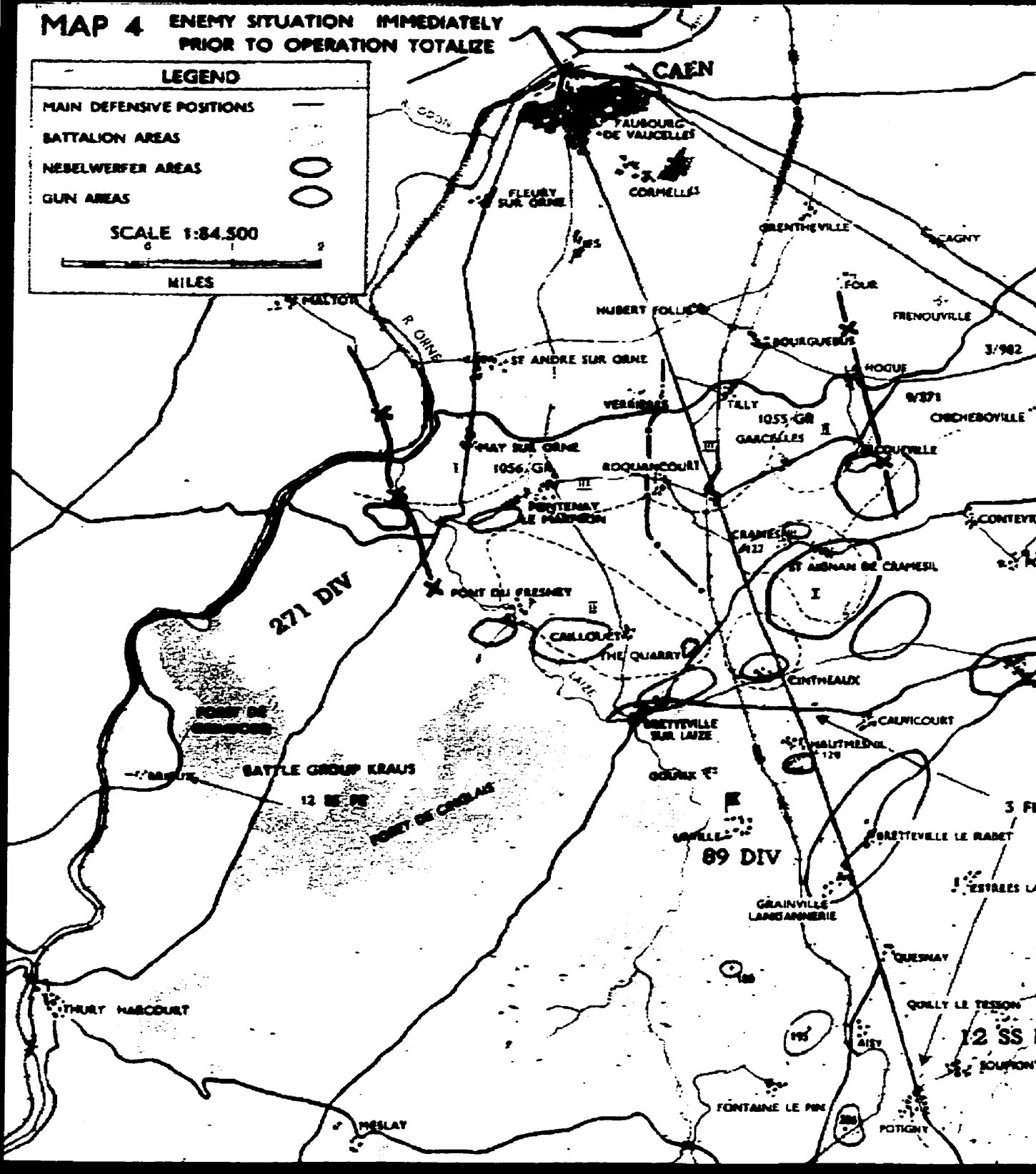
MAP 4 ENEMY SITUATION IMMEDIATELY PRIOR TO OPERATION TOTALIZE

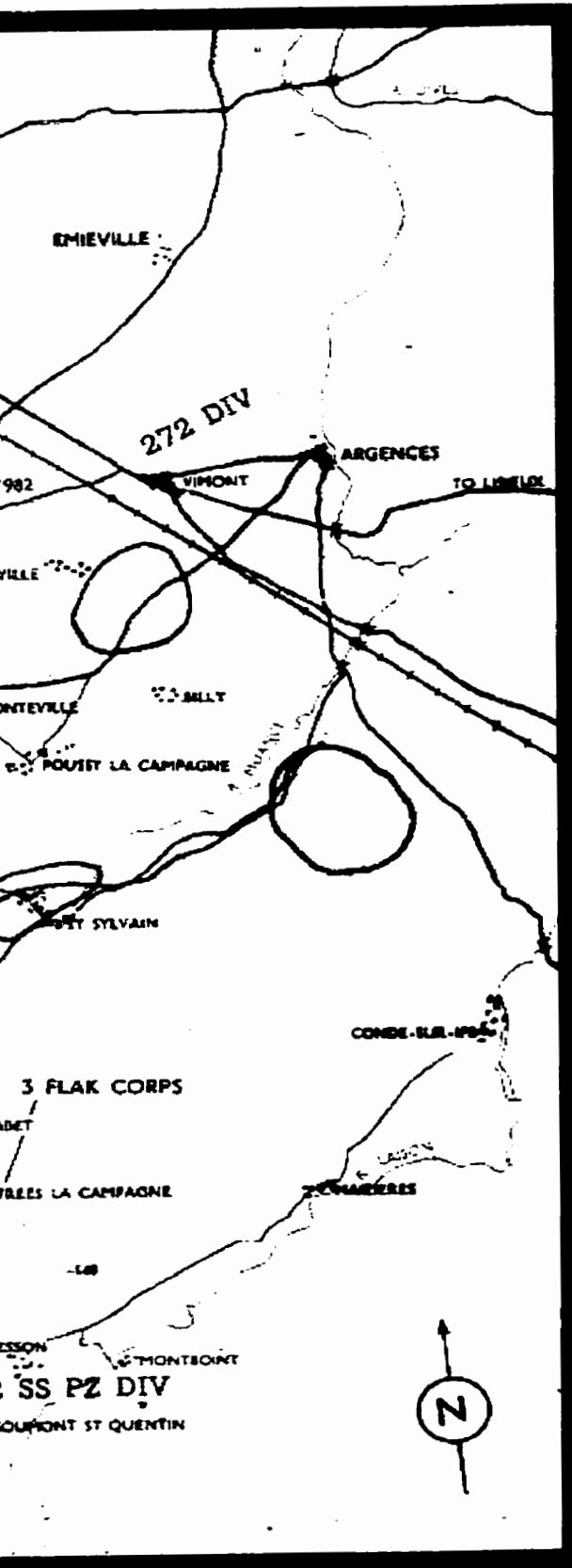
LEGEND

- MAIN DEFENSIVE POSITIONS ———
- BATTALION AREAS - - - - -
- NEBELWERFER AREAS 
- GUN AREAS 

SCALE 1:84,500

 MILES





Map 4: Enemy Situation Immediately Prior to Operation Totalize. DHH 693.013 (D2), British Army of the Rhine (BAOR)
 Battlefield Tour Operation Totalize.

Simonds' plan. By 2 August, 9th S.S. Panzer Division had withdrawn from the line and moved west. 2nd Corps Intelligence noted that its departure meant only 1st and 12th SS were left "to hold the hinge of Caen", but another formation was expected to move into the line, possibly from Bretteville-sur-Laize. The next day "[a] large column was . . . reported moving West on our Left flank", thereby confirming these suspicions.⁴² The *Hitlerjugend* also withdrew from the line on the night of 3/4 August, moving back into reserve north of Falaise. It was relieved by 272nd Infantry Division, which had assumed a position on the eastern flank of 1st SS.⁴³

By the early morning of 5 August, when it issued its summary for the 4th, First Canadian Army Intelligence was uncertain about the whereabouts of 12th SS but expected it to form a reserve somewhere in the area.⁴⁴ It then learned through Ultra-decrypted German signals, provided by British intelligence—that 1st SS was being relieved that day, although there was some uncertainty concerning the time at which this would occur and the strength of the elements still in the line.⁴⁵ Mann called Rodger at 2nd Corps at 1330 hours to tell him that the *Leibstandarte* "seemed to be pulling away on our front".⁴⁶ There was no information on where it was withdrawing to, however. At 1415 hours Crerar called Simonds to discuss the

⁴²NAC RG 24 v. 13711, 2nd Cdn Corps Intelligence Summaries #23 and #24 for 2 and 3 Aug 44.

⁴³English, *op cit.*, p. 269.

⁴⁴NAC RG 24 v. 13645, First Cdn Army Intelligence Summary #36 for 4 Aug 44.

⁴⁵PRO DEFE 3/XL4795, August 5 1040 hrs, "Pulling out of division (Strong indications) began during night according to Flivo 1 SS Panzer Division 0530hrs Aug 5." PRO DEFE 3/XL4803, August 5 1137hrs, "Main body of 1 SS Panzer division relieved by 0350hrs Aug 5 according to Flivo I SS Panzer Korps."

⁴⁶NAC RG 24 v. 10798, Rodger Diary.

“thinning out” of the Germans’ forward positions. The withdrawal of the SS divisions into reserve greatly increased the importance the generals attached to the Phase II bombing, and they agreed that in case the bombers could not provide support in both phases, the latter should take priority. Simonds also told Crerar that there should be no change in the timing of the air strikes in the second phase. Crerar recorded in his telephone log that Simonds “want[ed] all interval.”⁴⁷

Mann had left that afternoon for AEF headquarters in England, where a major conference was scheduled for 1800 hours to settle the details of 2nd Corps’ air support with the ‘Bomber Barons’ of the RAF and USAAF. While in England, he received a signal from Crerar relating the main points of his discussion with Simonds about the changing enemy dispositions which concluded, “earlier time for H h[ou]r phase two NOT repeat NOT acceptable . may require later time on notice discussed”.⁴⁸ It is unclear at what time Mann received it, and there is no documentation to elaborate on the meaning of this rather cryptic message. It is likely that Simonds wanted to delay the start of Phase II until his artillery could move up, following his tactical doctrine. Major-General George Kitching, commanding 4th Canadian Armoured Division, later said that 1400 was chosen as H-hour because “it was assumed that it would take several hours of daylight to organize the full scale assault by two divisions on the German defences in that area.”⁴⁹ Another possibility, although less likely, was that Simonds, expecting to launch that phase from a base just north of the second line and

⁴⁷CP v. 2, telephone log GOC-in-C First Canadian Army. The log is not dated, but the entry was most likely for 5 August.

⁴⁸CP v. 2, signal from Main First Cdn Army to AEF, 1515 hrs, 5 August 1944.

⁴⁹DHH 81/150, George Kitching memoir.

knowing that the Germans would react with violent counter-attacks, hoped to catch them in the open where they would be destroyed by the bombing. Previous air attacks on strong-points like Tilly had accomplished little besides adding rubble to the defenders' fortifications because the infantry always dug in. The fragmentation bombs Simonds wanted dropped on the areas of target eight would have an altogether different effect if they caught soldiers moving over open ground.

The imposition of a rigid schedule has often been seized upon as the key flaw in Simonds' plan. Such judgments are themselves flawed. The defensive fire-power 2nd Corps faced could only be overcome with heavy offensive fire-power. Because there was no way to move artillery forward quickly enough to keep pace with the advance, Simonds chose to impose a timetable on Totalize so that his assault divisions could be assured of fire support for their attack on the second German line. He judged it better to accept the resulting inflexibility than to proceed without covering fire, which would produce murderous results for his troops.

The conference at AEAF was attended by Leigh-Mallory, Tedder, Spaatz, Broadhurst, Oxland from Bomber Command, and a variety of other air officers. Richardson represented 21st Army Group. For the Canadian Army, Mann was joined by Lieutenant-Colonel P.E.R. Wright, Crerar's General Staff Officer 1 (Intelligence); and Major R.G. Marks, the GSO 2 (Air) for 2nd Corps. Mann outlined the plan for Totalize, which had been issued that day to the divisions concerned.⁵⁰ He explained the intention to break through two successive German defensive positions and exploit toward Falaise, beginning with a night attack astride

⁵⁰RG 24 v. 10799, 2 Cdn Corps Operation Instruction Number Four Operation "Totalize", 5 Aug 44.

the Caen-Falaise road supported by heavy bombing on the flanks. West of the road, 2nd Canadian Infantry Division was to break through the forward line—mounted in Simonds' 'Kangaroos,' the converted Priests—led by the tanks of 2nd Canadian Armoured Brigade under Brigadier R.A. Wyman. East of the road, 51st Highland Division and 33rd British Armoured Brigade were assigned similar tasks. The armoured columns would advance to the infantry's objectives where a base would be secured for the continuation of the attack in Phase II by 4th Canadian Armoured Division. As per the instructions Mann had recently received in the signal from Crerar, he told the airmen that this phase "would not begin before 1400 hours, and would also be accompanied by preparatory bombing if possible". The second phase would not proceed unless the night attack were successful, however, so the air force would be notified by 0900 hours, as had previously been agreed, whether the bombing on D plus 1 was required.⁵¹

In his 'pitch' to the airmen for the proposed air support, Mann said that "the area was heavily defended, and they had been trying for nearly two months unsuccessfully, to break through. Their own artillery could cover part of the area, but they had only 400 guns against 400/500 enemy guns."⁵² Perhaps Mann felt compelled to overstate his case considering that he proceeded to request the bombing of targets 10 through 12, which target intelligence reported as mostly unoccupied. Bombing empty space was not likely to be smiled upon by

⁵¹PRO AIR 37/763, Notes of a Conference Held in the War Room, HQ AEAF at 1800 Hours on Saturday August 5th 1944, to Discuss Air Support for Operation 'Totalise', an Operation Planned by 1st Canadian Army in the Caen Sector.

⁵²*Ibid.* John English (*op cit.*, p. 273) claims that 720 guns were available to support Totalize; Nicholson (*op cit.*, p. 313) clarifies: 360 field and medium pieces could support the first phase, while 720 guns in total were available for the entire operation.

that particular audience, especially considering the ongoing complaints from the air forces about the army's persistent failure to 'cash in' on the opportunities the former had provided since the invasion began.⁵³

Nevertheless, First Canadian Army had earlier predicted that the likely German reaction to a break-through would be to move its guns and tanks into prepared positions in the rearward lines. Mann explained that the "choice of these areas [targets 10-12] was not always based on what there was there at the moment, but on what could be moved there during the battle. Some of the [other] aiming points were villages through which the Germans might move up [sic] their armour and guns." He made certain to mention that the ground attack would commence at the same time as the air strikes on 7 August, in order to take full advantage of the bombardment. The second phase, he said, "would have to proceed even if air support were not available", although he noted that the second defence zone was the stronger of the two, reflecting the changes in enemy dispositions over the previous two days. To convince his recalcitrant audience, he also claimed that "these were probably the strongest defences in the NORMANDY front."

Mann explained that cratering was acceptable on the flank targets in this phase (six, seven, and nine), but that "fragmentation and a blast effect" was needed "over a wide area on the axis of advance." Because Bomber Command normally used high explosive rather than

⁵³In mid-July at AEAf, the Chief of Operations and Plans had discussed with the SASO a proposed recommendation to Leigh-Mallory that because the army was "failing to take advantage" of its successful close support and interdiction attacks, "there would appear little point in continuing the planned attacks on rail centres and rail and road communications. . . . He considered that the air effort expended might be better employed in a return to attacks on German Industries" and on V-1 flying bomb sites along the Channel coast. DHH AIR 24/206 mfm, Bomber Command Operational Record Book, "Overlord Supplement No. 2."

fragmentation bombs, the second phase attacks were to be conducted simultaneously and jointly by the two air forces, with the Eighth taking on the centre targets. Spaatz objected that his aiming points would be obscured by smoke created by the RAF's bombs, and after some further discussion Tedder

suggested that in view of the difficulty of arranging the timing in order to allow the smoke to clear from the target between the bombing of Bomber Command and the 8th Air Force, and in view of the doubt whether cloud conditions would be suitable for high level bombing by 8th Air Force, it would be better for Bomber Command to take on all the bombing in the phase 2 area.

To avoid obscuring the central targets, the flanks would be bombed one hour before the army advanced. The centre would then be hit at H-hour, Bomber Command "ensuring the minimum of cratering effect." Tedder also said that the southernmost target areas (10-12) were too large to allow more than a "very thin effect", at which point Leigh-Mallory advised the employment of fighter-bombers to watch for the movement of guns into those areas. The conference thus wound up with decisions that the heavy bombing in both phases would be done by the RAF, while air support in the exploitation phase of the operation would be provided by Second TAF assisted by the Ninth U.S. Tactical Air Force, with additional reconnaissance supplied by fighter-bombers of Eighth Air Force.

During the presentation of First Canadian Army's case, Colonel G.E. Beament of Crerar's General Staff called to update Mann on the changing enemy situation. A contingency plan was being considered that might force alterations to the air programme in the event of a general enemy withdrawal from his forward positions prior to the beginning of the operation. Based on the Ultra intelligence and the recent move of 12th SS, the Canadian officers may have been engaging in some wishful thinking. Referring to this "news just received", Mann

requested that in the event the first phase of Totalize was obviated, the attack should commence with an assault on the second defensive position at the original H-hour, 2300 on 7 August. The air plan would go ahead, but with the Phase II targets substituted for targets one to five.⁵⁴ German movements obviously had Canadian Intelligence confused as to the enemy's order of battle. The success or failure of Totalize depended on having the right kind of fire support on the right targets at the right time. Because the air plan was in large part crafted in order to counter the SS divisions, it was essential to locate them.

Canadian probing attacks near Tilly revealed that 1st SS was still there. The 2nd Corps Intelligence staff was convinced that both regiments of the *Leibstandarte* were holding the front near Verrières, and concluded in the summary for 5 August that “[i]n spite of reports to the contrary today the infantry of 1 SS has not fallen back.”⁵⁵ Beginning that same night, however, the division was relieved by 89th Infantry Division, which took over the entire area formerly held by 1st and 9th SS between the river Laize and the Caen-Mézidon railway. Army Intelligence reported that interrogation of prisoners of war from 1st SS that night had revealed information which “might lead one to suppose a major change was taking place”. Almost immediately upon taking over the line, a deserter from 89th Division arrived, saying “they had been told they were relieving an SS formation. He thought that 1 SS Pz Division had withdrawn to BRETTEVILLE SUR LAIZE.”⁵⁶

⁵⁴PRO AIR 37/763, AEF Conference Notes; CP v. 2, Record of Tele conversation, Col GS and Brig Richardson, BGS Plans 21 Army Gp, on behalf of Brig Mann, C os S First Cdn Army, from Main Army HQ to HQ AEF, approx. 2040 hrs, 5 Aug 44.

⁵⁵DHH 112.3M1009 (D114), 2nd Cdn Corps Intelligence Summary #25 for 5 Aug 44; Reynolds, *op cit.*, p. 250.

⁵⁶NAC RG 24 v. 13645, First Cdn Army Intelligence Summary #38 for 6 Aug. 44.

Such a move would profoundly alter the complexion of the operation. The 89th was considered a low-quality “pocket division”, made up mostly of men under 18 or over 40, including a large proportion of non-Germans. It had just arrived from Norway, had not yet seen combat, and was not expected to be capable of strong opposition.⁵⁷ Instead of the stiff resistance that was expected in Phase I—which provided the rationale for the night bombing in the first place—2nd Corps now faced one low-quality infantry division that had taken over the sector previously defended by two panzer divisions. The trade-off was that Simonds would now have to confront both 1st and 12th SS in the battle to pierce the second line. The Phase II bombing thus took on an increased significance.

By the next morning, Simonds had learned of the relief from Army Intelligence. At 1000 hours on 6 August he held a conference with his divisional commanders to inform them of critical changes that were to be made to the original Operation Instruction in light of the new information. He was certain by then that 1st and 12th SS had been relieved, but was still unsure about their exact locations. Both Army and Corps Intelligence believed that the *Leibstandarte* had stepped back to the Bretteville-sur-Laize area.⁵⁸ As for the *Hitlerjugend*, a directive Crerar issued to his corps commanders that day appreciated that it was now concentrated to the east of the Totalize battlefield. It could be expected to counter-attack “in some strength” and with determination, so the task of Crocker’s 1st British Corps was to

⁵⁷CP v. 2, appreciation of probable enemy reaction to Operation Totalize prepared by Lt.-Col. P.E.R. Wright, 7 Aug. 44.

⁵⁸NAC RG 24 v. 13711, 2nd Cdn Corps Intelligence Summary #26 for 6 Aug 44; First Cdn Army Intelligence Summary #38 for 6 Aug. 44.

secure its own front and thus guard the “extending left flank” of 2nd Canadian Corps.⁵⁹

Simonds decided, based on the new enemy dispositions, to send the 4th Canadian and Polish Armoured Divisions straight through to their final objectives in Phase II. The original plan had been for the Poles to remain in their concentration area until Phase III. 4th Division would breach the second line and advance on the west side of the road while 3rd Division secured the flanks and formed a firm base just behind. The Poles were then to continue the advance on the east side of the road in Phase III, in order to capture the high ground north of Falaise. In the amended plan, Phase III was eliminated. Now both armoured divisions would advance simultaneously in Phase II while 2nd Infantry and 51st Highland secured the right and left flanks and formed a base on the Bretteville-sur-Laize line. 3rd Division would follow the move of the Polish Armoured Division and then take over the area extending south-east from Hautmesnil through Bretteville-le-Rabet to the high ground at Point 140.⁶⁰

Simonds wrote a memo to Crerar later that day in which he explained the change of plan and noted that the “thickening up” of SS troops on the second German line “necessitates a widening of the frontage and increase in the weight of attack in the second phase.”⁶¹ Kitching and Major-General Stanislas Maczek, commanding the Polish Armoured Division, saw the matter differently. Kitching later complained in his memoir *Mud and Green Fields* that while 3rd Division was initially to “‘make the hole’ through which I would pass”, the change, made “only twenty-four hours before the attack”, meant that now both armoured divisions would

⁵⁹CP v. 2, GOC-in-C 1-0-4, 6 Aug 44.

⁶⁰RG 24 v. 10799, Operation “Totalize”, amendment to Operation Instruction Number Four, 6 Aug 44.

⁶¹CP v. 2, GOC 8-3, Simonds to Crerar 6 Aug 44.

have “to ‘make the hole’ ourselves”. Equally problematic, within the wider corps area woods and the river Laize would restrict each division to a “very narrow front”. This would limit the flexibility of the tanks to manoeuvre and still allow the enemy to concentrate his defences.⁶² English noted, siding with Simonds, that to overcome the “almost invisible German defense in depth . . . one had to attack in depth”. This was “the conundrum of the broad front approach.”⁶³ Furthermore, Simonds’ options were limited. As the goal was Falaise, he had few alternative routes from which to choose. First Canadian Army’s Plans Section had considered, in early August, the possibility of an attack that would outflank the German defences to the east before capturing Falaise. This option was constrained by even narrower frontages and a “lack of roads”, and was rejected.⁶⁴ It is difficult to imagine what other course of action Simonds could thus have chosen.

At 1213 hours on 6 August, Mann contacted Crerar from Bomber Command headquarters at High Wycombe in England, where he had gone to finalize the arrangements made the previous evening. While Mann had called to inform him of special arrangements being made to test the suitability of coloured 25-pounder target-marking shells for illuminating the aiming points in Phase I, Simonds was present at Army headquarters and took the opportunity to discuss the expected air support. Despite the previous day’s contingency planning, it now seemed that the “thinning out” of the forward line was not an indication of an impending general withdrawal. Simonds told Mann that the enemy showed “every

⁶²George Kitching, *Mud and Green Fields: the Memoirs of Major-General George Kitching* (Langley, BC, 1986), p. 210.

⁶³English, *op cit.*, p. 273.

⁶⁴NAC RG 24 v. 13607, War Diary, Plans Section, HQ First Cdn Army (no date).

intention to hold his positions opposite 2 Cdn Corps [sic] front", and reiterated the importance of the second phase bombing. His later memo to Crerar reasoned that the "thickening up" of the second line meant that 2nd Corps would likely meet "stronger resistance than originally anticipated", but because the air plan had, in any case, been formulated to assist "a second 'break-through' operation", no change in the air plan was required.⁶⁵

That plan was, for the most part, finalized in two documents issued by AEAFF on 6 August and 2nd Corps in the early morning of the 7th. Both documents reflect the decisions taken at the conference of 5 August, though there are some interesting discrepancies in the way the army and the air force each articulated the purpose and the procedures of the air strikes. The AEAFF plan made no distinction between the purposes of the bombing in Phase I and II. In both, it was to "[d]estroy enemy installations and forces" in the target areas. Cratering was "acceptable" in all first phase areas, and "desired" in all second phase areas except target eight. H-hour for Phase II would "not be earlier than 1400 hours 8 August."⁶⁶ Simonds' headquarters, meanwhile, specified that "[c]ratering has been accepted" in the initial attack on 7 August, "with a view to isolating the corridor through which the armour and infantry are to advance." Contrary to what the AEAFF planned for targets six through nine, "[c]ratering has NOT been accepted in these areas."⁶⁷ The latter attack, furthermore, was to be made at 1300 hours. The cause of confusion over the timing of H-hour was revealed in First Canadian

⁶⁵CP v. 2, Memo of Telephone Conversation Between C of S First Cdn Army, Speaking from HQ Bomber Command and Comd First Cdn Army, Commencing at 1213 Hours 6 Aug 44.

⁶⁶CP v. 2, AEAFF/TS.13165/Air, 6 Aug 44.

⁶⁷RG 24 v. 10820, Op "Totalize"—Air Programme, 7 Aug 44.

Army's Operation Instruction for the Totalize air plan. The army referred to H-hour as the time at which leading troops would cross the startline for the attack, while the air force used the term to indicate the time that the first bomb was to be dropped.⁶⁸ These inconsistencies indicate the continuing confusion in communications between the army and air force. In spite of all the meetings and memos, the two still did not think of the tactical support problem in the same terms.

As it turned out, Bomber Command would not be responsible if cratering occurred in the wrong target areas. At some point between 1100 and 1535 hours on 7 August it was decided that Eighth Air Force would make the Phase II attacks after all, and would hit the targets on the flanks where cratering was acceptable as well as those in the centre where it was not. A final conference to confirm the arrangements for the operation was held that morning, attended by Beament, Richardson, and other representatives from 21st Army Group, 83 Group, and 84 Group. It confirmed H-hour on 8 August as 1400, subject to change by 2nd Corps upon five hours advance notice to Bomber Command.⁶⁹ Then at 1535 hours, First Canadian Army received word through Richardson at 21st Army Group, who had spoken to a Colonel McKinnon at AEF, that H-hour on the following day was 1300, but the bombing of the flank targets (six and seven) would "PROBABLY COMMENCE BEFORE H HOUR". The remaining targets would be hit at H-hour, and all bombing was to be completed by H plus 45 minutes. The reason for bombing earlier on 8 August was a meteorological forecast predicting that after 1300 hours, the weather would be unsuitable. If this late change

⁶⁸CP v. 2, First Cdn Army Op Instr Number 12, Maj Air Plan-Op Totalize, 7 Aug 44.

⁶⁹CP v. 2, Minutes of Conference 1100B hrs 7 Aug 44.

regarding timings caused Simonds and his staff to scramble, it has nowhere been recorded. The message concluded that “detailed arrangements” would be completed by First Canadian Army and *Eighth Air Force*, through 83 Group.⁷⁰ More major changes, this time to the air plan rather than the ground plan, were thus being made at virtually the last minute. The change in timings and air forces would have unfortunate consequences the next day.

Neither Stacey, English, nor Roy considers the decision to use the USAAF in the second phase. Indeed, most histories take it for granted that the Americans were the day bombers. The ramifications of including Eighth Air Force at the last minute—to be detailed in Chapter 4—make it worth noting why they came to replace Bomber Command for the attack on 8 August. The existing literature is unusually ambiguous, where the decision is discussed at all.⁷¹ Fortunately, an RAF draft narrative of the campaign in Northwest Europe provides the answer:

The settled fair weather was marked by an absence of wind which resulted in persistent morning fogs. This entailed the risk of R.A.F. Bomber Command’s forces having to land away from their bases after a night operation and thus it would be impossible to guarantee a sufficiently strong force for the second phase of the bombing operations on the following day.⁷²

⁷⁰CP v. 2, AEF to First Cdn Army, 1535 hrs, 7 Aug 44.

⁷¹A history commissioned as part of a series of studies by the U.S. Air Force explained that the RAF was initially committed to the Phase II bombing, “but because of bad weather at RAF bases the night before [*i.e.* 7/8 August], many of the heavy bombers were required to land at other than home airdromes on returning from their previous mission. Hence the Eighth Air Force was asked to replace them. . . .” This explanation does not accord with the developments of 7 August discussed above, as the decision was made by the afternoon of the 7th. U.S. Air Force Historical Study No. 70, “Tactical Operations of the Eighth Air Force, 6 June 1944–8 May 1945” (Air University, 1952), pp. 57-58. DHH 81/849 mfm.

⁷²Air Ministry Historical Branch, RAF draft narrative, “The Liberation of North-West Europe Volume IV: The Break-Out and the Advance to the Lower Rhine, 12 June to 30 September, 1944”, p. 92. DHH 86/285.

Simonds alluded to the significance of the change from RAF to USAAF in his 1947 lecture, when he said that the latter “was not equipped with the same aids for precision bombing and would have to depend largely on visual identification of targets.”⁷³ In fact, both air forces insisted on visual identification of targets by air crews, but the measures developed by Bomber Command to guide their aircraft to targets at night supposedly rendered “the so-called ‘area-bombing’ of ‘Bert’ Harris . . . more accurate and concentrated than American ‘precision’ bombing.”⁷⁴

While the final arrangements for the air support were being made, German dispositions were again changing. There was considerable uncertainty as to the status of 1st and 12th SS during the two days immediately preceding the start of Operation Totalize. By the early morning hours of 7 August, Army Intelligence had confirmed the relief of 1st SS, but speculated that it “may have left behind some tanks to bolster the defence by a weak infantry division”. The two divisions were still believed to constitute part of a counter-attack reserve on the Caen front, with one or two independent battalions of Tiger tanks possibly providing additional support. The summary stated that during the entire campaign, any significant reserves collected had always been sent to plug holes in the German line, and there now existed an unstable flank south of Vire as a result of the Cobra break-out, so there could be no certainty as to how the enemy would use his reserve.⁷⁵

Corps Intelligence, meanwhile, reported the westward shift of “considerable portions” of

⁷³*BAOR Tour, Operation Totalize*, p. 33.

⁷⁴Charles Carrington, *Soldier at Bomber Command* (London, 1987), p. 87.

⁷⁵NAC RG 24 v. 13645, First Cdn Army Intelligence Summary #38 for 6 Aug 44.

both divisions to “meet the threat across the ORNE” posed by Second Army’s bridgehead to the north of Thury-Harcourt. Although Canadian Intelligence did not realise it, the *Hitlerjugend* had in fact been split into three battle groups: *Aufklärungsgruppe* (‘fast group’) Olboeter had been sent to check Second Army at Vire, *Kampfgruppe* (‘battle group’) Wünsche was then counter-attacking the British near Grimbosq, and *Kampfgruppe* Waldmüller, which alone remained on the Canadian front just south of Bretteville-sur-Laize.⁷⁶ “Large elements” of 1st SS had also been identified further west near the town of Vassy, about 14 miles west of Falaise.⁷⁷

The picture cleared somewhat at 1320 hours on the 7th with an appreciation of enemy strength and dispositions produced by Wright, Crerar’s chief intelligence officer, which considered the probable German reaction to Totalize. He did not expect 89th Division to be capable of strong resistance if “subjected to extraordinary bombardment” or its positions were penetrated. Though still convinced that 12th SS was in the Mezidon-Valmeray area to the east, Wright reported that elements were known to be as far west as Bretteville-sur-Laize. The division was assumed to have about 80 tanks, including 35 Panthers. The only other troops in the area were probably “some [tanks] of 1 SS Pz Regt which may have been left, either to give additional [strength] to the [forward defensive] line or to provide an [armoured reserve]”, and 25 Tiger tanks of the 101st Heavy Tank Battalion. In fact, 12th SS only had available about 39 of its own Panzer IVS and the 8 or so Tigers of the 101st with which to

⁷⁶Hubert Meyer, *The History of the 12. SS-Panzerdivision “Hitlerjugend”*, English translation by H. Harri Henschler (Winnipeg, 1994), pp. 170-171.

⁷⁷NAC RG 24 v. 13711, 2nd Cdn Corps Intelligence Summary #27 for 7 Aug 44.

meet the Canadian assault on the morning of 8 August.⁷⁸ Wright recognised that the Germans did not have adequate strength to stabilise the situation on their western flank, and “[f]or that reason 1 SS Pz Div may be assumed to have gone there [south of Vire] and its place taken by 12 SS Pz Div with responsibility extended over a wider area”. Wright evaluated the reserve—12th SS—as “insufficient” to either maintain the front line or stabilise the second. This judgment would prove the only significant error in the appreciation.⁷⁹

While, in retrospect, Wright underestimated the abilities of 89th and 12th S.S. Divisions, the importance of the appreciation lay in the provision for Simonds of a fairly accurate description of the forces that he could expect to oppose the advance of 2nd Corps. By 0100 hours on the 8th, Army Intelligence had learned that “several elements” of 1st SS, including artillery, had been identified in the Mortain area. While it could not be assumed that the entire division had left, most of it was “out of the way except for parties likely to be left to give strength and encouragement” to 89th Division. That left “only 12 SS known to be in the area.”⁸⁰

The *Leibstandarte* was no longer on the Caen front, as Wright had surmised. It had been gone for about 24 hours by the time his appreciation was prepared. The relief of 1st SS had been effected in order to free it up to take part in Operation *Luttich*, Hitler’s desperate counter-attack against the American break-out on the western flank near the town of Mortain. At 1300 hours on 6 August 1st SS, together with 2nd S.S. Panzer Division *Das Reich*, plus

⁷⁸Hubert Meyer, *op cit.*, p. 171.

⁷⁹CP v. 2, appreciation of Enemy Strength and Dispositions, 7 Aug 44.

⁸⁰NAC RG 24 v. 13645, First Cdn Army Intelligence Summary #39 for 7 Aug 44.

the 2nd and 116th Panzer Divisions, came under the command of 47th Panzer Korps. The attack began shortly after midnight 6/7 August, and was quickly contained by the Americans.⁸¹ By the time this information filtered through to Montgomery, Crerar, and Simonds, the impending Canadian operation had taken on immensely greater importance. The transfer west of the German reserve weakened the enemy's defences on the Canadian front, and Second Army's gains along the Orne threatened "the flank and rear" of the German positions opposite First Canadian Army. When the Mortain counter-offensive was stopped and General George S. Patton's Third U.S. Army continued to sweep around the German forces to the south and east, the famous 'Falaise pocket' was formed, in which the remnants of the German Seventh Army was trapped. Panzer Group West—now renamed Fifth Panzer Army—on the eastern, open end of the pocket also faced envelopment if the Canadians could close the gap by taking Falaise and blocking the roads leading out of the pocket to the east.

In a telephone conversation with Simonds just hours before Totalize was due to commence, Crerar recounted the events on the Mortain-Vire front: "While the enemy had made no appreciable progress, he showed no signs, today, of discontinuing his attempt to break through in the direction of AVRANCHES."⁸² At 2140 hours on the 7th, in fact, Army Group 'B' ordered 12th SS west to bolster the Mortain operation, although the move was precluded by the Canadian attack.⁸³ The Germans had made a huge strategic gamble by committing the bulk of their available reserve at Mortain. When the Americans held,

⁸¹Hans Speidel, *We Defended Normandy* (London, 1951), p. 139.

⁸²CP v. 2, GOC-in-C 1-0-7/1.

⁸³Hubert Meyer, *op cit.*, p. 170.

Montgomery was presented with the opportunity to 'bag' all of the German forces in Normandy if the envelopment could be completed by a thrust to Falaise. Two days earlier, Crerar made an address to his senior officers in which he expressed his hope to make "the 8th of August 1944 an even blacker day for the German Armies than is recorded against that date twenty-six years ago."⁸⁴ The Battle of Amiens had inaugurated the Last Hundred Days of the First World War, in which the soldiers of the Canadian Corps under Sir Arthur Currie formed the spearhead of the final drive to the Belgian city of Mons. Canadian soldiers might hasten the end of a second major war if Operation Totalize were a success.

Historians have insisted that Simonds' plan to capitalize on this historic opportunity was fundamentally flawed because it was too complicated and sought to impose a rigid schedule upon a fluid tactical situation. The strict timetable required by the air force would not, however, prove to be a determining factor in the operation's outcome. The logistics of moving the three second-phase divisions, plus their supporting arms, forward through a limited area would in fact be of greater significance. If there was an evident flaw, it was that Simonds had planned the air strikes to neutralize armoured divisions which had subsequently moved out of the target areas before the operation began. This fact was clear to Simonds by the early afternoon of 7 August, and he may have been guilty of allowing an element of inertia to guide his decisions. There is, however, a military principle that allows no more than one change to an established plan, as expressed in the dictum 'order-counter-order-disorder.' Simonds apparently decided that an abundance of support was better than a paucity. Regardless of timetables, targets, and best-laid plans, the bombing in Totalize was destined

⁸⁴Qtd. in Stacey, *The Victory Campaign*, p. 216.

to be of secondary importance.

Chapter 4: Misfire

The key element of Simonds' plan for Totalize was placed in jeopardy as late as the morning of 6 August. Sir Arthur Harris had initially balked at the idea of bombing in close support of the army at night, worried as he was about the possibility of inflicting friendly casualties. Trials of target-marking artillery shells that night satisfied his concern about the ability of master bombers to identify their aiming points, and the stage was set for the continuation of the experiment in close support. Given the developments near Mortain over the preceding 24 hours, the stakes could scarcely have been higher.

At 2255 hours on 7 August the 25-pounder field guns of 2nd Canadian Infantry Division began firing green flare shells on May-sur-Orne and Fontenay-le-Marmion. East of the Falaise road, 51st Highland's divisional artillery fired red flares on La Hogue, Secqueville-la-Campagne, and the wood to the immediate south of the latter town. OBOE-guided Mosquito Pathfinders led the bomber stream to the target areas, where 1019 Lancasters and Halifaxes began to drop 3460 tons of high explosive.¹ Aircrews had been instructed to bomb from altitudes of 6000 to 10,000 feet, and to refrain from dropping if they could not be sure of their aiming points. The weather was relatively clear, but a lack of wind meant that the smoke and

¹DHH AIR 15/721, "Night Operations by Bomber Command in Close Support of the Army. Caen Area, 7/8th August, 1944," Tactical Bulletin No. 42, 14 Aug 44.

dust from the explosions dispersed slowly. The target markers thus became obscured, and consequently, only 641 aircraft bombed their targets. As on previous occasions results were less than optimal. Accounts of the effectiveness of the attacks are, however, contradictory. A War Office report prepared for the army claimed that the “bombing was very accurate”.² According to a tactical bulletin written by the Air Ministry, Fontenay apparently “sustained very severe damage”, most of May “has suffered severely”, and La Hogue was “practically obliterated”.³ An RAF draft narrative recorded that “[w]hole areas” were “made quite impassable by heavy cratering, the village streets were blocked and all communications around them were completely severed.”⁴ The War Office report also explained that the effect on the ground was formidable: “Tremendous blast was felt by tank commanders, who had their heads out of the turrets.”⁵

A report by 21st Army Group’s Operational Research Section (ORS) told an entirely different story. At Fontenay, “[n]o bombs fell on the village itself”, although the nearby hamlet of Le Val was wiped off the map. May “appeared to have received only a slight attack” and “[d]amage inflicted on the enemy . . . was negligible”, while Secqueville “did not appear to have been very badly damaged by bombing”. Only La Hogue received an accurate concentration, with impressive results: “Not a single building had more than 6 feet of wall

²DHH 87/243, Current Reports from Overseas #57, 30 Sept. 1944.

³DHH AIR 15/721, Tactical Bulletin No. 42.

⁴DHH 86/285, Air Ministry Historical Branch, RAF draft narrative, “The Liberation of North-West Europe Volume IV: The Break-Out and the Advance to the Lower Rhine, 12 June to 30 September, 1944”, p. 94.

⁵DHH 87/243, Current Reports from Overseas #57, 30 Sept. 1944.

standing and the roads were not only impassable but quite unrecognisable.”⁶

It would not be difficult to surmise a logical reason for the variance. As the ORS report was a scientific study not intended for wide circulation, there would have been no pressure to ‘shape’ its findings. Of the above-noted accounts released within the services later in 1944, the Air Ministry put the best face on its own performance, while the army could have felt a need to exaggerate the effectiveness of the bombing so as not to provide any fuel for the arguments of those who believed that close support was not a proper function of the strategic air forces. A consideration of the progress of the ground forces in mopping up the bombed areas, particularly May and Fontenay, lends credence to the conclusions of the ORS, and will be included below.

The inaccuracy of the bombing attacks may have been due to the premature firing of the 25-pounder flare shells intended to mark the aiming points. It was reported that the flares at both Fontenay and May had faded out before the bombers arrived to carry out their work. Even had the targets been well-covered, the ORS report stated that in Secqueville, La Hogue, and target number five, the concentration of enemy personnel or equipment was either slight or non-existent, so “it is unlikely that any great loss could have been inflicted on the enemy.” Moreover, the bombing did not even have a redeeming moral effect for the men on the ground, because they could not see the destruction wrought upon the enemy by their air force. In place of such a “heartening spectacle”, soldiers could only “hear the bombs descend

⁶21 Army Group No. 2 Operational Research Section (ORS) Report No. 8, “Operation ‘Totalise’ RAF Heavy Bombing on the night of 7/8th August 1944”. Taken from a forthcoming compilation of ORS reports to be published by Wilfrid Laurier University’s Centre for Military Strategic and Disarmament Studies in Waterloo, Ontario.

and wonder where the next one will fall.” Their trepidation was heightened when a few bombs fell short among troops waiting to cross the startline.⁷

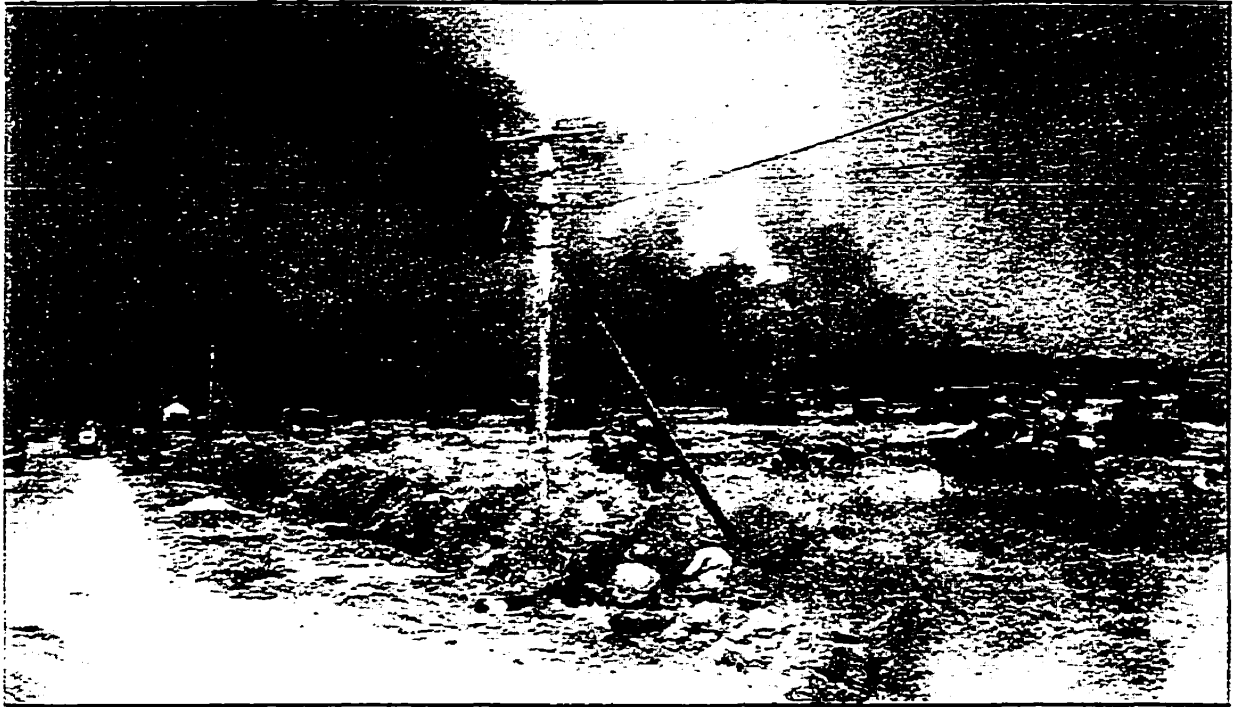


Figure 11: Canadian troops watch the Phase I air strike, 7 August 1944.

Ironically, the Germans may have benefited more from the bombing than the Canadians did. Grenadier-Regiment 1055 of 89th Infantry Division apparently mistook the errant bombing for a Luftwaffe attack. Considering the almost total command of the air that the Allies enjoyed, there must have been a boost in morale for the grenadiers who “came out of their foxholes to watch this spectacle, not seen for a long time.” An alert platoon from the neighbouring 1056th regiment, leaving its positions and moving forward to “evade the bombs . . . encountered an enemy who was ready for attack and totally surprised. After the end of the bombing, the Zug [platoon] had returned unharmed, bringing along enemy

⁷*Ibid.*

prisoners.”⁸

H-hour for the ground attack by 2nd Canadian and 51st Highland Divisions, each with an independent armoured brigade under command, was 2330 hours, the time bombing was planned to cease on targets one, two, and three. Bombing on targets four and five was to continue until 2359 hours, so there would be no lag as during Operations Charnwood or Goodwood. Because only two-thirds of the aircraft actually made their drops, however, the ground attack commenced half an hour after the premature termination of the bombing. The guns opened up with a thunderous roar at 2343 hours, lending further support to the men of 2nd Canadian Corps. Once the bombing was completed, 2nd Division’s 25-pounders fired green flare shells onto Point 122, the high ground near Cramesnil, to mark the inter-divisional boundary. Radio beams, searchlights providing “artificial moonlight,” and Bofors anti-aircraft guns firing tracer bullets were used to maintain direction during the night attack.⁹

West of the road, the assault force had been marshalled into four columns of various armoured fighting vehicles, each with its own objective. A “gapping force” composed of tanks of the Sherbrooke Fusiliers and an assortment of navigational tanks, engineers’ bulldozers, and mine-clearing ‘Crabs’ mounting large flails led the way. Following close behind was a “fortress force” of three squadrons of the Fort Garry Horse that would secure the infantry’s dispersal area. At that point the columns would separate and the “assault

⁸Hubert Meyer, *The History of the 12. SS-Panzerdivision “Hitlerjugend”*, English translation by H. Harri Henschler (Winnipeg, 1994), p. 170.

⁹NAC RG 24 v. 10635, Op “Totalize”—Op messages; Brereton Greenbous *et al.*, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force Volume III* (Toronto, 1994), p. 814; G.W.L. Nicholson, *The Gunners of Canada: The History of the Royal Regiment of Canadian Artillery Volume II 1919-1967* (Toronto, 1972), p. 314.



Figure 12: Sherman 'Crab' (author photograph, 1996). The flails in front beat the ground to explode mines.

forces”, made up of carrier-borne battalions of 4th Canadian Infantry Brigade, would take the first phase objectives. Self-propelled guns of the 6th Anti-tank Regiment accompanied the columns to support the attackers on the objectives while the infantry’s own 6-pounders were brought forward. The battalions of 6th Canadian Infantry Brigade were to follow behind on foot to mop up the areas bypassed by the armoured columns. Similar tasks were assigned to 33rd British Armoured Brigade and 51st Highland Division east of the road.¹⁰

The leading troops of 2nd Corps had been impressed with the importance of the operation they were about to undertake. Sergeant Bill Neil of the 8th Reconnaissance

¹⁰NAC RG 24 v. 10581, “Op ‘Totalize’: An Account of Ops by 2 Cdn Armd Bde in France 5 to 8 Aug 44”; C.P. Stacey, *Official History of the Canadian Army in the Second World War Volume III. The Victory Campaign: The Operations in North-West Europe 1944-1945* (Ottawa, 1960), pp. 216-219.

recalled that “the word filtered down from the colonel . . . that we musn’t fail this one. . . . This had to be done at all cost.” The 8th Recce had landed in Normandy on 10 July, and was battle-seasoned by 7 August. It was part of the left column that would be responsible for securing Point 122, of crucial importance if Phase I were to succeed. As H-hour approached, some of the men were nervous, but Neil was anxious to “get this job done with”. The regimental historian of the Fort Garry Horse concurred, writing that “[e]veryone was in good heart, despite any apprehensions about moving out in darkness into strongly held enemy territory”.¹¹ Much has been written about the progress of the columns during the night and their difficulties in keeping direction.¹² Neil remembered feeling “pretty damn afraid” at the prospect of his first blind attack:

You know you get out there at night-time and its hard to see, and you’re moving in columns and anything can happen. They may be there, they may not be there, you may get shelled, you don’t know what’s going to happen to you. And it’s something to fight somebody when you can’t see them, it’s a little rough. But you know, eventually it proved to be all right, but that first night . . . I was afraid. Good God, going out at night-time and can’t see a damn thing.¹³

The columns on the ‘Canadian’ side of the road had formed up near the town of Ifs, just south-west of Caen, during the afternoon of 7 August. At 2330 hours, they crossed the startline. The difficulty of keeping direction in the dark during “the ‘Gallop’” to the dispersal areas was aggravated by the great dust clouds raised by the bombing and the mass of moving vehicles. The Germans added smoke shells to the dust. Visibility was reduced to zero, and

¹¹*Vanguard: The Fort Garry Horse in the Second World War* (Winnipeg, 1995), p. 51.

¹²See, for example, Stacey, *The Victory Campaign*; Reginald H. Roy, *1944: The Canadians in Normandy* (Ottawa, 1984); Bill McAndrew et al., *Normandy 1944: The Canadian Summer* (Montreal, 1994).

¹³Bill Neil, personal interview, Winnipeg, 2 September 1998.

some of the tanks collided with or fired on other Allied vehicles. Near Rocquancourt the three right-hand columns lost their course, and the confusion was increased when a German 88-mm gun opened fire, causing heavy casualties to the vehicles of the Essex Scottish on the right flank. In the centre, the Royal Hamilton Light Infantry managed to sort itself out and was approaching its objective by 0400 hours. By 0800 hours the battalion had dug in just north of a quarry where the Germans were established with supporting armour, and assisted by the Sherbrooke tanks, repelled a counter-attack from “between eight and ten SP guns and [tanks] with some [infantry]”. The RHLI spent most of the day consolidating its position, and it was not until 1800 hours that a patrol reported the objective clear of the enemy.¹⁴ The Royal Regiment of Canada took its objective near Gaumesnil, and was then also occupied in fighting off German counter-attacks. The 8th Recce, meanwhile, was initially stopped short of Point 122 on the left, but the high ground was subsequently taken with help from some Fort Garry tanks. The former regiment then moved to assist the Essex Scottish, which had come up short of Caillouet. That town was captured around noon.¹⁵ Brigadier Wyman of 2nd Canadian Armoured Brigade had signalled at 0615 hours “that the [objective] area was securely held by our forces and that the situation appeared to be entirely suitable for further ops to begin.”¹⁶

Wyman’s report was premature, but the columns had nevertheless succeeded in

¹⁴DHH 145.2R14011 (D4), Acct of attack on Pt. 46 (Op Totalize) 8 Aug 44 by RHLI Given by Lieut. Col. G.M. MacLachlan–10 Aug 44.

¹⁵Neil interview; War Diary, ‘C’ Squadron, Fort Garry Horse (10th Cdn Armoured Regt.), Monday August 7, 1944; Stacey, *The Victory Campaign*, p. 219.

¹⁶NAC RG 24 v. 10581, Op ‘Totalize’, An Account of Ops by 2 Cdn Armd Bde in France 5 to 8 Aug 44.

penetrating the German lines and were nearing the objectives of the first phase by early morning. East of the road, 51st Highland and 33rd British Armoured Brigade were having a similar time. After some initial delay due to enemy fire, the right-hand column took Crammesnil by early morning. On the left, St. Aignan de Crammesnil and the wood to the south were captured with light casualties.¹⁷ 89th Division had been thoroughly disorganized by the assault, and the forward German line broken. Some historians have strongly argued that the way was clear on both sides of the Falaise road for the second phase to begin.¹⁸

The formation that was to lead the way for 4th Armoured Division was far from ready, however. The assignment had been given to 'Halpenny Force,' a battle group composed of the Canadian Grenadier Guards' tanks and infantry of the Lake Superior Regiment. The spearhead of the force was 1 Squadron of the Guards, led by Major E.A.C. Amy. It had been ordered forward from its concentration area just south of Caen, beginning at 0030 hours, to the forming-up place (FUP) recently vacated by the armoured columns which made the Phase I attack. From there it would be marshalled for the advance to its startline for Phase II, near the road running from Bretteville-sur-Laize to St. Aignan. An account given by Amy recalled the chaos that dominated an 'O' (orders) group¹⁹ preceding the move forward, in which the noise from the aircraft overhead and nearby artillery drowned out Lieutenant-Colonel

¹⁷DHH 87/243, Current Reports from Overseas #57, 30 Sept. 1944.

¹⁸Roman Jarymowycz, "Canadian Armour in Normandy: Operation 'Totalize' and the Quest for Operational Maneuver," *Canadian Military History* 7:2 (Spring 1998), pp. 19-40; John A. English, *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* (New York, 1991).

¹⁹An instructional meeting at which commanding officers briefed their subordinates on the upcoming operation, describing plans, responsibilities, etc.

Halpenny of the Guards, and the lights had been doused so as not to arouse the interest of the bombers. The move to the marshalling area was further complicated by unfamiliarity with the ground and a lack of adequate time to brief tank crews. This, in turn, led to "much confusion over timings for Phase 2. Our CO told me, 1 Sqn, to be ready to cross the start line at first light (approx 0500 hrs) depending upon the success of Phase 1."²⁰ The disarray within Halpenny Force only added to the inherent difficulties of coordinating such a complex operation. Amy explained the effect on the fighting men:

Deployment procedures are intended to eliminate confusion but on 7/8 August something went wrong. Somewhere in the chain between Corps, Division, Brigade and Regiment the time factor and circumstances were not properly appreciated. Our Regiment was moved into the confusion and rubble of a built up area at a critical time when every advantage was needed to ensure it was introduced into the battle with confidence and a semblance of order. Time was neither available to brief the troops properly nor for an orderly marry up with supporting arms. As a result the troops were launched into their first battle inadequately briefed and under chaotic circumstances.²¹

Apart from the chaos reigning in Halpenny Force, the situation on the battlefield was anything but clear. The Germans' forward positions had been bypassed and 89th Division thoroughly disorganized, but the defenders continued to fight in scattered groups and held on to key towns anchoring the line. By first light, Halpenny Force was still awaiting the order to move to the startline, but was delayed by the battle that was ongoing in the forward areas bypassed by the armoured columns. Amy was then "told we were not to proceed to our start line until 2 Div declared Roquancourt [sic] clear which we understood would be soon." The South Saskatchewan Regiment had supposedly captured the town at 0045 hours, and

²⁰Account of Operation Totalize by E.A.C. Amy of the Canadian Grenadier Guards, 20 February 1993 (hereafter, Amy manuscript). Personal copy.

²¹*Ibid.*

according to C.P. Stacey, dawn found them “well dug in and prepared to repel any counter-attack.”²² It was not until 1224 hours, however, that 4th Armoured Brigade reported “ROCQUANCOURT now clear” and told the tanks to “get cracking.”²³ The evidence here is contradictory, but it would be logical to suggest that even if the town itself was in Canadian hands by early morning, the general area was not secure enough to permit an orderly advance by 4th Division until after noon. The helter-skelter move to the startline continued but incredibly, 1 Squadron had not been told of the bombing attack that was to precede their advance in Phase II. Elsewhere, repeated attacks by 51st Highland had been necessary to capture Tilly-la-Campagne, which did not fall until 0700 hours. The Queen’s Own Cameron Highlanders of Canada fighting for Fontenay, meanwhile, were in trouble. Under heavy shellfire, the battalion “was unable to clear the southern part of the village and had had its main axis [to its rear] cut. Battalion HQ was hit, and for the second time in twelve hours the battalion lost its commanding officer.”²⁴ Fontenay was not cleared until the afternoon, after the South Saskatchewan Regiment and a squadron of 1st Hussar tanks fought their way across Verrières Ridge and linked up with the Camerons. May had been equally difficult and costly to capture. The Fusiliers Mont-Royal had been subjected to heavy fire and required the assistance of ‘Crocodiles’—Churchill tanks fitted with flame-throwers—before it succeeded

²²DHH, Report No. 169, “Canadian Participation in the operations in North-West Europe, 1944, Part III: Canadian operations, 1-23 August,” Historical Section, Canadian Military Headquarters (14 Jan 47), p. 9.

²³DHH 81/150, George Kitching memoir.

²⁴DHH 693.013 (D2), *British Army of the Rhine (BAOR) Battlefield Tour Operation Totalize: 2 Canadian Corps Operations Astride the Road Caen-Falaise 7-8 August 1944* (September 1947), p. 25.

around 1600 hours.²⁵

While 2nd Corps did not have to deal with the armoured counter-attacks from the areas about May, Fontenay, and Secqueville that Simonds had expected when 1st SS held the front—and for which he had planned the first-phase bomber strikes—89th Division had not disintegrated as soon as H-hour arrived on 7 August. A new front line had resulted from the successful armoured advance, but stubborn resistance and counter-attacks had to be overcome throughout the 8th all over the Totalize battlefield, in May, Fontenay, Rocquancourt, St. Aignan, and at Point 122 and the quarry confronting the RHLLI. It was through the midst of the ongoing struggle that the 4th Canadian and Polish Armoured Divisions had to travel just to reach the startlines for their own attacks. The inclusion of the Poles in the second phase also meant that an additional division would have to move up through an area already crowded with Canadian infantry, artillery, armour, and other services and supplies.

Both divisions were slow in moving forward because their lines of approach were under enemy fire. Maczek claimed that continuing opposition on 51st Highland's objectives required his division to assist in mopping-up before it could proceed with its own tasks.²⁶ With the Poles' consequent delay in moving up, Amy's spearhead faced an open left flank during its move forward, and a decided lack of knowledge about enemy dispositions. Adding to his discomfort, the leading tanks were being shelled. The advance was, understandably, cautious. Far from being ready at the startline by 0500 hours, Amy was told to "get cracking

²⁵Stacey, *The Victory Campaign*, pp. 219-220.

²⁶NAC RG 24 v. 10942, Acct of PAD in Op Totalize.

... ignore shelling” at 1230 by an impatient 4th Armoured Brigade.²⁷ Army’s fire support was not ready either. Nicholson describes how three field regiments, after ceasing fire in the early hours of the 8th in order to move the guns up in support of the second phase advance, “found their potential positions being systematically shelled from three sides and under mortar fire from surrounded pockets of resistance . . . recce parties and their waiting guns frequently became unenthusiastic spectators of infantry and tank battles still going on in their prospective areas.”²⁸ Behind the front line, additional units continued to move into the area. Traffic jams were inevitable, and added to the delays in moving forward. Marcel Fortier, a corporal commanding a Governor-General’s Foot Guards tank waiting in the rear, complained that “there was great irritation at the delays . . . there’s nothing worse than a tankman sitting at the controls of a tank as a driver, and worse still, the co-driver who has nothing to do but play with a .30-calibre machine gun that he can’t fire . . . and the gunner, well he’s toying with his gun, you know, his elevation and so on. . . .”²⁹

As the armour struggled forward to the Phase II startline, the rumble of four-engine bombers again filled the air south of Caen. The Flying Fortresses made their runs between 1226 and 1355 hours. This time was earlier than Simonds had wanted, but it had been advanced even further on account of the weather forecast. Targets were marked for the 681 B-17s sent by Eighth Air Force the same way they had been the night before, using 25-pounder flare shells. Flak disrupted the bomber formations on the run-in to the targets, and

²⁷DHH 81/150, Kitching memoir.

²⁸Nicholson, *op cit.*, p. 317.

²⁹Marcel Fortier, personal interview, Ottawa, 11 December 1998.

the 'Mighty Eighth' claimed that neither the target markers nor the flares dropped by pathfinders—which the Americans had adopted by this time—were visible from the air. As a result, accuracy was poor and the lack of wind again allowed smoke and dust to obscure the targets, making the problem worse. Only 497 Fortresses bombed, and of the 55 tactical groups that made the attack, “no more than 16 . . . bombed in or adjacent to the target areas”.³⁰

Two or three of the 12-plane groups bombed First Canadian Army rear positions just south of Caen, however, killing approximately 65 and wounding 250.³¹ A 2nd Corps situation report from the afternoon of 8 August described the event vividly:

The great excitement today was the “precision” bombing of the Yanks as opposed . . . to the Lancaster bombing last night. We heard the bombers going towards [the] enemy just as we started lunch. A few minutes later they came back lower, and we crowded out to watch them. The sun glinted on their wings and they were a fine sight heading back to England, with their job well done (as we thought). Suddenly they opened bomb doors (there were 12 of them) and down came the bombs, and the rolling thunderclaps were all round us and lasted for about four minutes, and it felt like 1 ½ hrs. Their job well done they sailed on for England. Just as we were about to start lunch again we saw another 12 stream into sight. They were heading N[orth]E[ast] of us, but on seeing the billowing clouds of smoke and dust their pals had created they turned and made straight for CORMELLES, letting us have it again. This we felt was anything but funny. We had visions of two and three thousand Forts unloading on us in lots of 12 all afternoon. Fortunately only one more lot dropped anything, and some poor sods up East of CAEN got the last dose. By this time the air was thick with dust, and our own medium shells were leaping about and exploding like fire crackers. . . . A very big ammo dump went up and is still going up occasionally. . . .

Altogether not a nice business though thank goodness it did not hit the [forward troops]. How any pilot in his senses could mistake Caen I cannot imagine. He did

³⁰U.S. Air Force Historical Study No. 88, “The Employment of Strategic Bombers in a Tactical Role, 1941-1951” (Air University, 1953), p. 81. DHH 81/881 mfm.

³¹Secondary sources are uncertain as to the exact number of aircraft. The casualty figures are those given by Stacey in *The Victory Campaign*, p. 223.

however.³²

Marcel Fortier was on top of Verrières Ridge admiring the view of Caen when “the Pathfinders came, and we wondered what the hell were they doing down there.” He had not been told there would be another bombing attack, and the next thing he knew “they were dropping bombs. . . .” On the ground, “about 200 tank guns turned and went up . . . they were gonna let loose . . . and I said ‘hey, we got no orders to fire,’ and then it came over the blower, the radio, ‘No firing, no firing, no firing’.” The tankmen on the ridge waited and watched, “ready to blow those planes out of the sky . . . it was either them or us.”³³

American air tactical doctrine was again responsible for the magnification of human error. In one of the two errant bomber groups, the lead plane had been hit by flak which caused a fire in the bomb bay. Although he had already passed his target, “[t]he pilot, fearing for the lives of himself and his crew, salvoed his bomb load. The rest of the formation followed his lead.” The other lead plane, whose pilot and bombardier had gone off course to avoid anti-aircraft fire, misidentified Caen as the target.³⁴ Eighth Air Force claimed that high casualties and the 30-mission cap for aircrews left it with an insufficient number of “highly experienced lead crews”. It also blamed the flak, the intensity and accuracy of which, it said, was “[c]ontrary to briefing information”.³⁵ Curiously, the 10 aircraft shot down on the 8th was the same as the number of Lancasters shot down the night before, and the RAF judged the

³²NAC RG 24 vol. 10818 file 225C2.093 (D2), Situation Report 8 Aug. 1944.

³³Fortier interview.

³⁴Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, 1993), p. 481.

³⁵U.S. Air Force Historical Study No. 70, “Tactical Operations of the Eighth Air Force, 6 June 1944-8 May, 1945” (Air University, 1952), p. 59-60. DHH 81/849 mfm.

flak to have been “[v]ery slight” and “ineffective.”³⁶

The attack seems to have accomplished little—Gouvix was not bombed at all—and General Kitching judged that it “had not been as effective as we had hoped, causing very few casualties amongst the Germans.”³⁷ The effect on the soldiers in the rear areas, on the contrary, was disastrous. The North Shore (New Brunswick) Regiment, part of the as-yet uncommitted 3rd Division, had been delayed in Caen during its move forward by the slow progress clearing the areas further ahead. The North Shores’ padre, Father Raymond Hickey, published his memoir *The Scarlet Dawn* in 1949, and his version of the bombing mishap has usually been the one quoted in histories when a first-hand account was included. It bears repeating:

To be bombed by the enemy is bad; to be hit by your own bombers is worse. That very thing happened to us. We were moving up to the front in lorries after a few days’ rest. . . . We were on a narrow road, when from behind us came the welcome sound of our bombers. They appeared in the afternoon sun, no mistake, they were American bombers and our lads greeted them with a cheer—but a yell went up and men started leaping from the lorries; the planes started coming down at us; you could see the bombs coming, and in another moment hell itself seemed to open up on us as plane after plane swooped down along our convoy and dropped its bombs! Our guns brought down two of the bombers. In a second our convoy was changed into a scene of horror! Dead and dying were scattered along the road among the overturned trucks.³⁸

J.E. Anderson was moving from Vaucelles toward Cormelles with a reconnaissance party to “locate a suitable battalion area.” Suddenly, he saw

a wall of fire and smoke coming toward us. For a second we were too surprised to move, then made a dive for a shallow trench where we piled in one on top of the other. The

³⁶DHH AIR 15/721, Tactical Bulletin No. 42.

³⁷Stacey, *The Victory Campaign*, p. 222; George Kitching, *Mud and Green Fields: The Memoirs of Major-General George Kitching* (Langley, BC, 1986) p. 212.

³⁸R. M. Hickey, *The Scarlet Dawn* (Campbellton, NB, 1949), p. 222.

concussion from the explosion was severe and literally beat us into the ground. We were dazed at what had happened, as the only planes we could see were American Forts flying toward the coast. We were sure the Germans were using captured American planes or a new secret weapon.³⁹

Near Anderson's party were the gun positions of the 7th Medium Regiment, Royal Canadian Artillery, which was firing on the Germans when it, too, was bombed. The gunners lost 11 killed and 18 wounded when three of their guns suffered direct hits, and the adjacent ammunition dump exploded. Anderson recalled that the "damage and casualties to the medium regiment were unbelievable—one minute the gunners, most of them stripped to the waist, were working their guns on a beautiful summer day—the next the valley was filled with blazing vehicles, dead and wounded men."⁴⁰

Will R. Bird's regimental history contains another account by one Major Robichaud, which returns the human element to an event that has been too often described only in statistical terms. He recalled that it was a beautiful day

when we boarded the vehicles to take us to the front line. . . . As we lined up for the move a tractor driven by a young boy was passing, pulling a huge load of freshly cut grain; certainly this wasn't war. We were still moving south when from the cab of the truck in which I was driving I saw two squadrons of American B29s [sic] flying towards our convoy, and remarked to the driver that they must be returning from a mission. Seconds after I saw a cloud of dust, smoke and fire rolling toward us. All the vehicles stopped and before any order to "debus" could be given our men were scattering in fields alongside looking for cover. . . . Fires were burning all over the place and a continuous staccato of bursting shells filled the air, the artillery ammunition dumps had been set on fire. We saw several bodies in flame and C[ompany] S[ergeant] M[ajor] Tremblay removed pouches containing grenades from one of them so that it wouldn't be blown to bits making identification impossible.⁴¹

³⁹Qtd. in Will R. Bird, *North Shore (New Brunswick) Regiment* (n.p., 1963), p. 359.

⁴⁰*Ibid.*, p. 359.

⁴¹*Ibid.*, p. 360.

Also nearby was the 4th Medium Regiment, which had moved to an assembly area in Vaucelles preparatory to taking up new gun positions at Hubert Folie in support of the Polish Armoured Division. While “waiting on wheels”, 12 men were killed, 28 wounded, and eight guns and five tractors destroyed.⁴² These losses did not put the regiment out of action, although as M.L.A. Chabot explained,

Such a fantastic loss . . . normally results in a regiment being classed as ineffective until it can lick its wounds and be built up again. Despite the serious casualties suffered by the 4th Medium in guns, men and material, the unit was ordered to deploy and be back in action by 1600 hours, only four hours after the disaster. The Second-in-Command . . . was able to salvage and deploy a full battery out of the eight guns and shaken men which survived.⁴³

Stacey figured that the North Shore Regiment was probably the “Canadian unit hardest hit”, with 37 killed and 78 wounded,⁴⁴ but other troops were also struck in or near Cormelles. An advance party of the Régiment de la Chaudière, the main body of which was waiting back in Basly, north of Caen, was hit moving through the town.⁴⁵ So were elements of the Polish Armoured Division, the headquarters of both 3rd Division and 2nd Armoured Brigade, and one battery and the headquarters of 9th British AGRA.⁴⁶

The 1st Hussars lost eight killed and 10 wounded when its ‘B’ Echelon was hit.⁴⁷ That of the Fort Garry Horse was also established at Cormelles. An armoured regiment’s ‘B’ Echelon is located in the rear area, and serves as a mobile store to collect supplies from the

⁴²Nicholson, *op cit.*, p. 318.

⁴³M.L.A. Chabot, “Look Out! They’re Ours”, *Legion*, May 1972, p. 19.

⁴⁴Stacey, *The Victory Campaign*, p. 223. The figures are taken from Bird, *op cit.*, p. 359.

⁴⁵Joseph Paul Verge, personal correspondence, 17 Jan. 1999.

⁴⁶English, *op cit.*, p. 278; NAC RG 24 vol. 10818, message log.

⁴⁷Roy, *op cit.*, p. 195.

Royal Canadian Army Service Corps and the Royal Canadian Ordnance Corps. It also controls the flow of supplies forward to squadrons in the 'F' or 'Fighting' Echelon. 'A' Echelon is composed of the vehicles which carry supplies forward, as well as the regiment's auxiliary services such as kitchens and dental facilities.⁴⁸ The regimental history of the Fort Garry Horse recognizes a part of the army that is seldom mentioned elsewhere, yet without which a modern army cannot function:

In all operations the part played by "A" and "B" Echelons must never be forgotten. Without good supply forward an armoured regiment cannot long survive [and certainly cannot fight]. Both Echelons were constantly subjected to long range shelling and "A" to a lot of enemy air action as well—cannon and bomb. . . . Unlike the tank crews echelon personnel have no armour for protection on these occasions.⁴⁹

One of those occasions was the afternoon of 8 August, when eight men were killed and 50 wounded at the Garrys' 'B' Echelon, "while loading ammunition and petrol in kangaroos prior to going forward."⁵⁰

By 1330 hours reports of the bombing were coming in to 2nd Corps Headquarters. A message had to be passed through the First Canadian Army-83 Group control centre before Eighth Air Force could be contacted to stop the bombing. Without a direct link to the planes in the air, nothing could be done in time. The fragmentation bombs had devastating effects because as George Kitching later explained, "several thousand vehicles, guns and tanks and

⁴⁸Fort Garry Horse Regimental Archives and Museum, Notes on the Breakdown of Units into the Various Echels as Used by 10 Cdn Armd Regt (Fort Garry Horse) in Western Europe, unpublished manuscript from the map book of Major H.C. Blanshard; and "Tactics Precis", COTC - 1957, The Royal Cdn Armoured Corps School, p. 2; W.A. Johnston, "'A' Echelon—From the Beaches to Breda," appendix to *Vanguard*, p. 141.

⁴⁹*Vanguard*, pp. 43-44.

⁵⁰W.A. Johnston, *op cit.*, p. 144.

some 50,000 soldiers” had moved “into an area approx 2 miles by 4 miles”. The troops, caught in the open, presented extremely vulnerable targets to the errant bombs.⁵¹ Not expecting any danger in the rear area, the men had not taken the precautions that would have been routine on the front line, such as digging slit trenches and using camouflage at the Echelons. At 1700 hours, Simonds spoke to Mann from his command post and delivered an optimistic and undoubtedly erroneous evaluation of the bombing errors. He said that his corps’ “fighting efficiency has NOT been affected by inaccurate bombing by 8 USAAF. . . . One [ammunition] dump destroyed but is being replaced. . . . [E]verything is in hand.”⁵²

The Phase II bombing attack failed to blast a path through the Germans’ secondary line. Nor did the defenders seem willing to cooperate with Simonds’ intentions. Following the first phase break-through by the armoured columns, *Oberführer* Kurt Meyer, commanding the *Hitlerjugend*, redistributed his battle groups to stem the Canadian assault. He ordered *Kampfgruppe* Waldmüller, composed of infantry from his 25th S.S. Panzer-Grenadier Regiment and 39 Mark IV tanks from the 12th S.S. Panzer Regiment, to counter-attack the hills south of St. Aignan.⁵³ Waldmüller’s group was the only significant force available to Meyer at the time, although it was supported by eight of *Hauptsturmführer* Michel Wittman’s Tigers from the 101st *Schwere Panzerabteilung* (‘heavy tank battalion’). The battle group

⁵¹DHH 81/150, Kitching Memoir.

⁵²NAC RG 24 v. 13624, First Cdn Army MAIN Ops Log 8 Aug 44.

⁵³The 12th S.S. *Division* was composed of two regiments of panzer-grenadiers (*i.e.* infantry), the 25th and 26th; and one panzer regiment, the 12th; plus divisional troops. At full strength in June 1944, the former included three battalions, while the latter had two. German regiments were roughly equivalent to Canadian and British brigades. Michael Reynolds, *Steel Inferno: 1st SS Panzer Corps in Normandy* (New York, 1997), Appendices 4-6.

was to assemble at Bretteville-le-Rabet for its attack. *Kampfgruppe Wünsche*—with about 40-50 Mark IVS, Panthers, and Tigers, plus two battalions of panzer-grenadiers—was ordered to immediately disengage from the British in the Grimbosq area and occupy the high ground to the north-west of Potigny. The third battle group, *Aufklärungsgruppe Olboeter*, was likewise recalled from the Vire sector. The division's *Flakabteilung* ('anti-aircraft regiment') 12 was deployed near Bretteville-le-Rabet to block the Falaise road.⁵⁴

Meyer had driven forward to Cintheaux with Waldmüller to assess the situation around noon. From there they observed "massive tank columns" forming up east and west of the road. No sooner had Meyer decided to make a preemptive attack than they saw the American Pathfinder approach and circle the target area. Meyer ordered the attack to begin immediately, in order to move his troops inside the bomblines.⁵⁵ Waldmüller headed north-east, toward the Poles, while Wittman's Tigers charged up the road north of Cintheaux. Then "a miracle happened", as Meyer later explained: "Several hundred Allied bombers attacked the villages and farms north of Bretteville-le-Rabet [sic] without dropping one single bomb on the attacking units of the 12th."⁵⁶

The Polish Armoured Division on the left flank was not so lucky, but 4th Canadian was unaffected. Still, neither formation made adequate progress on the afternoon of the 8th. Although "Corps reported that both . . . crossed the lateral road Bretteville-sur-Laize–St. Aignan de Crammesnil (close to the startline for Phase II) at 1:55, the proper time", 4th

⁵⁴Hubert Meyer, *op cit.*, pp. 172-176; Reynolds, *op cit.*, pp. 253, 288.

⁵⁵Hubert Meyer, *op cit.*, p. 173.

⁵⁶DHH 73/1302, Kurt Meyer interview, 3 Sept. 1950.

Division's Halpenny Force made achingly slow progress, or so it seemed to Simonds and Kitching. The Polish Division,

doubtless shaken by its experience with the misdirected bombing . . . did not get far this day. At 4:10 p.m. Corps Headquarters logged a message from the Poles to the effect that 20 Tiger tanks were in the area south-east of St. Aignan de Cramensnil, "covering with fire all country immediately over" the lateral road through that village. The Polish Division reported, "Have had casualties and are regrouping."⁵⁷

The inexperience of the two armoured divisions is usually blamed, at least in part, for the failure to 'get on' with the advance during Phase II. For both, Totalize was their first major operation. This fact notwithstanding, both divisions met stronger opposition than anyone had expected. At 1425 hours the Poles had encountered *Kampfgruppe* Waldmüller—which had in fact only about 10 Tigers; the other tanks reported by the Poles were Panzer IVS.⁵⁸ The ensuing battle "was a duel between the guns of the Shermans on one side and Tigers and [Panzer IVS] on the other. It was not a battle of tactical manoeuvres but rather a struggle between guns."⁵⁹ Despite the "overwhelming odds" Kurt Meyer attributed to the great numerical superiority in tanks held by the Polish Division, such duels usually produced the same result, and this case was no different. The Polish assault was stopped in its tracks.

West of the road, 4th Armoured Division did no better. The advance of the leading troops of Halpenny Force was slowed by Wittman—who was killed in the attack when his Tiger's turret was blown off—and then stopped north of Langannerie by anti-tank fire from *Flakabteilung*12.⁶⁰ By last light, the division had established itself only as far forward as the

⁵⁷Stacey, *The Victory Campaign*, p. 224.

⁵⁸NAC RG 24 v. 10942, PAD in Op Totalize. The two types look rather similar.

⁵⁹DHH 73/1302, Kurt Meyer interview.

⁶⁰Hubert Meyer, *op cit.*, pp. 175-176.

targeted areas around Hautmesnil. Reg Roy attributed the sluggish progress of Halpenny Force to the persistent fire from German tanks and anti-tank guns, as well as the division's inexperience: "It had been months since the division had engaged in manoeuvres in England, and even there the tank crews were restricted. 'Fire and movement' tactics had been learned in theory but there had been too little practice." In any case, "no amount of training could prepare troops for the first occasion when they saw their comrades burnt to a cinder in a 'brewed up' tank." The open flanks of the lead troops was just as significant a factor.⁶¹ The Poles on the left had not been able to get past *Kampfgruppe* Waldmüller, and "no longer dared leave the Crammesnil forest".⁶² On the right, an attack on Bretteville-sur-Laize was two hours late because artillery support was unavailable, possibly a consequence of the congested traffic in the rear areas and the delays in deploying guns in positions that were cleared behind schedule.

About 1600 hours, 2nd Division's Calgary Highlanders—part of 5th Brigade—attacked Bretteville-sur-Laize. Supported by the Régiment de Maisonneuve and the tanks of the 1st Hussars, they captured the village and began to dig in. Lieutenant-Colonel MacLaughlan of the Calgaries "arrived in Bretteville having survived a close call with an anti-tank gun. After surveying the defences he made the extraordinary decision to withdraw the battalion to the high ground north of Bretteville."⁶³ Apparently he preferred to dominate "the place from the

⁶¹Roy, *op cit.*, pp. 199-202.

⁶²Hubert Meyer, *op cit.*, p. 173.

⁶³Terry Copp, *The Brigade: The Fifth Canadian Infantry Brigade, 1939-1945* (Stoney Creek, Ont., 1992.), p. 99.

high ground to the north instead of occupying the ruins.”⁶⁴ Lieutenant Ed Ford, who had been in the thick of the fighting, described the scene from his point of view:

We had been taught never to be caught on a forward slope in daylight and at Bretteville we were ordered to come back up over that slope. We were fired upon and we got a lot of casualties and I remember I had to take over from Captain Bill MacQueen to help evacuate the wounded. I stayed with the platoon and was exhausted. I could never understand that; here I was the greenhorn, and I couldn't understand how anybody could order a battalion up over the brow of a hill in broad daylight.⁶⁵

The German gun screen had caused 2nd Division considerable difficulty. Kurt Meyer watched as “[o]ne attack after another faltered at our strong front line. We were unbelievably lucky—the opposite side did not carry out one single concentrated attack.”⁶⁶ German resistance at Bretteville-sur-Laize, as at St. Aignan de Cramesnil, effectively held up the advance. It had not been crushed by the bombardment as intended.

Given the slow progress that afternoon, 4th Division's spearhead was ordered to continue moving throughout the night. Halpenny Force was to capture Bretteville-le-Rabet and Lieutenant-Colonel D.G. Worthington's composite force of British Columbia Regiment tanks and Algonquin Regiment infantry were to be on the Point 195 feature further to the southwest by first light on the 9th. Instead of advancing, however, the tanks pulled back into laagers to refuel and replenish ammunition “in the manner to which armoured units had become accustomed in training.” The battle groups of 4th Division moved back up before first light for an attack at dawn.⁶⁷

⁶⁴Stacey, *The Victory Campaign*, p. 224.

⁶⁵Qtd. in Copp, *The Brigade*, 102.

⁶⁶Kurt Meyer, qtd. in Hubert Meyer, *op cit.*, p. 173.

⁶⁷Stacey, *The Victory Campaign*, p. 225.

The Germans, meanwhile, were regrouping. The second line having been penetrated, Meyer ordered his forces to take up new positions in front of Potigny and the Laison River. Waldmüller, who had been forced to withdraw once 5th Brigade reached Bretteville-sur-Laize and 4th Armoured Brigade captured Hautmesnil, was ordered to establish himself in the area of Point 140, east of the Falaise road. *Kampfgruppe* Krause—a smaller group of infantry, like Waldmüller's, from the 25th regiment—was to take up a position between the road and Oully. A battalion from the 26th Panzer-Grenadier Regiment moved to Point 195 west of the road and was joined by *Aufklärungsgruppe* Olboeter the next morning. *Kampfgruppe* Wünsche, by the evening of 8 August, had reached the Potigny defensive line and was sent to Quesnay Wood. *Flakabteilung* 12 set up two batteries of 88s north of Potigny to cover the Falaise road. And, at 2350 hours, *Feldmarschall* Günther von Kluge—the Commander-in-Chief West—ordered II S.S. Panzerkorps to release an additional panzer battalion to bolster Meyer's defences. *Schwere Panzerabteilung* 102 thus moved east during the night with 13 Tiger tanks, and joined Wünsche in Quesnay Wood. The remnants of 89th Division also filtered back in scattered groups during the night of 8/9 August. By morning, 12th SS was re-establishing its defences along the new line.⁶⁸

Kampfgruppe Waldmüller had not yet withdrawn to its new position by the morning of the 9th, and was soon enveloped by Worthington Force. The latter had set out for Point 195 but got lost and drifted off course east of the Falaise road. Sighting the high ground at Point 140, Worthington misidentified his objective and established his force behind German lines in the Polish sector. When Waldmüller reported being encircled—he was caught between

⁶⁸Hubert Meyer, *op cit.*, p. 175-179.

Worthington Force and the Poles–Wünsche set out from Quesnay Wood with 6 Tigers and 15 Panthers. In an epic day-long siege, Worthington Force was annihilated.⁶⁹ The British Columbia Regiment had 47 tanks destroyed, almost its entire complement. Casualties numbered 112, including 40 killed. The Algonquin infantry lost 128, with 45 killed.⁷⁰

The Governor General's Foot Guards had been ordered to follow Worthington Force to Point 195, and Marcel Fortier was "quite annoyed because there were insufficient maps. Just . . . oral orders: 'We're going to Hill 195' and somebody would pipe up and say 'Where the hell is Hill 195, I haven't got a map!'" The tank crews were told that "Quesnay Wood wasn't considered a hot spot, and we shouldn't have any trouble".⁷¹ In fact it did hold up the division throughout the day, and the Foot Guards alone lost 26 tanks at Quesnay Wood. Fortier recalled that while moving forward to Point 195, his troop came under fire from the high ground up ahead. The tanks, moving in line ahead formation (single file), sheltered in a nearby orchard:

[A]s the front tank stopped, the others stopped of course, then the Germans up on top of the hill couldn't depress their guns down far enough, but they were far enough down that they could take branches off the trees above our heads. So when this would happen we would all back up. . . . Then he would get our range again . . . and if you've got HE, high explosive, well pieces of metal are flying all over the place so we'd move on ahead. This was one time where I pulled the hatch down because metal was hitting the sides of the tank. We did this three or four times. The last time we stopped . . . the . . . tank behind me . . . was climbing up the back deck. Here was a Sherman tank climbing up my back deck, and finally it stopped with its two tracks up in the air. . . . I got out of my tank and I ran around to the side, and they were pulling out [the crew commander]. Half of his face was sliced right off. An 88 had hit the side of the flap, you know he had the flaps

⁶⁹Described by Stacey, Hubert Meyer, Roy, Reynolds, Jarymowycz, and virtually every other account of Operation Totalize.

⁷⁰DHH 73/1302, Kurt Meyer interview; Stacey, *The Victory Campaign*, p. 228.

⁷¹Fortier interview.

open, hit the side of the flap and split his face right down . . . and he died in the orchard right there. That was our first close sight of somebody getting hit with a high explosive shell.⁷²

Part of Point 195 was finally occupied in a stealthy action carried out that night by the Argyll and Sutherland Highlanders. On the 10th the Canadian Grenadier Guards and the Governor General's Foot Guards were both involved in fighting off heavy counter-attacks. It had been intended that the Grenadier Guards would advance to the next high point (206), but this was precluded by the Germans' strong hold on their part of Point 195. 3rd Division was then moved up and ordered to "seize the commanding ridge west of Epancy" in what was to prove the final attempt to reach the Totalize objectives.⁷³

8th Brigade's Queen's Own Rifles and the under-strength North Shores—effectively reduced to three rifle companies instead of four by the bombing on 8 August—were to attack Quesnay Wood followed up by Polish tanks.⁷⁴ The latter, however, had spent the day fighting Waldmüller near Soignolles, and the division's "right flank units received a ferocious mauling from the Quesnay Wood", wherein were established the two battle groups under Krause and Wünsche.⁷⁵ The attack by 8th Brigade was stopped almost immediately, both battalions taking heavy casualties. Simonds called off the operation the next morning.

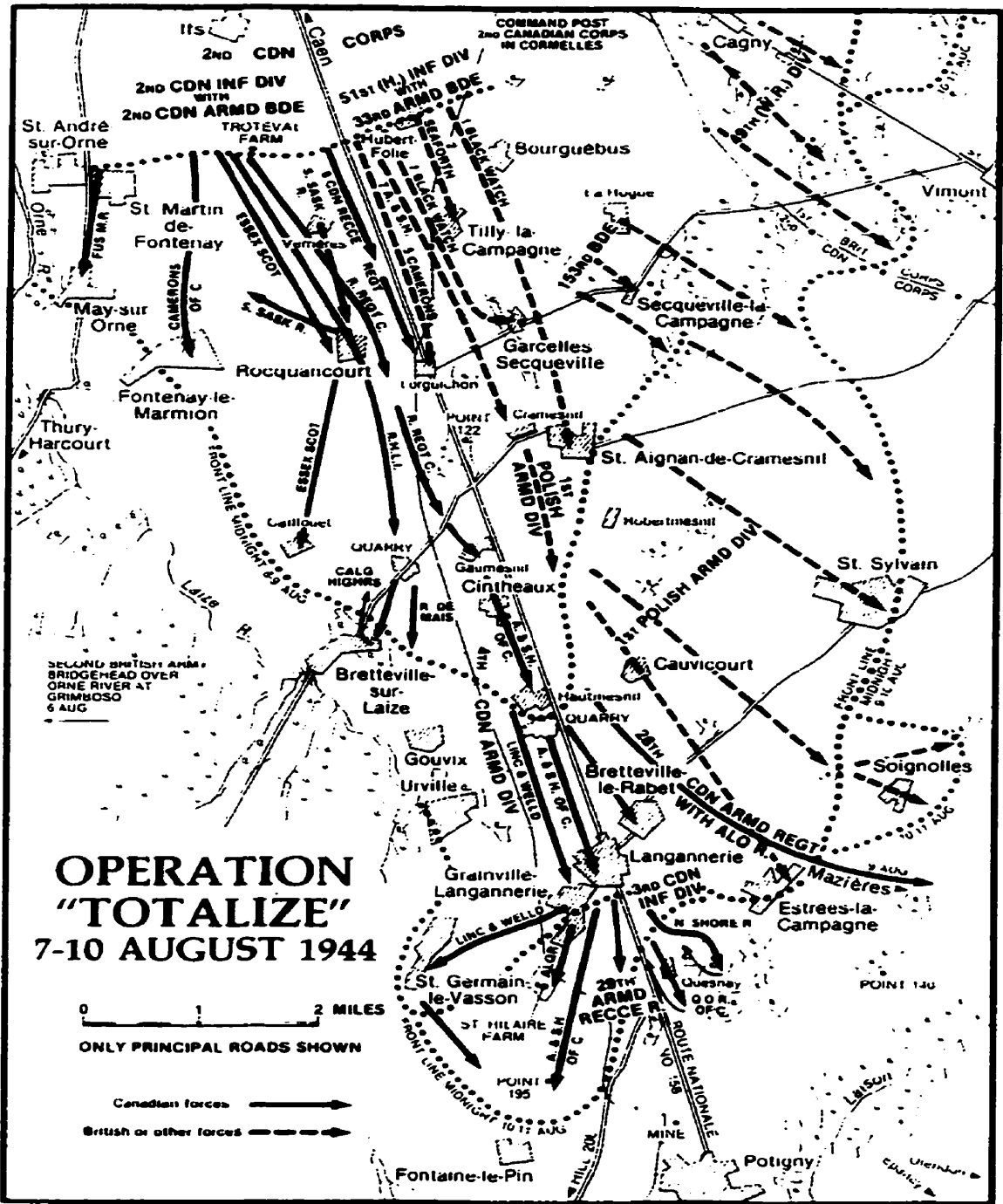
The end of Totalize would not be the end of the story, though. Although it had pushed

⁷²Fortier interview. The tank commander's cupola was closed by two semi-circular butterfly-type flaps which opened outwards from the centre of the hatch. Tank commanders like Fortier hated to close the flaps because of the resulting poor visibility.

⁷³Stacey, *The Victory Campaign*, pp. 229-231.

⁷⁴Charles Cromwell Martin, *Battle Diary: From D-Day and Normandy to the Zuider Zee and VE* (Toronto, 1994), pp. 54-55.

⁷⁵NAC RG 24, v. 10635, Messages 2 Cdn Corps; RG 24 v. 10942, Acct of PAD in Op Totalize.



Map 5: The Progress of Operation Totalize, from Roy, 1944: *The Canadians in Normandy*, p. 168.

the front approximately nine miles south toward Falaise and virtually destroyed 12th SS as a coherent formation, Totalize failed to gain its objective of breaking-out at a time when success would undoubtedly have shortened the length of the campaign, if not the war. Failures, of course, usually generate more discussion than successes, but much of the commentary that followed has been based on incomplete documentation and the less-than-objective testimony of participants like Kurt Meyer. The historiography of Operation Totalize is thus as much in need of re-evaluation as the events in question themselves.

Chapter 5: The Missed Opportunity

The failure of 2nd Canadian Corps to take Falaise during Operation Totalize constituted a missed opportunity of great significance for the balance of the campaign in Northwest Europe. This conclusion is not in question. An unqualified understanding of the events of 7-10 August 1944, however, is thwarted by the enigmatic nature of available evidence. The primary sources—planning documents, intelligence reports, accounts prepared by staff officers or given by participants—often contradict each other. The secondary literature reveals a trend toward superficial analysis based on the *prima facie* acceptance of these sources without delving deeper into the course of the operation or the planning process behind it. The result has been the emergence of three myths, heretofore accepted as the reasons behind the failure of Totalize to realise all that was expected of it.¹

The first myth is that the operation was doomed in advance by a plan that was too complex, too rigid, and doctrinally flawed. The second, related to the first, is that by adhering to the bombing schedule on 8 August after the ‘success’ of Phase I, Simonds permitted a pause in the advance that allowed the Germans time to regroup. 2nd Corps thus lost a

¹The word ‘myth,’ in this context, should be understood to denote a widely-accepted but false notion.

momentary chance to break-out because Simonds refused to cancel the Phase II air strikes. The final myth places a large measure of responsibility for the failure on the inexperienced armoured divisions whose task it was to crack the second German line and rumble up the road to Falaise. It has been argued that more seasoned formations would have boldly seized the opportunity instead of allowing a few tanks and guns to stop them. Such explanations leave too many questions unanswered.

The assumptions behind these myths are largely based on the testimony of such figures as Kurt Meyer and George Kitching, whose views have exercised a disproportional influence on the development of the relevant historiography. This obvious flaw has been further exacerbated by the pronounced tendency of historians to consider Totalize from the limited perspectives of *either* the army *or* the air force. Such an approach has required them to work, as it were, with 'one hand tied behind their backs.' Only by considering the operation from its conception through to its conclusion from *both* viewpoints has it been possible even to recognize that the existing literature is merely a starting point for study, rather than a vehicle for explaining the failure.

Canadian officers did not initially admit that Totalize was anything less than a 'total' success. The War Diary of 2nd Division noted that Major-General Charles Foulkes felt so pleased with the success of his troops that he engaged war correspondent Ross Munro to provide "some well earned publicity."² A lecture on the Normandy campaign delivered by Mann and Wright in November 1944 tried to pass off the operation as a successful break-out. Mann aped the earlier comments of his GOC-in-C, Crerar, saying that "[t]his date, the 8th of

²NAC RG 24 v. 10897, War Diaries 2 Cdn Inf Div, 9 Aug 44.

Aug[ust], seems to be a dismal one in German Military History. . . .” He cited the much-repeated words of *Feldmarschall* Günther von Kluge, who said “a break through has occurred near CAEN, the like of which we have never seen.”³ What he neglected to tell his audience was that Kluge was reacting only to the initial shock of the first-phase advance, and that by the evening of the 9th he had recovered sufficient composure and confidence in the stability of the Canadian front to order the continuation of the Mortain counter-offensive.⁴

C.P. Stacey offered the first (more or less) objective and scholarly treatment of Totalize in 1946. He set the tone that later historians would follow with *Canada's Battle in Normandy*, a precursor of his official history of the Canadian Army in Northwest Europe, *The Victory Campaign*, published in 1960. The former judged the operation softly, but suggested that experienced armoured divisions might have pushed on more steadily during Phase II. Stacey also recognized that the slow progress they made allowed the enemy time to regroup.⁵ *The Victory Campaign* expanded on its predecessor's scant mention of the bombing attacks, but its conclusions are suspect. Stacey wrote that “[g]ood concentrations were obtained on three of the four main areas attacked” in the second phase, and “[t]hat the bombing was valuable to the operation there is no doubt. . . .”⁶

It has not been possible to quantify the value that Stacey claimed. In fact, subsequent work by the U.S. Air Force established that bombing accuracy had been poor. It has proven

³NAC RG 24 v. 10455, Lecture on Normandy campaign by Brig. CC Mann & Lt-Col PER Wright, 25 Nov 44.

⁴Chester Wilmut, *The Struggle for Europe* (London, 1965), p. 414.

⁵C.P. Stacey, *Canada's Battle in Normandy* (Ottawa, 1946), p. 115.

⁶C.P. Stacey, *Official History of the Canadian Army in the Second World War Volume III, The Victory Campaign: The Operations in North-West Europe 1944-1945* (Ottawa, 1960), p. 223.

similarly difficult to measure the adverse effects of the short drop. As we have seen, Simonds downplayed the impact of the bombing mishap on 2nd Corps, and most historians have concentrated on other aspects of the operation, particularly the blind advance and ‘novelties’ of Phase I such as the direction-keeping aids and Kangaroos. G.W.L. Nicholson’s official history of the Royal Canadian Artillery also de-emphasized the bombing of the medium regiments:

Severe as the blow had been, the efficiency of the 2nd Canadian Corps was not long affected. Within moments of the last bomb landing, the survivors were busy evacuating the casualties, burying the dead, and taking stock of the damage to equipment. Troops and batteries were reorganized. . . . A composite battery was formed from what was left of . . . 4th Medium Regiment. Within a little more than an hour the badly-hit 2nd Canadian and 9th British AGRA’s were ready once again to function with their customary effectiveness.⁷

Chester Wilmot’s classic *The Struggle for Europe* established the prevailing evaluation of Totalize. Simonds had apparently produced a “daring” and “revolutionary” plan to capitalize on an opportunity of “incalculable scope”. Despite much confusion navigating in the dark, the first phase advance was a “spectacular success” which set up First Canadian Army for the break-out. Alas, the opportunity was squandered by the ‘green’ armoured divisions which,

lacking experience . . . did not thrust on aggressively as Simonds had ordered. They made little or no use of the fighter-bombers and medium artillery which were available to support them and, instead of by-passing opposition, they stopped to deal with it. The enemy was holding only a few key points and, if the superior range of the German anti-tank guns had been countered by smoke, the Canadians, if not the Poles, might have swept through.⁸

⁷G.W.L. Nicholson, *The Gunners of Canada: The History of the Royal Regiment of Canadian Artillery Volume II 1919-1967* (Toronto, 1972), p. 319.

⁸Wilmot, *op cit.*, pp. 411-413. The book was originally published in 1952. George Stanley echoed Wilmot in his criticism of Kitching and Maczek over the handling of their divisions in his 1960

This evaluation of the operation was not substantially modified until John A. English published *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* in 1991. English judges Totalize harshly. He rejects the notion that Simonds had crafted a masterful plan, although he amplifies Wilmot's judgment concerning the effects of the delays in Phase II. In developing his interpretation, English leaned too heavily on the comments made by Kurt Meyer in 1950 while a prisoner of war in Canada.⁹ Meyer's account of Totalize contributed significantly to the acceptance of the first myth, that the plan was flawed, by English and other authors. According to Meyer, Canadian armour had not been employed in the manner for which it had been created, as a weapon that uses speed to exploit opportunities on the battlefield. The decision to attack at night was a mistake. Meyer insisted that tanks were reduced to "creeping pill-box[es]" in darkness and thus deprived of their "ram-power which is at its height when the tank is able to utilize speed." The flaw in British doctrine, he said, was its prescription that tanks were primarily infantry-support weapons.

Support for this argument may have been possible earlier in the war, but the nature of the fighting south of Caen was the reason that night attacks and bombers had become necessary in the first place. As we have seen, this was gun-country, not tank-country. The open fields of fire made it suicidal for Sherman tanks to operate in plain view of German gunners. Simonds, for his part, had refuted arguments like Meyer's in 1939 when he pointed out that while moving at high speed, a tank's gun is jolted about such that fire is too inaccurate to be

history of The Lake Superior Regiment, p. 157.

⁹DHH 73/1302 Kurt Meyer interview, 3 Sept. 1950. English quotes Meyer extensively in *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* (New York, 1991).

reliable.¹⁰ If support were to be maintained, the tanks would have to slow down for the artillery. If they did not, they would be at the mercy of German anti-tank guns.

The main problem with Simonds' plan, according to Meyer, was the employment of heavy bombers, which imposed a degree of inflexibility that precluded any exploitation of success following Phase I. Rather than allowing a flexible response, Meyer said, the use of bombers "transferred the initiative from . . . leading combat elements to timetable acrobats of . . . Headquarters." Artillery should instead have been the focal point of the fire plan, as it would have been "more than sufficient" to support the attacking forces. Such reasoning ignores the fact that Simonds incorporated bombers as a way to maintain support during the pause between phases in the first place.

Calling on bombers instead required adherence to a strict schedule for the beginning of Phase II because air strike timings had to be set in advance. Meyer encouraged acceptance of the myth of 'The Pause' by claiming that "89th Div. was already eliminated before the Canadian ground forces moved over the 'Start' line. A few dauntless survivors of the 89th defended their positions until noon, Aug[ust] 8th, but there was no longer any organized defense. . . . [T]he road to Falaise was undefended and open from midnight Aug[ust] 7th until noon Aug[ust] 8th." Such a view contends that a pause while artillery moved forward was replaced by a pause while 2nd Corps awaited the bombers. Totalize failed, Meyer said, because of "time wasting". That the alleged elimination of 89th Division must have been achieved by bombing, if it was accomplished before the startline was crossed, is a

¹⁰G.G. Simonds, "The Attack," *Canadian Defence Quarterly* v. 16 (October 1938-July 1939), pp. 382-383.

contradiction that Meyer did not acknowledge. In any case, it is his assertion that the armoured divisions could have driven to Falaise if only they had not waited for the second phase bombing that has been picked up by historians like English and Roman Jarymowycz in explaining why the operation failed. One does not, after all, stop to feed in the middle of a cavalry charge.¹¹

Although English's *The Canadian Army and the Normandy Campaign* makes a valuable contribution to Canadian military historiography, with its relation of doctrine to training and operations, its criticism of Simonds is made on the basis of faulty assumptions. English claims that Simonds insisted on waiting for the second phase bombing attack because he was "under the erroneous perception that the second zone was defended by the 1st SS".¹² This point is highly debatable. It has been shown that Simonds was presented with evidence that the *Leibstandarte* had moved west by the time the operation began.¹³ If a small degree of uncertainty did remain, would not the bombing have made sense? In any case, the argument that the employment of bombers in Phase II caused Totalize to fail because it prevented the armoured divisions from exploiting a temporary opportunity to blow the front wide open is utterly dependent on one key assumption: that both the 4th Canadian and Polish Divisions were ready and waiting at their startlines on the morning of 8 August while 12th SS deployed.

¹¹A point made by Meyer and reiterated by Roman Jarymowycz in "Canadian Armour in Normandy: Operation 'Totalize' and the Quest for Operational Maneuver," *Canadian Military History* 7:2 (Spring 1998), p. 33.

¹²English, *op cit.*, p. 274.

¹³Once again, however, that evidence is unclear. Although First Canadian Army received Ultra signals suggesting 1st SS had withdrawn, for some reason others which confirmed the presence of the division at Mortain were not passed on to Canadian Intelligence. PRO DEFE XL 4795; XL 4803; XL 4997; XL 5093. I am grateful to David O'Keefe for providing the Ultra signals.

Meyer claimed that from his vantage point in Cintheaux, he saw the armoured columns loitering in front of their startline around noon, although the historical literature is exceptionally confusing on this point. The bombing commenced at 1226 hours, so Meyer must have been in Cintheaux prior to that time. Jarymowycz sympathetically argues that “[t]he Canadian armour arrived steadily on the battlefield until both divisions had the bulk of their tank brigades formed up north of the startline, about 0830 hours on the morning of the 8th. Before them lay open country.”¹⁴ According to his own account and 4th Brigade’s operations log, however, Ned Amy’s squadron, the spearhead of 4th Division, was held up north of Rocquancourt until after 1224 hours.¹⁵ Meyer probably saw either the lead formations from the night advance, or perhaps the tanks of the 4th Canadian and Polish Armoured Divisions, not waiting in front of the startline, but *as they moved up to it*.¹⁶ He could not, in any case, have seen what he claimed to have seen.

There are other important points militating against such arguments. Simonds had, in the original air plan, until 0900 hours on 8 August to abort the bombing if conditions were favourable. When Eighth Air Force re-entered the plan on the 7th, H-hour for its attack was moved up to 1300, and then again to 1226 on the day in question. It is not recorded in

¹⁴Jarymowycz, *op cit.*, pp. 22-23. Jarymowycz contradicts himself, however, admitting that units were scattered and “anything but a force in place.”

¹⁵Amy wrote that after being told not to proceed to the startline until Rocquancourt was clear, he and his men waited “in our tanks for what seemed hours. The reason for this long delay was difficult to understand as we were not passing through the town but bypassing it to the north.” Account of Operation Totalize by E.A.C. Amy of the Canadian Grenadier Guards, 20 February 1993 (hereafter, Amy manuscript). Personal copy.

¹⁶Cintheaux is at an elevation of 120 metres, while Rocquancourt is at 70 metres, and there is no higher point between the two villages. A contour map of the area is included in DHH 693.013 (D2), *British Army of the Rhine (BAOR) Battlefield Tour Operation Totalize: 2 Canadian Corps Operations Astride the Road Caen-Falaise 7-8 August 1944* (September 1947).

Canadian sources whether the lead time for cancellation was moved up to maintain five hours' notice, but if it was then Simonds would have had to make a decision by 0726, at which time the situation of the lead troops was anything but secure. A number of first-phase objectives were not yet in Canadian hands, including Caillouet, Lorguichon, and the quarry assigned to the RHLI. Even by 0900, the original abort deadline, the German counter-attacks were just getting underway.

Besides uncertainty at the front line, there was still so much fighting going on in the rear areas that not only were the 4th Canadian and Polish Armoured Divisions fired on as they moved up to the startline, but their supporting artillery was unable to deploy in proper order. 89th Division had not disintegrated after all. English claimed that "[w]aiting for the second bomber strike guaranteed a loss of momentum. Had the strike been waived and high-command attention turned to the staff problem of getting troops and artillery forward, the tempo could have been sustained."¹⁷ This latter point is entirely valid, but the continued fighting in the by-passed areas along with traffic jams in the rear meant that *there was no momentum* on the morning of the 8th. Arguments which blame 'The Pause' for the ultimate failure to reach Falaise take for granted that Phase I had been brought to a tidy and successful conclusion by the early morning. In fact it had not, and there was, therefore, no idle pause imposed upon the lead squadrons before Eighth Air Force's bombing run. The only way to maintain momentum would have been to send the armoured columns from Phase I straight on against the second line without pausing for artillery and bomber support, and perhaps using the TAFs to keep them going. It was believed at the time that the defences on the

¹⁷English, *op cit.*, p. 291.

Bretteville-sur-Laize–St. Sylvain line were too strong for such a course of action.

George Kitching added fuel to Meyer's fire in 1981, arguing that narrow frontages and the Phase II bombing timetable had restricted the flexibility of the armoured divisions. He complained that by the morning of the 8th, the heavy bombers had become "a mill stone around our necks."¹⁸ Simonds attributed 4th Division's slow progress not to the narrow frontage, but to "roadboundness" and an aversion to "deploy across country".¹⁹ Furthermore, he had originally prescribed the 'flying artillery' as a means to ensure that fire support was available for the continuation of the advance on the 8th. At no point before his abort deadline did Simonds have any reason to call off the bombers, confused as the situation on the battlefield was. Instead, he was probably wondering if the air strikes would be the only fire support available for the start of Phase II, rather than pondering their cancellation. Even if he had wanted to call them off sometime after the lead squadrons began to move to the startline, by then it was too late. The bombers were already in the air.

Simonds had envisioned using massed air power to support a break-out before the war began, and before the awesome destructive potential of the four-engine bombers became a reality. With that kind of power available in August 1944, Simonds was not about to turn away from his earlier idea without having a chance to try it. For whatever reason, the bombing in Operation Cobra had produced impressive results, and here was a chance to duplicate them. It had not yet been clearly demonstrated that close support heavy bombing was an imperfect method of neutralizing defences, and the strategic forces were, of course,

¹⁸DHH 81/150, George Kitching memoir.

¹⁹BAOR *Tour, Operation Totalize*, p. 33.

“[w]orking for SHAEF”.²⁰ Simonds therefore did what any competent general officer should, he made use of every weapon at his disposal in the attempt to save lives.

It should be remembered that Simonds’ first attempt to break the German line at Bretteville-sur-Laize,²¹ Operation Spring, had been a bloody disaster which failed to penetrate even the *forward* line on Verrières Ridge. He can therefore be excused for resorting to the ‘bludgeon’ rather than the ‘rapier’—to borrow a metaphor—in order to defeat the SS troops that had caused so many Canadian casualties in Spring and who still held the line when he planned Totalize. English himself contributes an argument against the possibility of a rapier-like advance in Phase II by noting the way that increasing fire-power had made tank charges obsolescent: “In Russia and elsewhere *Blitzkrieg* foundered before opponents prepared to wage *Materialschlacht*, an antidotal slugging match of attrition. Attacking forces could no longer get through a prepared position in depth without hard pounding.”²² Clausewitz’ early-19th century dictum that “the defensive form of War is in itself stronger than the offensive”²³ was never more true than in Normandy. Simonds’ plan must therefore be seen as a logical reaction to tactical realities. It may have been complex, but defeating a strong defence in depth could not be done without heavy fire-power, and attaining it required detailed all-arms coordination. Considering the prior history of armoured assaults in Normandy, Simonds’

²⁰This is the title of Chapter 22 of Brereton Greenhous *et al.*, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force Volume III* (Toronto, 1994).

²¹David O’Keefe, draft copy of “Bitter Harvest: A Case Study of Allied Operational Intelligence for Operation Spring, Normandy, July 25, 1944,” (MA thesis, University of Ottawa, 1996).

²²English, *op cit.*, p. 311.

²³Carl von Clausewitz, *On War* v. 2, English translation by J.J. Graham (London, 1962), pp. 134-135.

decision to wait for the bombing seems justified.

With the first two myths thus repudiated, it should also start to become obvious that the degree of causality attributed to the inexperience of the armoured divisions has been exaggerated. There is no doubt that it was a factor, but it has been blown out of proportion by historians. It is only common sense to recognize that 'green' troops should be introduced to battle gradually, not thrown in suddenly to a major battle with the fate of a campaign resting on their shoulders. This is the one area where Simonds can be legitimately faulted, but a share of the blame should also go to Brigadier E.L. Booth of 4th Armoured Brigade for inadequately preparing his regiments.

Amy explained the confusion that dominated the 'O' group before Halpenny Force moved forward into its first battle. That he was not told of the second phase bombing until his squadron was on its way to the startline for Phase II after Rocquancourt was cleared must be considered an error by senior officers. It is possible that Amy's memory failed him, but Marcel Fortier of the Governor General's Foot Guards was also unaware that a second bombing attack was to take place. When two armoured regiments in the same brigade are this uninformed, part of the criticism must go to the brigade commander, if for no other reason than forgetting the lessons of the Great War. It has often been said that a key reason for the successes of Lieutenant-General Sir Arthur Currie's Canadian Corps was the training and rehearsal and sharing of information that preceded major attacks like that on Vimy Ridge. Although Simonds' corps did not have the same luxury of time before the start of Totalize, Amy was correct to wonder "why we were not briefed earlier and married up with our supporting arms to prepare our troops adequately for the operation." While 2nd Armoured

and 4th Infantry Brigades rehearsed night movement with navigational aids on the two nights preceding Totalize and 10th Infantry Brigade also prepared on the morning of the 7th, Amy claimed that his regiment was “given nothing but a warning order until 2200 hours on 7 August”, an hour and a half before they were to move to the forming-up place.²⁴

The slow progress made by the 4th Canadian and Polish Armoured Divisions cannot be blamed on inexperience alone. The bombing of the 4th Medium Regiment was probably a more consequential factor in the Poles’ lack of success once they crossed their startline than Simonds or Nicholson admitted, because it was the medium and heavy artillery that fired counter-battery tasks, and the effectiveness of the German gun screen in halting the armoured attacks has been well-recorded. 4th Armoured Division, meanwhile, was supported by the SPs of the 23rd Field Regiment, which was unable to deploy in its allotted positions near Verrières until 1100 hours.²⁵ Caution resulted from open flanks, a lack of information as to friendly and enemy troop dispositions, and insecurity based on the knowledge that their tanks were inferior. It has become part of the Battle of Normandy’s lore that soldiers on both sides referred to Shermans as ‘Ronsons,’ but as the ‘tankers’ moved up past the burned-out hulks dotting the Goodwood battlefield, why should they not have experienced the same psychological results Simonds did when he watched them burn after crossing *their* startline?²⁶ It is human nature more than inexperience that accounts for the slow advance in Phase II.

²⁴Amy manuscript. The manuscript includes a letter from George Kitching regarding the orders issued to the brigades of 4th Armoured Division.

²⁵Nicholson, *op cit.*, p. 317.

²⁶Just as Simonds had resolved to do things differently, Amy had seen the wrecks and “made a note never to willingly put my squadron in a position where this might happen.”

One final theory needs to be rejected. Dominick Graham and others have argued that the decision to go ahead with the bombing on 8 August was more *bureaucratic* than military: First Canadian Army had apparently expended so much effort in obtaining the air support that they did not want to waste it by aborting; the planning process had been so “laborious” that the staff did not want to “[mortgage] future air support” by annoying the air force with a cancellation; and so on.²⁷ Such arguments are misleading for two reasons. First, the strategic bomber forces were under Eisenhower’s direction during this part of Overlord. Harris and Spaatz may not have liked the arrangement, but they followed orders. And second, the airmen were already annoyed at having to divert their forces from strategic missions—cancelling a strike at the last minute would not have made the relationship between army and air force any less harmonious.

Part of the reason for the persistence of so much misinformation is that in failing to reach Falaise, a transitory opportunity had been lost. Historians and the armed forces have sought excuses ever since. With Patton’s Third Army rushing eastward, the German Fifth Panzer and Seventh Armies could have been destroyed more quickly and more completely if the Falaise Gap had been closed on 9 or 10 August instead of the 21st. Because the campaign stretched on for another 10 days after Simonds called a halt to Totalize, the Germans were given time to extract a greater number of troops from the Falaise Pocket than might otherwise have been the case. This development spawned a number of arguments about the fighting fitness of First

²⁷Dominick Graham, *The Price of Command: A Biography of General Guy Simonds* (Toronto, 1993), p. 157. See also Jarymowycz, *op cit.*, p. 23; and English, *op cit.*, p. 291.

Canadian Army, most recently between Marc Milner and Roman Jarymowycz.²⁸ The salient issue is whether or not the Americans would have been able to close the Gap more quickly and efficiently had they been fighting in the Caen sector. Kurt Meyer even argued that the Russians would have been able to take the Totalize objectives in twenty-four hours.²⁹

Such arguments amount to little more than sophistry. It has been said that before one attempts to seriously write about a battle, visiting the site is necessary in order to understand its topography. The reason is because the ground shapes the development of a battle from the planning stages through to the operation's execution, and especially the enemy's counter-measures. The Germans marshalled the forces that finally halted Totalize in Quesnay Wood instead of further east or north or south for a reason. Milner has argued that the ground south of Caen allowed the Germans to derive maximum benefit from the superior fire-power of their anti-tank guns, so that it was the shape of the ground as much as tactics that dictated the nature of the Normandy campaign. English as much as agreed when he wrote that the days of *Blitzkrieg* had already passed before the landings on 6 June. Oliver Haller, Terry Copp, and Dominick Graham have each argued that the Germans did not enjoy offensive success in Normandy either on the few occasions when they were able to mount large counter-attacks,³⁰ the feared Tiger and Panther tanks notwithstanding.

²⁸Marc Milner, "Reflections on Caen, Bocage and the Gap: A Naval Historian's Critique of the Normandy Campaign," *Canadian Military History* 7:2 (Spring 1998), pp. 7-17; Roman Jarymowycz, "The Naval Historian as Tourist: Comments on Marc Milner's Critique of the Normandy Campaign" and Milner's rebuttal, *Canadian Military History* 7:4 (Autumn 1998), pp. 6-10.

²⁹English, *op cit.*, p. 292.

³⁰Oliver Haller, "The Defeat of the 12th SS: 7-10 June 1944," *Canadian Military History* 3:1 (Spring 1994), pp. 8-25; Terry Copp, "From the Editor," *CMH* 7:4 (Autumn 1998), pp. 3-4; Dominick Graham, *Price of Command*, p. 155.

The characteristics of the battles in the Caen sector were equally evident whether the attacking army was Canadian or British. The proof lies in three statements concerning the army's tactical problems. Regarding the inability to maintain momentum, the air force complained "that if the armour had gone on, accepting more casualties, it could have reached Falaise that evening. . . ." ³¹ Carlo D'Este judged that "[t]oo much crucial time had been needlessly lost while [the] infantry struggled to clear villages which ought to have been bypassed and left for followup units to deal with". ³² And finally, 21st Army Group's ORS reported that "[t]ank crews were critical of the long wait imposed on them between [phases] . . . before the final objective was bombed, during which 12 tanks were knocked out and the enemy was given time to reorganise." ³³ All three sound like criticisms of Totalize, yet the first two concerned Goodwood, and the latter, Bluecoat.

Milner suggests that had the Americans indeed been able to close the Gap sooner, it would have been due only to a greater willingness to take large numbers of casualties. ³⁴ Graham observed that the legacy of the Somme and Passchendaele had cast a shadow over the British Army, making it reluctant to absorb heavy casualties. This mentality led it to adopt the bludgeon rather than the rapier because such an approach was "less prohibitively

³¹Greenhous *et al.*, *op cit.*, p. 311.

³²Carlo D'Este, *Decision in Normandy* (New York, 1994), p. 382.

³³21 Army Group ORS Report No. 7, "Bombing in Operation Bluecoat". Taken from a forthcoming compilation of ORS reports to be published by Wilfrid Laurier University's Centre for Military Strategic and Disarmament Studies in Waterloo, Ontario.

³⁴Milner's rebuttal to Jarymowycz, "The Naval Historian as Tourist", *op cit.*, p. 10.

expensive in materiel than in men. . . .”³⁵ The Americans did not endure either of these horrors and although their Civil War had enough of its own, two generations had intervened, providing time to heal the psychological wounds. It is interesting that in place of pontification on American generals’ tactical superiority, there has not been more criticism of their alleged willingness to sustain higher rates of casualties.

Had the Canadians fought more like the Americans, our generals would have been criticized for wasting lives—more than they were, particularly after Operation Spring—instead of for wasting time. As for the Russians, the T-34 was just as vulnerable to 88s as the Sherman was. Totalize was only one of a number of battles in the Caen sector that exhibited similar characteristics. There is no reason why the character of the fighting should have been any different just because a ‘golden opportunity’ had arisen. Totalize petered out because the advance had gone as far as it could considering the fire support that was available. To defeat the Germans required 2nd Corps to consolidate its positions, move the guns forward, and ‘tee-up’ another set-piece attack. The defences had to be destroyed methodically before the break-out was possible, and as such the objective that had been set for Totalize was unrealistic. Despite the numerical imbalance between attacker and defender, those who believed that a bold charge to Falaise could succeed without “hard pounding” placed their faith in a chimera. Too many accounts of Operation Totalize have sought excuses for failure instead of seeing it for what it was: a largely successful attack that smashed two German defensive lines and crippled the *Hitlerjugend* beyond repair through the creative use of

³⁵Dominick Graham, “Observations on the Dialectics of British Tactics, 1904-1945,” *Men, Machines, and War*, eds. Ronald Haycock and Keith Neilson (Waterloo, Ont., 1988), p. 73.

resources. As a result, the end of the Normandy campaign was only a matter of time.



Figure 13: Bretteville-sur-Laize Canadian War Cemetery, Cintheaux. Those for whom Totalize was the last battle are buried here.

Conclusion: Dining at Separate Tables

Tactical air support and combined operations underwent huge advances in their degree of sophistication during the Second World War. Technology and tactics were melded, often through improvisation and experimentation, into a practical battle doctrine. As this was done in the crucible of combat, the process was akin to on-the-job training, and mistakes were an unavoidable part of it. Simonds and other commanders learned from the early problems of close air support provided by heavy bombers and gradually adapted their plans to make the best possible use of these powerful and complicated weapon-systems. It is an unfortunate conclusion of this research that they were often hindered in optimizing the effectiveness of available fire-support by the persistent inter-service rivalries that prevented army and air force from cooperating as closely as they might have.

Although the major myths surrounding the air support in Totalize can be denied, it is not possible to replace them with many concrete judgments. To uncover Simonds' intentions for the bombing attacks was a primary goal of this research, because a faithful evaluation of his generalship depends upon an understanding of what he sought to accomplish, and the degree to which bombing was capable of doing what he thought it would. This goal has gone unfulfilled because the paucity of information contained in the primary sources leaves too

many questions unanswered. An important handicap in any effort to demystify Totalize is the inaccessibility of the Simonds Papers, still held privately by his family. The only answers must therefore remain speculative.

Beginning with Simonds' original appreciation and outline plan (and subsequent scholarly commentary), it seems that the intention for Phase I was not, in fact, to infiltrate to a sufficient depth to disrupt the German gun line and thereby permit the armour to break out. Cross-referencing the maps outlining the enemy situation and the general plan—included in Chapter 3—show that there were few gun positions within the objective areas. It seems more likely that the lead columns were primarily supposed to secure a position from which to launch the assault on the second German line. Capturing open ground or even infantry positions is not the same as neutralizing anti-tank gun positions.

If Simonds' intention for the ground attack in Phase I is unclear, the purpose of the RAF bombing is doubly so. We have seen that Simonds claimed it was to seal the flanks from armour, yet the targets were mainly infantry strong-points. Intelligence had appreciated that the panzer divisions were holding their tanks in the rear and manning the forward positions with infantry early enough to modify the plan to articulate a specific objective. This confusion makes it difficult to evaluate the effectiveness of the air support. Operational research showed that the bombers had not hit much in the way of German troops or equipment, and there were no panzers far enough forward to counter-attack against the flanks during the initial assault. While the British on the east side of the Falaise road were fairly successful, the defenders of May and Fontenay held up the Canadians until well into the afternoon. It seems that it was a combination of darkness, the protection of Kangaroos, and the lack of panzers

at the front that made the difference.

It is also impossible to argue with authority concerning the goal of bombing the second line positions. Although it has been suggested here that Simonds had evidence showing 1st SS had left his front, 2nd Corps' Intelligence staff continued to be puzzled as late as 9 August about the identity of the armour it had encountered during the second phase.¹ If Simonds intended to use bombers to deal with the German armour on the second line, why did the corps air plan call for fragmentation bombs in all target areas? Perhaps this is merely a semantic problem, but the point is that we simply cannot be certain. If cratering was the object in targets six, seven, and nine—as per the AEF air plan—was this not a shrewd tactic, considering the expectation that the Germans would move tanks and SPs back following the initial break-in? And although it is considered unlikely due to the low probability of hitting anything, the specification in the corps air plan of fragmentation bombs on all targets supports an interpretation that Simonds hoped to catch infantry and artillery as they moved over open ground. Again, the evidence does not support more than speculative conclusions.

The role played by Canadian Intelligence in influencing Simonds' generalship is another issue on which the evidence is ambiguous. In his biography of Guy Simonds, Dominick Graham argues that

army intelligence . . . was confused by the frequent moves of German divisions and their reduction to fighting groups of a single division appearing simultaneously on different fronts. As a result, Simonds overestimated German capacity. He was led to believe that the German second defence line would be tough to crack, for the Germans habitually kept

¹NAC RG 24 v. 13711, 2nd Cdn Corps Intelligence Summary #28 for 8 Aug 44 (signed 0345 hours 9 Aug).

their better troops in the second line from which they emerged to counterattack.²

Simonds may, however, have been led to the opposite conclusion by Wright's appreciation of 7 August and the Army Intelligence Summary issued in the early hours of the 8th, which could partly explain why he continued to urge the armoured divisions to "get cracking" and bypass resistance.

Whether or not Simonds still believed, by the 8th, that bombing would be necessary to deal with German armour on the second line, Eighth Air Force remained the primary provider of fire support in Phase II. As such, a few words must be said about the effectiveness of its attack. 21st Army Group's Operational Research Section concluded that because of the wide bomb dispersal pattern on the ground, heavy bombers were an "uneconomical" method of destroying "point targets" such as artillery, or "widely dispersed" defences, because of the extremely high number of aircraft and bombs that would be required to ensure destruction of even a few such targets. German doctrine, of course, dictated that defenders would be dispersed behind a thinly-held front line controlled by fire. The ORS found that enemy personnel and equipment casualties lost through heavy bombing in Operations Charnwood, Goodwood, Bluecoat, and Totalize were small, although it admitted that this could have been due to a lack of enemy concentrations within the target areas. It also evaluated the morale effect of heavy bombing as perhaps the greatest contribution to the land battle, but pointed out that the enemy was quick to recover, so attacks had to be pressed immediately following the cessation of bombing attacks. The ORS admitted that this particular effect of bombing

²Dominick Graham, *The Price of Command: A Biography of General Guy Simonds* (Toronto, 1993), p. 149.

could not be quantified, and discouraged reliance on it.³

With these conclusions in mind, it seems that the bombing attack on 8 August could not have been of great help to the men on the ground because of the difficulty in destroying the tanks and anti-tank guns that formed the main barrier between First Canadian Army and Falaise. Simonds, however, would not have realised the low probability of hitting anything at the time. Although Bomber Command had shown itself capable of destroying precision targets like bridges and railway marshalling yards, the resources it required to do so on the battlefield made such tactics disproportionately expensive for the results obtained. As A.L. Pemberton has suggested, “perhaps . . . the optimum weight of fire support was being exceeded.”⁴ When the Americans bombed the Canadians and Poles in the rear areas, the results were exactly reversed, as has been shown. Aside from the adverse effects on the supporting artillery for Phase II, the casualties sustained by the North Shore Regiment undoubtedly hampered the attack on Quesnay Wood on 10 August. The bombing in Operation Cobra had seemed to yield valuable results, but it was perhaps merely a fluke, not to be repeated, that Panzer Lehr had been caught concentrated inside the target zone.

The objectives of the bombing attacks in Totalize thus remain ambiguous, and the contributions made by the bombers are also uncertain. It is not possible, therefore, to properly evaluate Simonds’ guidance of Totalize, which had relied so heavily on

³21 Army Group No. 2 Operational Research Section (ORS) Report No.14, “Heavy Bombing in Support of the Army”. Taken from a forthcoming compilation of ORS reports to be published by Wilfrid Laurier University’s Centre for Military Strategic and Disarmament Studies in Waterloo, Ontario.

⁴A.L. Pemberton, *The Development of Artillery Tactics and Equipment* (War Office, 1951), p. 228.

overwhelming air support for its success. The value of this research must lie, then, in its revelation of the incomplete nature of the body of thought surrounding Totalize and its suggestion that the topic requires further study in place of the comfortable assumptions that have hitherto held sway. A number of conclusions can be safely drawn regarding close-support heavy bombing, however, which are illustrated by events later in the war.

Because 2nd Corps did not reach its final objective in Totalize, obviously another attempt to take Falaise was required. The next operation, Tractable, was scheduled for 14 August and Simonds again decided to use heavy bombers. As English noted, the new plan was essentially the old one “in smoke”. Heavy bombers were to open the attack by hitting the gun areas about Potigny and Quesnay Wood. The armoured columns of 2nd Corps were then to skirt the defences north of Potigny, protected from enemy observation by a smokescreen instead of darkness, and cross the Laison to the east. Falaise would be captured and its exits dominated “so that no enemy could escape.”⁵

Tractable also failed to take Falaise. The armoured columns were seriously inhibited by the dust they stirred up on the hot, dry August afternoon, that slowed their movement and forced the tanks to navigate by the sun. Long delays were imposed when tanks were unable to cross the Laison, which had not been considered a serious obstacle. Again, Canadian positions were bombed by a friendly air force, but this time the culprit was the RAF. Another 65 soldiers were killed, with 241 wounded and 91 missing, when 126 planes—including 44 from 6 Group, formed from RCAF squadrons—misidentified their targets and dropped short.

⁵John A. English, *The Canadian Army and the Normandy Campaign: A Study of Failure in High Command* (New York, 1991), p. 293.

It turned out that many aircraft had failed to properly time their runs from Caen to the target area, and when the soldiers fired yellow smoke to indicate their positions, they only drew the attention of subsequent bombers. In an incredible case of miscommunication, Bomber Command's target indicator colour was the same as the army's position indicator. The official history of the RCAF argues that Bomber Command was "unarguably aware" of SHAEF's standing orders to use yellow smoke, notwithstanding Arthur Harris' attempt to deflect criticism by claiming that no one told him it would be used by the army. An investigation followed that led to further safeguards for future ground-support missions. All aircrews were henceforth required to make timed runs to their targets, and additional master bombers with "cancellation pyrotechnics" would be employed to increase aiming efficiency.⁶

The next opportunities to put these new measures to the test came in September. The Poles had made contact with the Americans in Chambois on 19 August, and the Falaise Gap was finally eliminated on 21 August. First Canadian Army was then assigned the task of clearing the Channel Ports. Bomber Command supported its attacks on Le Havre and Boulogne, in which an unusual degree of army-air cooperation was exhibited. In the former, John Crocker's 1st British Corps was allowed to establish a direct link to Bomber Command for the operation, although results were again ambiguous. A great weight of bombs was dropped (4719 tons) and apparently "considerable" damage was done to open batteries, but the concrete gun emplacements of the fortress town were largely unaffected.⁷

The 17 September attack by 2nd Corps on Boulogne was also supported by a large weight

⁶Brereton Greenhous *et al.*, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force Volume III* (Toronto, 1994), pp. 816-820.

⁷Stacey, *The Victory Campaign*, pp. 332-334.

of bombs (3232 tons). Brigadier J.M. Rockingham of 9th Canadian Infantry Brigade had expressed reservations about possible short-bombing of his troops, so Simonds arranged for an RAF group captain to be assigned to his headquarters, thus providing a communications link to the planes in the air. It also proved useful when the aircraft, after bombing, made secondary passes over German positions with their bomb doors open, which encouraged the defenders to remain under cover. Good concentrations on Mont Lambert were of some benefit to the North Nova Scotia Highlanders, craters reportedly helping soldiers to approach undetected, but overall results were similar to those at Le Havre. Many armoured fighting vehicles were lost in craters, and concrete casemates proved virtually impervious to bombing. Morale, both Canadian and German, seems to have been affected most by the bombing. Battalions that attacked targeted areas were enthusiastic about the bombing and took their objectives more quickly than battalions whose objectives were not. It was known beforehand, however, that the garrison of Boulogne was of poor quality and low morale, and some prisoners of war stated that they had resolved in advance not to offer resistance.⁸ Attacks in the Calais area on 20, 24, and 25 September, as well as 26 and 28 September on the coastal defence batteries at Cap Gris Nez, all supported the conclusion that heavy bomber strikes were not effective against casemated gun positions.⁹

Given the difficulty of destroying widely-dispersed defences, whether infantry, armour, or artillery, and the ineffectiveness against concrete fortifications, bombing was clearly not

⁸21 Army Group ORS Report No. 16, "Air and Ground Support in the Assault of Boulogne"; Ian Gooderson, "Heavy and Medium Bombers: How Successful Were They in the Tactical Close Air Support Role During World War II?" *Journal of Strategic Studies* 15:3 (1992), p. 375.

⁹Stacey, *The Victory Campaign*, pp. 348-353.



Figure 14: Concrete casemates were virtually impervious to bombing. This one, at Cap Gris Nez, sheltered a coastal defence gun. Its size can be appreciated by comparison with the people walking up the path (author photograph, 1996)

capable of rendering the kind of results that the army had hoped. Simonds was to make a most imaginative use of the 'heavies' during the Battle of the Scheldt, however, that demonstrated how helpful they could be if the conditions were right. Confronted with the daunting task of capturing Walcheren Island, the last German strongpoint in the approaches to Antwerp, Simonds turned his mind to the problem of overcoming its many concrete coastal gun positions, which would make any waterborne assault exceptionally costly. He prepared an appreciation on 21 September which is worth repeating in some detail:

6. I consider that the technique for the capture of WALCHEREN ISLAND should be as follows:
 - a) Bombing operations should be undertaken to break the dykes and completely flood all parts of the island below high water level.
 - (b) Those parts of the island which remain above water should then be systematically attacked by heavy air bombardment, day and night, to destroy defences and wear out the garrison by attrition. RDF [radio direction finding]

an early priority as “point” targets.

- (c) Whenever possible, heavy bombers proceeding to or from targets in Western Germany by day or night should be routed over WALCHEREN so that the garrison can never tell whether the approach of large numbers of aircraft indicates attack or not. . . .¹⁰

By ‘sinking’ Walcheren, bombing would immobilize the defenders and make resupply almost impossible. Simonds faced significant obstacles in having his plan approved, although by 27 September he had assumed acting command of First Canadian Army in Crerar’s absence due to illness. There were political issues connected with flooding the island, and approval from SHAEF had to be obtained. Furthermore, the RAF initially insisted that bombing could not breach the huge dykes. Simonds argued that there was nothing to lose in trying but perhaps much to gain, and thus convinced Bomber Command to reconsider. Permission was granted on 1 October, and two days later the Westkapelle dyke, between 200 and 250 feet wide with “very flat slopes”, was bombed. A 75-foot gap was created, and additional attacks were made on dykes near Flushing and Veere. By the end of the month, Walcheren “resembled a saucer filled with water.”¹¹

Although Simonds’ plan to breach the dykes was a success, the batteries on Walcheren received nothing like the attention from Bomber Command that he had requested. Control of the strategic bomber forces had reverted from SHAEF to the British Air Ministry, and German area targets had again become their top priority. Bombing of the batteries was thus limited to the three days prior to the assault, and in the event was further reduced by bad weather. Landings at Westkapelle and Flushing were made nevertheless on the morning of

¹⁰RG 24 v. 10799, GOC 8, 21 Sept. 1944.

¹¹Stacey, *The Victory Campaign*, pp. 375-376.

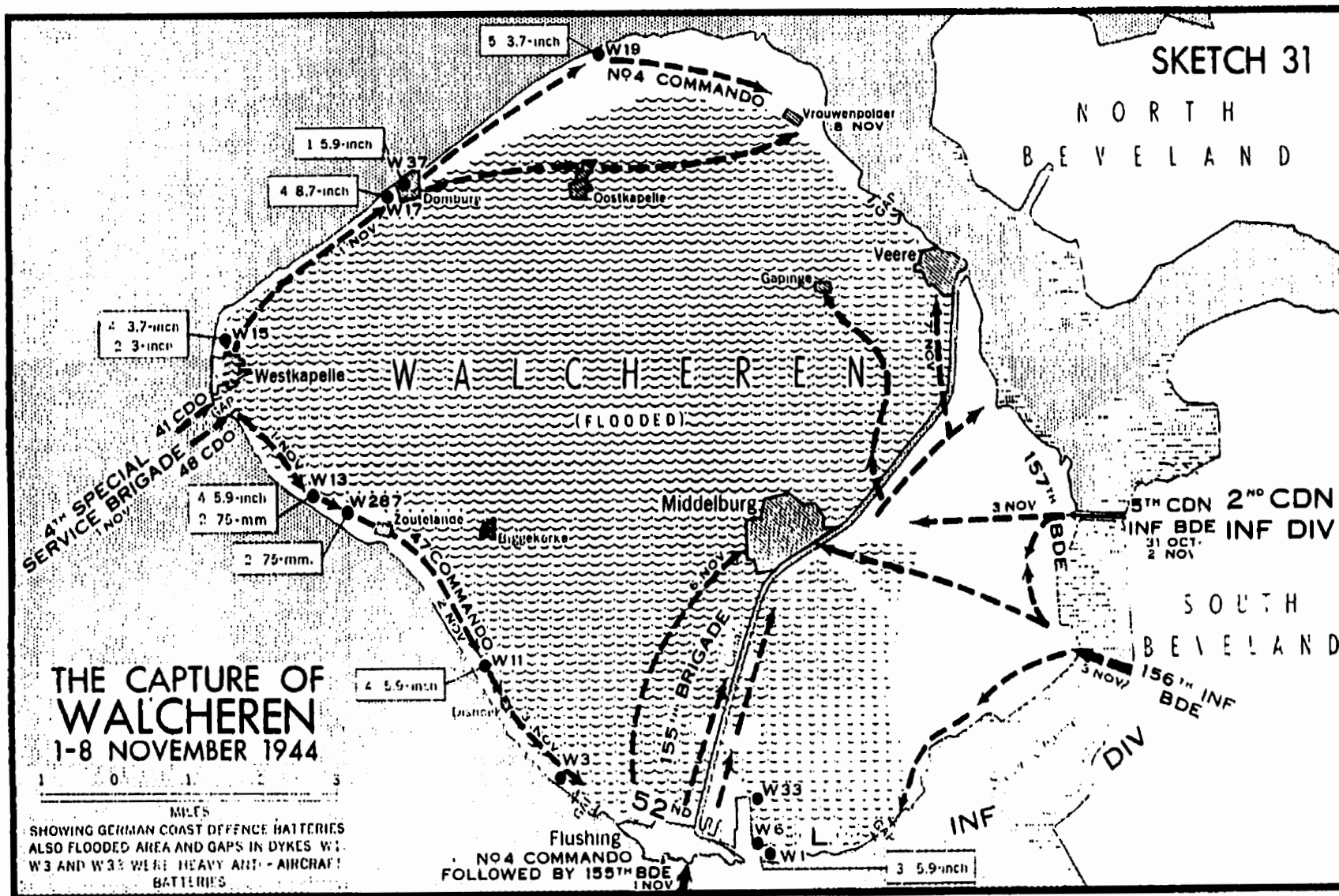
1 November.



Figure 15: The breach created by Bomber Command in the Westkapelle dyke on Walcheren Island is clearly visible at the centre of the photograph.

Though it was not finally cleared until 4 November, the assault on Flushing proved less costly than at Westkapelle. Operational research concluded that the bombing of Walcheren's batteries had been distributed over too many targets. Effort should have been concentrated instead on the batteries "closest to the point of assault, which represented the most formidable and direct threat to the operation. Batteries W13 and W15 did far more damage than any others on D Day; it was calculated that they destroyed five [landing] craft each, and caused respectively 250 to 300 and 150 to 200 personnel casualties. . . ." In fact, only two of 26 guns "bearing on the assault area were knocked out by the heavy bombers." C.P. Stacey suggested that "the bomber effort planned was inadequate to the circumstances."¹ Still, the scale of air support Simonds had wanted was greatly reduced so

¹*Ibid.*, p. 420.



Map 6: The Capture of Walcheren, from Stacey, *The Victory Campaign*, p. 415. Note Batteries W13 and W15 near Westkapelle.

it is impossible to say to what extent the attrition of the garrison would have been achieved if such had not been the case. The bombing had proved particularly valuable regardless. The flooding it caused isolated the batteries, prevented movement and resupply—W13 ran out of ammunition—and provided points of entry for the British commandos and 155th Brigade which assaulted Walcheren under the command of First Canadian Army. The attackers were also able to use amphibious vehicles, and mopping up on the island proceeded more quickly than in the Breskens pocket on the south shore of the Scheldt, where saturated ground was impassable but to infantry.¹³

A number of important lessons were learned regarding air support during the campaign in Northwest Europe. Operation Cobra showed the devastating material effect upon enemy troops that bombers could produce given fortuitous circumstances, although such were the exception rather than the rule. The bombing at Villers-Bocage on 30 June, meanwhile, was an effective interdiction attack that prevented a German counter-attack by destroying an important road junction. Operations Wellhit (the attack on Boulogne) and Queen, the American offensive in the Roer River area of Germany in mid-November 1944, proved that close communication between air and ground forces was possible if the will was in evidence.¹⁴ Perhaps most importantly for future combined operations, the flooding of Walcheren indicated that air power was a more flexible weapon than the airmen would admit.

The most valuable contributions made by heavy bombing in close support of ground troops seem to have been largely intangible. Bombing no doubt required the defenders to

¹³*Ibid.*, p. 422.

¹⁴Gooderson, *op cit.*, p. 395.

take shelter, thus reducing their reaction time to a ground assault. Defensive effort was expended against aircraft which might otherwise have been directed at ground troops. The effect on morale, though, was probably of greatest benefit. One report lists the reactions German soldiers tended to exhibit when bombed:

even if they survive the experience of a bombing attack, most troops in the immediate area of heavy bombers appear to be in no condition to fight, especially if very heavy HE bombs have been used. They are usually dazed for a considerable period, and the average enemy soldier is depressed and constantly uneasy lest he should find himself in an area that is likely to be bombed.¹⁵

Despite a degree of exaggeration, the description is supported by the statements Fritz Bayerlein made regarding Cobra. At Boulogne, one German who had been in an underground bunker during the bombing said that it was “like being in the bottom of a cocktail shaker”.¹⁶

The effects on Allied soldiers’ morale varied depending on their own experiences. After Totalize and Tractable, Jacques Guérin of the Régiment de la Chaudière said “I did not want any help whatever from the air.”¹⁷ Noel Cantin of the Fort Garry Horse explained that “[y]ou learn to trust them and then all of a sudden the bomb doors open and they rain bombs on you. It was pretty demoralizing.”¹⁸ J.C. Farrell, also with the Fort Garry Horse, said

we didn’t trust any kind of aircraft. The closest respect we had for any aircraft was the Typhoon . . . we’d lay a smoke shell in on target and they’d come in and they’d shoot the rockets off at them, and soften them up a bit. And they were the only ones that I could honestly say that I had any respect for, the rest of the damn air force I didn’t want them

¹⁵DHH 87/243, Current Reports from Overseas #65, 29 Nov. 44.

¹⁶Qtd. in Stacey, *The Victory Campaign*, p. 339.

¹⁷Jacques Guérin, personal correspondence, 18 Jan. 99.

¹⁸Fort Garry Horse Regimental Museum Oral History Project, Noel A. Cantin interview, 23 June 1979, p. 15.

around me, [because] I didn't trust them.¹⁹

These men, of course, had all been bombed by friendly aircraft. Marcel Fortier complained that the bombers were more a hindrance than a help to him, because they obstructed his tank. Bill Neil, on the other hand, felt that the contribution made by the air forces was invaluable. The general view from ground troops seemed to be that fighter-bombers, particularly the Typhoon, could best provide close support because of the flexibility and speed of their response. Copp and McAndrew note that “[v]eterans . . . frequently describe the lift they got from watching a Rocket Typhoon attack on an enemy position”. The rocket-firing planes had an “almost supernatural quality for the foot soldier”, and no doubt inflicted an equal dose of terror on the enemy. The use of air power was not a panacea for the infantry, “but men can go a long way on hope”.²⁰

The bombing attacks in support of the army during the Normandy campaign were not indicative of a closer collaborative relationship between the services. Simonds complained after the war that although he had been promised “full air support” for Totalize, a suitable mechanism to secure it had not been devised. Delays in planning resulted because air officers on the Continent did not have authority to give “definite answers,” thus requiring cross-Channel negotiations with Bomber Command Headquarters in England.²¹ The ‘two solitudes’ pulled further apart again once the strategic air forces were detached from SHAEF’s

¹⁹FGH Oral History Project, J.C. Farrell interview, 5 July 1979, p. 8.

²⁰Terry Copp and Bill McAndrew, *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army, 1939-1945* (Montreal, 1990), p. 145.

²¹DHH 693.013 (D2), *British Army of the Rhine (BAOR) Battlefield Tour Operation Totalize: 2 Canadian Corps Operations Astride the Road Caen-Falaise 7-8 August 1944 (September 1947)*, p. 33.

direction. A direct link from First Canadian Army to Bomber Command for the Walcheren operations was refused, and Stacey felt that had the status quo in Normandy continued, “the bomber effort . . . might have been heavier and lives might have been saved.”²² Further close-support bombing during the Rhineland campaign in early 1945 exemplified the “unsatisfactory nature” of the apparatus for obtaining it. Simonds, after reverting to command of 2nd Corps following the Scheldt operations, had requested army headquarters to arrange the bombing of Oldenburg. This was done through normal channels, but then cancelled unilaterally by the air force without reference to the army. After additional wrangling, medium bombers attacked on 17 April 1945, three days after Simonds’ initial request.²³

It is unfortunate that one of the unavoidable conclusions concerning air support during the war is that the vast potential of the application of air power to the land battle was not exploited to its fullest extent, thus constituting another missed opportunity. To a significant degree, this was due to the continuing inter-service rivalry that hindered cooperation and prevented lessons from being absorbed more quickly. Churchill Mann believed that 84 Group’s AOC (L.O. Brown) was replaced, by Coningham, with E.C. Hudleston because the former was too cooperative with the army. From Mann’s point of view,

[t]he staff at Group HQ were apparently under the impression that the Army was trying to get control of the Air Force formations associated with it. We gained the distinct impression . . . that the Air Force was more anxious to assert its independence than to cooperate to the maximum extent with the Army. This . . . frequently prejudiced air support operations which would otherwise have been excellent.²⁴

²²Stacey, *The Victory Campaign*, p. 411.

²³*Ibid.*, pp. 558-559.

²⁴CP v. 24, “Lecture to the Canadian Staff Course, Royal Military College, Kingston, Ont. 25 July, 1946”, by C.C. Mann.

A point of considerable irony is that while First Canadian Army and 84 Group co-located their headquarters as per Montgomery's instructions prior to the Normandy landings, the Commander-in-Chief did not follow his own advice. The headquarters of 21 Army Group and Second TAF "were nearly always located some miles apart",²⁵ and no doubt the personal antipathy between the respective commanders had some small part to play.

In the final analysis, we can sympathize with Harris and Spaatz in their protestations about the unsuitability of their forces for the kind of close-support missions they were required to undertake, but the ultimate conclusions regarding the RAF's forthrightness in cooperating with the army can only be damning. It is impossible to understand why a more efficient system of air-ground communication could not have been established earlier in the campaign in Northwest Europe. A brief and belated experiment with a "contact tank" to guide 4th Armoured Division's air support in April 1945 ended precipitately when the "Air FOO" (forward observation officer) was recalled by the RAF without explanation.²⁶ There seems to be no reason for the failure to develop a more cooperative doctrine other than the petty rivalries and jealousies that marred relations between army and air force, and which seem to have been exhibited to a greater extent in the latter. Charles Carrington complained frequently in his memoir about the lack of concern with ground support exhibited by various airmen at Bomber Command. To its credit, the USAAF did develop a more efficient system of communication and target indicating after its disasters in Normandy, using such devices as radio beacons which transmitted to aircraft from positions just behind the front line.

²⁵*Ibid.*

²⁶RG 24 v. 10940, Contact Tank, report written by Col. R.W. Moncel 16 Dec 48.

Captive balloons were flown, and anti-aircraft guns firing red smoke bursts also helped indicate the positions of the troops.²⁷

Ian Gooderson is correct in concluding that the effectiveness of heavy tactical support was hampered because it was “only grudgingly provided by the airmen, and its inherent characteristics [were] never . . . fully understood by the soldiers.” A more collaborative approach could undoubtedly have been fruitful, but instead of trying to improve its mechanism for army cooperation, the RAF sought to reduce the frequency with which it provided close support. Following the bombing mishap in Tractable, Carrington was not ordered to study the problems of air-ground communication, but was told “to go and help . . . at Bentley Priory [AEAF headquarters], ‘since there was nothing for me to do now at Bomber Command’.”²⁸

Although the strategic bombing campaign yielded results that were as dubious as those related to heavy tactical support, and despite the undeniable reality that future wars could not be won without close integration of air and ground forces, senior RAF officers like Harris, Portal, and Tedder never modified their pre-war assumptions about the ‘proper’ role of air power. In October 1944, Portal wrote to Tedder complaining that the army’s constant requests for heavy bomber support “when it is not essential and when its only purpose is to save casualties” was leading to the point where ground forces would not attack without it. Tedder’s reply evinces his utter lack of sympathy with the soldiers: “. . . the British Army have for months now been allowed to feel that they can, at any time, call on heavy bomber effort. . . . [T]he Army having been drugged with bombs, it is going to be a difficult process

²⁷Gooderson, *op cit.*, pp. 390-391.

²⁸Charles Carrington, *Soldier at Bomber Command* (London, 1987), pp. 166-167.

to cure the drug addicts."²⁹

²⁹Qtd. in Gooderson, *op cit.*, p. 368.

Postscript

Too often, the happenings that fill up the pages of military histories and official records are divorced from their human context once they become 'historical events.' It is noted that a mistake occurred, that men were killed, that they belonged to this regiment or that one. In a war that saw hundreds or even thousands killed and wounded every day, most histories understandably cannot single out individual personalities for attention. This can have the unfortunate effect of obscuring the realisation that each one of those thousands was more than just an anonymous part of the army collective. It was during the bombing of B Echelon on 8 August 1944 that "H26536 Tpr BROWN JC Dr[iver] Mech[anic] M[otor]V[ehicle] 'C' [squadron]" was killed while loading supplies to be taken forward to the tanks. The routine orders issued to the 10th Canadian Armoured Regiment (Fort Garry Horse) two weeks after his death listed him as merely "S[truck] O[ff] S[trength] killed in action wef [with effect] 8 Aug 44".¹ In the official record, he was little more than a number with an occupational classification, and his name appears in no history book. But John Clifford Brown of 356 Aldine Street in Sturgeon Creek (now Winnipeg) Manitoba left behind a wife and four

¹Fort Garry Horse Archives, The Fort Garry Horse War Diary 1939-1946 (book 13), Part II Order issued by Cdn Section, GHQ 2nd Echelon, 21 Army Group (#67, 21 Aug 44); *Vanguard*, p. 53.

children who would ensure that he was remembered as more than that. He was just one of the 65, and today he lies in a quiet corner of the Canadian military cemetery at Bretteville-sur-Laize, Normandy.



Figure 16: The author in the quiet corner of Bretteville-sur-Laize Canadian War Cemetery (photographed in 1996).

8th Canadian Infantry Brigade**The Queen's Own Rifles of Canada****Le Régiment de la Chaudière****The North Shore (New Brunswick) Regiment****9th Canadian Infantry Brigade****The Highland Light Infantry of Canada****The Stormont, Dundas, and Glengarry Highlanders****The North Nova Scotia Highlanders****4th Canadian Armoured Division****GOC Major-General George Kitching****4th Canadian Armoured Brigade****21st Armoured Regiment (The Governor General's Foot Guards)****22nd Armoured Regiment (The Canadian Grenadier Guards)****28th Armoured Regiment (The British Columbia Regiment)****The Lake Superior Regiment (Motor)****10th Canadian Infantry Brigade****10th Independent Machine Gun Company (The New Brunswick Rangers)****The Lincoln and Welland Regiment****The Algonquin Regiment****The Argyll and Sutherland Highlanders of Canada (Princess Louise's)****2nd Canadian Armoured Brigade (independent)****6th Armoured Regiment (1st Hussars)****10th Armoured Regiment (The Fort Garry Horse)****27th Armoured Regiment (The Sherbrooke Fusiliers Regiment)**

***For Operation Totalize, 1st British Corps, 1st Polish Armoured Division, 51st Highland Infantry Division, and 33rd British Armoured Brigade were under the command of First Canadian Army.**

Glossary

<i>Abteilung</i>	German battalion, regiment, or detachment
AEAF	Allied Expeditionary Air Forces
AGRA	Army Group, Royal Artillery
AOC	Air Officer Commanding
AOC-in-C	Air Officer Commanding-in-Chief
AP	Armour Piercing
ASSU	Air Support Signals Unit
<i>Aufklärungsgruppe</i>	'fast group'
C-in-C	Commander-in-Chief
CO	Commanding Officer
Flak	anti-aircraft fire, or AA guns
GOC	General Officer Commanding
GOC-in-C	General Officer Commanding-in-Chief
GSO	General Staff Officer
HE	High Explosive
interdiction	to deny the use of ground, infrastructure, or equipment to the enemy

<i>Hitlerjugend</i>	'Hitler Youth'
<i>Jagdpanzer</i>	'tank hunter' (self-propelled anti-tank gun)
<i>Kampfgruppe</i>	'battle group'
<i>Kampfwagenkanone</i>	'tank gun'
Kangaroo	an armoured personnel carrier
<i>Leibstandarte Adolf Hitler</i>	'body guard'
Luftwaffe	German Air Force
<i>Nebelwerfer</i>	a multi-barrel rocket projector
<i>Panzerkampfwagen (panzer)</i>	'armoured fighting vehicle' or, simply, 'tank'
Priest	a self-propelled gun consisting of a 105-mm howitzer mounted on a Sherman tank chassis
RAF	Royal Air Force
RCA	Royal Canadian Artillery
RCAF	Royal Canadian Air Force
regiment/battalion (Canadian)	fighting unit of about 1000 men; German regiments equivalent to British/Canadian brigades
SHAEF	Supreme Headquarters, Allied Expeditionary Force
SP	Self-Propelled
strategy	the management of troops and equipment above the level of the battlefield
<i>Sturmgeschutz</i>	'assault gun' (self-propelled)
tactics	the management of troops and equipment on the battlefield or in the face of the enemy

TAF	Tactical Air Force
troops	generically, synonymous with 'personnel'; also refers to groups of four tanks in armoured regiments or four guns in artillery regiments
USAAF	United States Army Air Force
Wehrmacht	German Armed Forces

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