

Failing to Exploit Success: The British Army at Cambrai

A Monograph

by

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Abstract

Failing to Exploit Success: The British Army at Cambrai, by MAJ Matthew R. Prescott, US Army, 45 pages.

This monograph analyzes why, after achieving success on the first day of the Battle of Cambrai, the British Expeditionary Force (BEF) failed to meet or at least sustain its gains of November 20, 1917. The BEF failed to reach its intended goals during the Battle of Cambrai because its commander and staff improperly planned, synchronized, and resourced its operational approach. Although it successfully used mass to reach its initial objectives, the attack culminated before it could successfully accomplish the decisive operation. This occurred due to a lack of simplicity in the plan, improper phasing and transitioning of the exploitation force, and ineffective command and control systems.

Best remembered as the first employment of massed armor in battle, Cambrai is a seminal battle that illustrates the difficulties inherent in coordinating combined arms maneuver. In future conflicts, as the US Army looks to dominate adversaries through combined arms maneuver, synchronized across all domains, the Battle of Cambrai provides a glaring example of a military headquarters that did not properly array and resource its operational approach to achieve the decisive operation and exploit success. Understanding these planning deficiencies will help future US Army commanders and staffs plan operations that account for mission command, conducting exploitations, echeloning both fires and sustainment, and proper phasing and transitions.

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Acronyms

ADRP	Army Doctrine Reference Publication
BEF	British Expeditionary Force
CP	Command Post
FM	Field Manual
GHQ	General Headquarters
HQ	Headquarters
JP	Joint Publication
LOO	Line of Operations
OE	Operational Environment
RFC	Royal Flying Corps
RTC	Royal Tank Corps
TTP	Tactics, Techniques, and Procedures
WWI	World War I

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Introduction

As the US Army stands ready to conduct decisive action against a peer or near-peer threat, the Battle of Cambrai provides a relevant example of an army that did not properly employ combat methods known in modern US Army doctrine as operational art to plan, prepare, and resource its decisive operation to achieve the desired end state. In future conflicts the Army will look to dominate adversaries through combined arms maneuver, synchronized across all domains.¹ Understanding these planning deficiencies will assist military staffs in planning operations that account for proper phasing, reserve considerations, conducting exploitations, and echeloning both fires and sustainment.

Although the term *operational art* did not appear in British doctrine, the concept, principles, and elements of operational art remain valid and consistent throughout the span of eighteenth century warfare to the present day.² Like the principles of joint operations, the elements of operational art provide tools for military commanders and staffs to understand the operational environment (OE), visualize a successful approach to solving the problem, and organize its resources to best accomplish the operation.³

The Battle of Cambrai is best remembered as the first use of massed armor in battle; but the British also used hundreds of aircraft and new artillery techniques to enable Third Army's success. Therefore, Cambrai is a seminal battle to understand the difficulties in coordinating combined arms maneuver within both the air and land domains.⁴ Although innovative leaders and staff planners originally conceived Cambrai as a raid to capture limited portions of the German

¹ US Department of the Army, Field Manual (FM) 3-0, Operations (Washington, DC: Government Printing Office, 2017), ix.

² John Andreas Olsen and Martin van Creveld, eds., *The Evolution of Operational Art: From Napoleon to the Present* (New York: Oxford University Press, 2011), 106-107.

³ US Department of the Army, Army Doctrine Reference Publication (ADRP) 3-0, Operations (Washington, DC: Government Printing Office, 2016), 2-4.

⁴ Alexander Turner, *Cambrai 1917: The Birth of Armored Warfare* (New York: Osprey, 2007), 91.

Hindenburg Line, the goals of Cambrai changed when General Julian Byng, commander of the Third Army, evaluated the concept. He envisioned a full-scale penetration of the Hindenburg Line, followed by an exploitation to seize key infrastructure and the lines of communication surrounding Cambrai as the operational aim.⁵

However, due to the stagnation of maneuver warfare from 1915 to 1917, the British Army lacked the experience to conduct combined arms maneuver and coordinate large formations to accomplish Byng's primary objective.⁶ To accomplish Byng's operational aim, Third Army received augmentation from the Royal Tank, Artillery, and Flying Corps but this augmentation only exacerbated issues with span of control. The tank proved to be a viable means of penetrating the elaborate defensive works along the Western Front but exposed a vulnerability at the maneuver control level once tactical units were beyond the trench complexes and in open terrain. With additional aircraft, cavalry, and tank forces, Byng's staff and subordinate commanders experienced major difficulties maintaining the momentum from the initial success on day one and lacked the ability to effectively command and control subordinate elements. So, while structurally organized for success, Third Army was unable to capitalize and exploit success due to inexperienced subordinate commanders, not familiar with new technologies, and unable to maneuver their units effectively after years of trench warfare.

Unless planned, rehearsed, and resourced appropriately, conducting large-scale ground combat operations is a challenging task for any military unit. Studying the lessons from Cambrai, the US Army's new doctrinal Field Manual 3-0, and current writings on executing multi-domain battle will illuminate the difficulties in synchronizing joint operations and will help planners develop operational approaches to conduct successful offensive operations in future conflicts.

⁵ Trevor Wilson, *The Myriad Faces of War: Britain and the Great War, 1914-1918* (New York: Polity Press, 1986), 486.

⁶ Drew Middleton, *Crossroads of Modern Warfare: Sixteen Twentieth-Century Battles that Shaped Contemporary History* (New York: Doubleday, 1983), 52.

Methodology

This monograph analyzes why the British Expeditionary Force (BEF) was unable to meet or sustain its objectives during the Battle of Cambrai by applying the principles of joint operations and elements of operational art to examine the planning and execution throughout the battle. Other focal topics include the general considerations for conducting an exploitation, echeloning fires and sustainment, and establishing effective command and control systems. The initial portion of this paper describes the events leading up to the battle and why the BEF's leadership selected Cambrai as a suitable location to attempt a breakthrough of the Hindenburg Line utilizing large numbers of tanks and aircraft. With the US Army reshaping its emphasis on large scale offensive operations at echelons above the brigade level, the battle of Cambrai serves as a relevant case study for today's operational artist after years of focus on low-intensity stability and counterinsurgency operations.⁷ The analysis using vignettes from the battle reveals reasons for the BEF's lack of success, leading to recommendations for US joint forces related to planning and executing unified land operations.

Although the BEF in World War I (WWI) did not use the term operational art, numerous examples exist in Great Britain's campaigns that range from the American Revolution through WWI in which British military leaders used fundamentals found within the concept of operational art.⁸ US Army doctrine describes this cognitive planning approach in Army Doctrinal Reference Publication (ADRP) 3-0, as the pursuit of strategic objectives through the arrangement of tactical actions in time, space, and purpose.⁹ With most British military operations occurring off its home island post-seventeenth century, the British became very good at planning and preparing

⁷ US Army, FM 3-0 (2017), 1-2.

⁸ Byron Farwell, *Queen Victoria's Little Wars* (South Yorkshire: Pen & Sword Books, 2009); Ira D. Gruber, *The Howe Brothers and the American Revolution* (New York: W. W. Norton, 1972); Rebecca Berens Matzke, *Deterrence through Strength: British Naval Power and Foreign Policy under Pax Britannica* (Lincoln: University of Nebraska Press, 2011).

⁹ US Army, ADRP 3-0 (2016), 2-1.

expeditionary operations.¹⁰ To minimize the fog and friction caused by complexities in the OE, British military leaders used their skill, experience, and judgment to develop the strategies and tactical actions required to plan, prepare, and execute successful operations.¹¹

Operational Art requires shared understanding amongst the commander and staff of the objectives and resources required to accomplish the mission with continual assessments during the operation's progress. After visualizing what success looks like in a military operation, operational art allows commanders to design an approach that sequences the actions and resources required to reach the desired end state. Successfully integrating the principles of joint operations and elements of operational art during the planning of an operation greatly enhances the forces' ability to execute assigned tasks within an operation.

The principles of joint operations, formerly known as the principles of war, are twelve important considerations when planning, preparing, and executing military operations. They are not prescriptive and do not apply in all situations, but rather provide guidelines that have helped make previous military operations successful.¹² The principles of joint operations that apply most when analyzing Cambrai are mass, surprise, and simplicity.

Like the principles of joint operations, the elements of operational art provide tools for the commander to understand the OE, visualize an approach to solve the problem, and organize resources to accomplish the mission.¹³ Operational risk, uncertainty, and chance are inherent in today's complex military operations and these elements help integrate and synchronize the combat power and resources to reach the desired end state.¹⁴ The elements of operational art that

¹⁰ Nicholas A. M. Rodger, *The Command of the Ocean: A Naval History of Britain, 1649-1815* (New York: W. W. Norton., 2004), 288.

¹¹ Olsen and van Creveld, eds., *The Evolution of Operational Art*, 107.

¹² US Army, ADRP 3-0 (2016), 2-1.

¹³ Ibid., 2-4.

¹⁴ US Army, FM 3-0 (2017), 1-21.

apply most when analyzing Cambrai are lines of operation, phasing and transitions, operational reach, and tempo.

As General Byng developed his operational approach to seize Cambrai, only his Cavalry Corps had the speed and combat power to successfully conduct the exploitation—the campaign’s decisive operation. ADRP 1-02 describes an exploitation as an offensive task that usually follows a successful attack and is designed to disorganize the enemy in depth.¹⁵ Following a successful attack, exploitations are the primary means of turning tactical success into operational-level victories.¹⁶ However, conducting a successful exploitation cannot happen unless the opportunity is forecasted in the planning process and resources are aligned to the designated exploitation force during the preparation phase. A commander must also be willing to accept the operational risk that occurs when friendly forces stress their operational reach to exploit success. Planning staffs enable successful exploitations and mitigate operational risk by aligning subordinate units and resources to ensure maneuver, sustainment, and field artillery forces are echeloned appropriately so follow-on forces can maintain their tempo during transition to the exploitation phase.

The breakthrough that Byng desired required the infantry and tank force to create a large enough penetration through the German defenses to allow the Cavalry Corps to pass through in a timely manner before the Germans could conduct a counterattack. Transitions in military phases take deliberate planning, coordination, and synchronization amongst each echelon’s headquarters (HQ). Knowing when to transition to the exploitation becomes a challenge if the command and control systems are not in place to ensure adjacent units can effectively communicate with one another. Analysis of the Battle of Cambrai reveals that the BEF failed to reach its intended goals because it improperly planned, synchronized, and resourced its operational approach. Although it

¹⁵ US Department of the Army, Army Doctrine Reference Publication (ADRP) 1-02, Terms and Military Symbols (Washington, DC: Government Printing Office, 2016), 1-37.

¹⁶ US Department of the Army, Field Manual (FM) 3-90-1, Offense and Defense Volume 1 (Washington, DC: Government Printing Office, 2013), 4-1.

successfully used mass to reach its initial objectives, the attack culminated before it could accomplish the decisive operation. This occurred due to a lack of simplicity in the plan, improper phasing and transitioning of the exploitation force, and ineffective command and control systems.

Cambrai Strategic Context

As the stalemate of 1915 to 1917 continued on the Western Front, a division occurred between British general officers regarding the best approach to win on the battlefield. One school of thought maintained that only a wide breakthrough approach driven by the high morale of the infantry followed by a cavalry exploitation was the best way to defeat the Germans. Other prominent British leaders like John du Cane and Henry Rawlinson argued that the most effective approach to winning the war was using heavy firepower and massed infantry to smash through a limited portion of the enemy defense and then hold its gains.¹⁷ Prior to the Battle of the Somme, Field Marshal Douglas Haig, commander of the BEF on the Western Front, rejected the limited objective approach, preferring the breakthrough operational approach because the Allies were trying to win the war as quickly as possible to minimize the loss of lives, which had already taken a steep toll on the British people and military (and those of Britain's allies).¹⁸

The second approach, later termed bite-and-hold, had strategic and operational-level flaws related to both the extended timeline attrition warfare requires and the doctrinal need for the British Army to switch to a new concept of warfare. After a series of failed breakthrough approaches throughout 1916 and 1917, British strategic planners began creating war plans and analyzed mobilization requirements assuming the war would continue into 1920. These strategic level assumptions caused frustration amongst both British and French government officials who wanted to end the war more quickly.¹⁹ British political leaders did not completely agree the

¹⁷ Sanders Marble, *British Artillery on the Western Front: The Infantry Cannot Do With a Gun Less* (Burlington, VT: Ashgate, 2013), 5.

¹⁸ Ibid., 78.

¹⁹ Ibid., 79.

Western Front should be the main effort and viewed campaigns in Italy and the Middle East as equally important. Lloyd George, the prime minister of Great Britain, now considered a change in strategy by assisting the Italians with a knock-out blow against the Austro-Hungary Empire on the Italian Front.²⁰

As the end of the 1917 campaigning season approached, Haig was in desperate need of a victory after another dreadful year of stalemate and severe losses of men and equipment. The dismal outcome of the Third Ypres campaign in Flanders caused political chiefs to grow impatient with Haig's strategy because the BEF had little to show for the three major offenses it conducted in 1917. The BEF suffered 244,897 casualties from July 31 to November 21, 1917—an average of 2,300 casualties per day.²¹ In addition to the pressure on Haig, the relationship between the British General Headquarters (GHQ) and the British Government deteriorated to the point where Lloyd George no longer trusted the Army's strategy and began denying the reinforcements Haig needed for further offensive operations on the Western Front.²²

To further complicate matters, in October 1917 Russia sued for peace with the Germans, allowing Germany and Austro-Hungary to reinforce both the Southern and Western Fronts. In late October, an Austro-German Army defeated an Italian Army at Caporetto which caused a crisis amongst British and French leaders that the Southern Front would soon collapse if the Allies did not reinforce their Italian allies.²³ On October 31, Haig was given advanced warning to prepare a corps sized element to reinforce the Italians.²⁴ Haig vehemently disagreed with Lloyd George on his decision to remove Western Front units to reinforce Italy. This did not instill any confidence in British political leaders that Haig grasped the grand strategic situation facing Great

²⁰ John Terraine, *The Western Front, 1914-1918* (New York: J. B. Lippincott, 1965), 155.

²¹ *Ibid.*, 153.

²² *Ibid.*, 154-155.

²³ John P. Harris, *Douglas Haig and the First World War* (New York: Cambridge University Press, 2008), 385.

²⁴ Wilson, *The Myriad Faces of War*, 485.

Britain in late 1917.²⁵ By mid-November, Haig repositioned five divisions to reinforce the Italian Southern Front.

During the inconclusive battles of 1916, the Germans built an elaborate defensive system forty-five miles away from the British front line stretching approximately one hundred miles and running generally north to south from Arras to Soissons in France. Known as the Hindenburg Line, it was four miles deep in many places and consisted of three distinct, mutually supporting trench systems with preplanned artillery targets, concrete pillboxes with machine guns, and fifty yards or more of barbed wire between each trench line.²⁶ The Germans also built railways along the line to enable faster reinforcement of troops and logistical supplies in the event of an attack.

By November 1917, Britain's limited success during the three battles of Arras, Messines, and Passchendaele (also known as the Third Ypres Campaign) forced the Germans to withdraw to the Hindenburg defensive line. Increased efficiencies in the British logistical and transportation systems greatly improved their effectiveness in 1916. Mobilization also peaked in Great Britain and distribution of adequate supplies increased confidence among British military leaders that these 1917 offenses would succeed.²⁷ Paradoxically, with the addition of more artillery ammunition and motorized vehicles on the front, artillery pieces began to wear out from firing too much, while the large consumption of petrol, oil, and lubricants left the war office in London concerned that there would not be enough supplies to sustain the Western Front for the remainder of the year.²⁸

Haig's logistics officer, Sir Eric Geddes, realized these issues and reorganized the BEF sustainment systems to allow operations to take place without fear of supply shortages.

²⁵ Harris, *Douglas Haig and the First World War*, 387.

²⁶ Bryan Cooper, *The Ironclads of Cambrai* (Barnsley, South Yorkshire: Pen & Sword Books, 2010), 10.

²⁷ Ian M. Brown, *British Logistics on the Western Front, 1914-1919* (London: Praeger Publishers, 1998), 156.

²⁸ *Ibid.*, 155.

Throughout 1917, rising ammunition supplies allowed subordinate commanders to experiment with different artillery support solutions at the tactical and operational levels, increasing the effectiveness of fires during the attacks at Vimy Ridge, Messines, and Hill 70.²⁹ The method of using artillery in large quantities to provide the operational “umbrella” for the infantry to maneuver assisted the British in moving away from the stagnation of trench warfare.³⁰ With the loss of a corps-sized element to reinforce Italy’s Southern Front, but still with an abundance of ammunition, mobility assets, and logistical supplies, Haig was willing to adjust his offenses to include more of a bite-and-hold approach versus a large breakthrough for the remainder of 1917. As historian Jim Beach put it, “Aware of the political discontent at home, Haig needed a victory to drag his reputation out of the Flanders mud.”³¹

Development and Initial Theories of Tank Employment

The concept, acquisition, and force management of the tank is one of the many great innovations and success stories of WWI. Although both sides sought to develop technologies to break the stalemate of trench warfare, the British tried the hardest to develop a machine that provided increased protection, and could clear counter-mobility obstacles and suppress enemy forces using multiple direct fire weapon systems.³² In the summer of 1915, the British GHQ along with other influential political decision makers approved the development of an armored tracked vehicle that could cross enemy trenches while providing direct fire support to the infantry. Tested in February 1916, in the presence of King George V, the “tank” as it came to be known to

²⁹ Brown, *British Logistics on the Western Front*, 174.

³⁰ Ibid.

³¹ Jim Beach, *Haig’s Intelligence: GHQ and the German Army, 1916-1918* (New York: Cambridge University Press, 2013), 263.

³² Middleton, *Crossroads of Modern Warfare*, 52.

confuse German intelligence, made a great impression on British leaders, and they approved an initial order of 150 vehicles expecting them to be used against the Germans by the fall of 1916.³³

British innovators conceptually designed the tank to be used in mass and with large infantry forces to create breakthroughs along the Western Front; but in 1916 the potential of the tank so impressed leaders at British GHQ that they rushed training requirements, leading to ineffective use of the first operational tanks at the battle of the Somme.³⁴ Reasons for the tank's failure during its initial use included the lack of protection its thin armor provided the crew inside, and the minimal communication tank crews had with surrounding infantrymen. Mobility across the vast, crater-filled terrain of Flanders created the biggest challenge and proved the tank was not suited to operate in restricted terrain due to its slow speed and lack of torque.

Haig selected Brigadier General Hugh Elles to lead the Royal Tank Corps (RTC) and along with his team of innovative thinkers, he developed and recommended better ways to utilize tanks in battle. British officers like Ernest Swinton and J. F. C. Fuller believed tanks, rather than a massive artillery barrage should advance first ahead of the infantry in order to surprise and overwhelm German defenders; but more importantly tanks could create paths throughout the defensive obstacles allowing the infantry, following close behind, to seize the German trench systems.³⁵ Elles recommended to Haig that in future battles, rather than using massive weeklong artillery barrages in which "the chances of success for the tanks fell with every shell fired," he should instead use the Tank Corps in mass with infantry to surprise the Germans while using artillery to conduct counter-battery fire against German artillery.³⁶

³³ Middleton, *Crossroads of Modern Warfare*, 52.

³⁴ Ibid., 54.

³⁵ John P. Harris, *Men, Ideas and Tanks: British Military Thought and Armored Forces, 1903-1939* (New York: Manchester University Press, 1995), 60.

³⁶ John A. Taylor, *Deborah and the War of the Tanks, 1917* (South Yorkshire: Pen & Sword Books, 2016), 6.

Although the method of preemptive artillery barrages for weeks on end assisted greatly in seizing enemy forward positions and the initial trench line, by 1917 the Germans learned to keep these forward positions lightly held and rely on a defense in depth.³⁷ If conditions were favorable for the Germans, second and third defensive line systems would then counterattack to either regain lost terrain or defend in place to prevent any additional British penetrations. Using the bite-and-hold methods allowed the British to make gains throughout 1917, but the preemptive artillery barrages minimized surprise causing huge attrition rates amongst the BEF with little ground gained to show for the casualties and expenditure of so many resources.

Description of the Operational Environment and Approach

One of the major constraints within the planning of Cambrai was the limited size of the front. Constricted on the east and west by two canals that narrowed the front to six miles, the Germans, given the correct force ratio, could fence in the British Third Army throughout most of the battle. The area had only two improved roads, which greatly hindered the operational and tactical mobility of Byng's force, slowing the movement of the exploitation force, reserves, and supplies towards the front. To complicate matters further, as the Germans withdrew towards the better defended Hindenburg Line throughout 1917, they destroyed the area between their old and new positions. The Germans rendered the roads, railways, bridges, and agricultural landscape useless which placed great demands on Byng's Royal Engineer force tasked with rebuilding the key infrastructure to support the upcoming operation.³⁸

Outside of the canalizing terrain the Cambrai front was a blank canvas, ideally suited for tanks. The ground, unmolested by craters from previous major battles, would not impede cross-country mobility, as occurred in both the Somme and Passchendaele Campaigns. While Cambrai seemed ideal tank country, it did contain various obstacles that would slow the attack. The large

³⁷ Cooper, *The Ironclads of Cambrai*, 11.

³⁸ Brown, *British Logistics on the Western Front*, 160.

numbers of villages, vegetated areas, and limited canal crossing sites restricted fields of fire, hindered visibility, and slowed the BEF's progress.³⁹

Analysis of the OE revealed that Third Army needed to control three pieces of key terrain south of Cambrai to accomplish the mission. First, establishing bridgeheads over the canal crossing sites at Marcoing and Masnieres would prove vital to any envelopment of Cambrai from the east. These crossing sites enabled control of the north-south running improved road known as the Saint Quentin Road. This route provided the fastest line of communication towards Cambrai. Third Army identified the second key piece of terrain as the Bournon Woods and ridgeline overlooking Cambrai, which provided a strong defensive position along this portion of the Western Front. Haig made this valuable prize his strategic aim because whoever controlled this area controlled the lines of communication running towards Cambrai and Arras from east to west. Additionally, by controlling Bournon, artillery positions on the high ground could disrupt the Germans and likely force them to cede this portion of the Western Front.⁴⁰ Third, the Flesquieres Ridge is a clearing on high ground running two miles east of Bournon Woods and west of Nine Woods. This area provided great visibility, and protected the Hindenburg Support Line, which ran parallel with the ridgeline on the reverse slope. The Germans also made the village of Flesquieres a strongpoint, taking advantage of its existing hard structures to build strong defenses. No attacker could advance towards Bournon or Cambrai without this ridgeline secure.⁴¹

³⁹ Wilson, *The Myriad Faces of War*, 488.

⁴⁰ David P. Cavaleri, "Overcoming the Battlefield Stalemate: The Introduction of Armored Fighting Vehicles and Tactics in the British Army During the First World War" (master's thesis, University of Missouri-Columbia, 1993), 108.

⁴¹ Alan J. Smithers, *Cambrai: The First Great Tank Battle, 1917* (London: Leo Cooper, 1992), 99.

Offensive plan for Cambrai

The Tank Corps and General Byng receive most of the credit for planning Cambrai, but the concept and planning resulted from the collaboration of several individuals and HQs.⁴² Byng's previous successes at Gallipoli and command of the Canadian Corps at Flanders led many in the British Army to respect him as a field commander. When General Allenby left to command the British Forces in Egypt in June 1917, Byng was the natural choice to replace him as commander of the Third Army. Throughout his four different corps commands from 1915 to 1917, Byng instilled in his units the idea that one can best achieve battlefield success through firepower, surprise, and initiative rather than seeking a uniformed advance. Byng emphasized to his tactical commanders the importance of exploiting success wherever they managed to break through enemy lines.⁴³ His success at Vimy Ridge and planning for Cambrai attest to this desire to allow flexible tactics based off the conditions within the OE. Unfortunately for Byng, his subordinate corps commanders did not have the same philosophy and experiences that suited Byng so well during his corps command experience.⁴⁴

The primary purpose of the Tank Corps at Cambrai was to breach enemy obstacles supporting the numerous trench systems throughout this portion of the Hindenburg Line and to provide direct fire support to the infantry. The infantry's primary role was to enter and clear trench complexes, provide an advanced guard to cover the advance to upcoming objectives, and improve the breach lanes created by the tanks to support the movement for follow-on units. To

⁴² Cooper, *The Ironclads of Cambrai*, 67.

⁴³ Ian Beckett and Steven J. Corvi, eds., *Haig's Generals* (Barnsley, South Yorkshire: Pen & Sword Books, 2006), 66.

⁴⁴ Jeffery Williams, *Byng of Vimy: General and Governor General* (London: Leo Cooper, 1983), 203.

increase operational reach, one hundred sledges hauled by rearward tanks carried up to seven tons of sustainment materiel to forward rallying points for the exploitation force.⁴⁵

Along with the coordination needed between the infantry units and cavalry, the Tank Corps also needed rehearsal time with the infantry units that it would support during the battle. The average tank-infantry training period prior to the battle of Cambrai was two weeks. During this time, tactics, techniques, and procedures (TTP) emerged that improved coordination between the two arms and enabled them to offset each other's strengths and weaknesses during execution. Many of the infantry units took the advice of tank planners on how best to support their assigned tanks while they moved through German defenses, but several units did not heed this advice. Byng should have insisted on better coordination between his unit commanders and the Tank Corps, but instead he gave the latitude to his corps commanders to decide how to conduct combined operations with their assigned Tank Corps units.⁴⁶

British Order of Battle

Third Army's task organization for Cambrai consisted of 19 total infantry divisions organized into 6 corps HQs, 1 tank corps with 3 tank brigades, and 1 cavalry corps with 5 cavalry divisions. All but five of the infantry divisions (the 6th, 12th, 34th, 40th, and 62th) had recent experience fighting in the Third Ypres campaign.⁴⁷ British GHQ reinforced Third Army with four artillery brigades from other British Field Armies along the front; this raised the total number of artillery pieces available to Third Army to 1,003 pieces, with calibers ranging from six-inch howitzers to sixty-pound field guns.⁴⁸

⁴⁵ Captain Wilfred Miles, ed., *History of the Great War: Military Operations France and Belgium, 1917* (Nashville, TN: Battery Press, 1991), 35.

⁴⁶ Craig F. French, "The 51st (Highland) Division During the First World War" (PhD diss., Glasgow University, 2006), 270.

⁴⁷ Miles, ed., *History of the Great War*, 19.

⁴⁸ *Ibid.*, 24-25.

For Cambrai, Haig allocated 476 tanks to Third Army: 378 fighting tanks plus 98 variants used in supporting roles to provide sustainment, lane clearing, bridging assets, wireless communication, and laying telephone cable for higher HQs communication.⁴⁹ The Tank Corps evenly distributed the tanks into nine battalions of 42 tanks each, of which 6 remained in each battalion reserve to replace any tanks with serious mechanical problems prior to the battle. The operations order allocated only 216 tanks to III Corps and 108 tanks to IV Corps. The remaining tanks remained in reserve with priority to assist the Cavalry Corps with the planned exploitation and security operations.

To round out the combined arms trio of fires, maneuver, and aircraft during Cambrai, the Royal Flying Corps' (RFC) 3rd Brigade, commanded by Brigadier J. F. A. Higgins, served as Third Army's organic air wing organized into 6 multi-role squadrons, amounting to 125 aircraft. British GHQ further reinforced the air component with an additional 7 fighter squadrons, 1 reconnaissance squadron, and 12 DH4 bombers, bringing Third Army's total aircraft to 298.⁵⁰ The four primary tasks assigned to the RFC during Cambrai were aerial reconnaissance, bombing, air interdiction, and maintaining air superiority. Priority targets for bombers and fighters included enemy airfields, HQs, railway junctions, field artillery units, troops in the open, and transportation assets.⁵¹

Throughout the Battle of Cambrai Third Army's HQs remained in Albert, nearly 30 miles away from Cambrai. Both III and IV Corps' kept its HQs generally four miles away from the front line with III Corps located in Metz and IV Corps located in Hermies. These locations enabled Third Army to maintain command and control without the need to relocate during the battle. During operations it was more important for divisions to remain in visual contact with their

⁴⁹ Miles, ed., *History of the Great War*, 28.

⁵⁰ Turner, *Cambrai 1917*, 30.

⁵¹ Miles, ed., *History of the Great War*, 30.

subordinate brigades than for a division to remain in proximity to its corps HQs.⁵² With the division operating under of the concept of ‘the fighting division,’ better communication equipment enabled division and corps HQs to operate at greater distance without losing communication.⁵³ On the other hand, Lieutenant General Sir Charles Kavanagh, commander of the Cavalry Corps, kept his corps HQs at Fins, nearly six miles away from any of the fighting. The difficulties in communication caused by this distance severely handicapped his cavalry divisions during the first two days of the battle.⁵⁴

German Order of Battle

The German XIII Corps, assigned to the German Second Army, defended this portion of the Hindenburg Line. This corps consisted of four infantry divisions, the 9th Reserve, 20th Landwehr, 54th, and the 183rd. The 54th Division was the most experienced and effective unit within XIII Corps, having fought at Verdun in 1916 and at Third Ypres earlier in 1917.⁵⁵ After participating in the heavy fighting at Third Ypres, the 54th was reassigned to the quieter Cambrai area in August 1917. The 9th Reserve and 20th Landwehr Divisions on the other hand were not effective and only rated as suitable for quiet fronts or garrison duties.⁵⁶

Heavier fighting along other areas of the front, made reinforcing and supplying this sector a low priority for the Germans; by the time the battle began, XIII Corps was eighteen percent understrength.⁵⁷ The sector was also particularly short on artillery and ammunition stockpiles. German leaders of Second Army accepted risk around Cambrai, believing that a lengthy

⁵² Andrew Simpson, “The Operational Role of British Corps Command on the Western Front, 1914-1918” (PhD diss., University College, London, 2012), 74.

⁵³ Ibid.

⁵⁴ David Kenyon, “British Cavalry on the Western Front, 1916-1918” (PhD diss., Cranfield University: Defense College of Management and Technology, United Kingdom, 2007), 166.

⁵⁵ Miles, ed., *History of the Great War*, 47.

⁵⁶ Jack Sheldon, *The German Army at Cambrai* (Barnsley, South Yorkshire: Pen & Sword Books, 2009), 35.

⁵⁷ Ibid.

preliminary artillery bombardment would signal an impending British attack, allowing the Germans time to reinforce the area.⁵⁸ Fortunately for the Germans, the leading units from the 107th Division, scheduled to replace the 20th Landwehr Division, arrived at Cambrai from the Russian Front the night before the British attack. Until the 107th arrived in full, it fell under the command of the 54th Division, which held most of the defensive positions along the British III and IV Corps planned axis of advance the next morning.

The German XIII Corps had a meager allotment of 36 medium and 21 heavy artillery guns distributed into 6 artillery batteries.⁵⁹ The Germans co-located their batteries with the 54th Division along the Hindenburg Support Line. Several of these batteries had gained experience fighting British tanks at the Somme in 1916, and French tanks during the Aisne-Champagne Battle in April 1917.⁶⁰ In both battles the gunners improved their understanding of how the Allies employed tanks, and how to exploit their vulnerabilities. These lessons enabled the 54th to defend key terrain around Cambrai more effectively. The Germans had 78 aircraft assigned to this sector, of which only 12 were the effective Albatross fighter.⁶¹

On the eve of battle, conditions were poor for the Germans. They were understrength, under resourced, and overstretched across the Hindenburg Line with forces generally considered not fit to defend the frontlines.⁶² British efforts to maintain operational security had remarkable success, in part because poor weather prevented German aircraft from identifying the hundreds of motorized vehicles gathering behind British lines. However, German leaders in Second Army remained confident in their defenses, having built them based on insights regarding the value of

⁵⁸ Miles, ed., *History of the Great War*, 48.

⁵⁹ Jackson Hughes, "The Monstrous Anger of the Guns: The Development of British Artillery Tactics, 1914-1918" (PhD diss., University of Adelaide, 1992), 245.

⁶⁰ Sheldon, *The German Army at Cambrai*, 37-38.

⁶¹ Alan Fraser, "2AFC and the Battle of Cambrai," *The '14-'18 Journal* (1996): 89.

⁶² Sheldon, *The German Army at Cambrai*, 37.

the defense-in-depth and effective counterattacks gained during the bloody attrition battles of the Somme and Third Ypres.⁶³

The Battle of Cambrai

Although Haig believed the plan was overly ambitious and only considered the limited objective of seizing the Brouillon Ridge as the strategic aim, he was reluctant to restrict Byng's freedom of action. Both leaders believed the optimistic reports that German morale was low and lacked the ability to quickly reinforce this sector due to other constraints throughout the front. With this optimism, Haig's only restriction was to stop the offensive after forty-eight hours unless it revealed clear progress.⁶⁴ Had it not been for the hopeful prospects of Cambrai succeeding, Haig probably would not have agreed to the plan.⁶⁵

Description of the Battle—November 20

The attack began at 6:20 a.m. along a six-mile front from Bonavis Ridge to Canal du Nord. The III and IV Corps conducted the main attacks while VI Corps, to the left of IV Corps, and VII Corps, to the right of III Corps, conducted feints to deceive the Germans. During phase one, IV Corps was Third Army's main effort and within IV Corps, the 51st Highland Division, commanded by Major General G. M. Harper, was the corps' main effort. The 51st was tasked with seizing the towns of Flesquieres and Fontaine to allow the 2nd and 5th Cavalry Divisions to isolate Cambrai from the west. The 62nd Division, to the left of the 51st, protected its flank by securing the town of Graincourt. Once secure the 62nd would then secure the western end of Brouillon Ridge, and the 1st Cavalry Division would seize the remainder of the ridge. The 36th and 56th Divisions, also in IV Corps, supported the 62nd by protecting its left flank.

⁶³ Turner, *Cambrai 1917*, 26-27.

⁶⁴ Wilson, *The Myriad Faces of War*, 486.

⁶⁵ *Ibid.*, 485.

On the right, III Corps attacked with four divisions (6th, 29th, 20th and 12th) to extend the right flank, seize the towns of Marcoing and Masnieres, and secure bridgeheads running along the Saint Quentin Canal. Once secured, the 4th Cavalry Division would pass III Corps to complete the isolation of Cambrai from the east. Once the Cavalry Corps isolated Cambrai, V Corps, Third Army's reserve, would secure the Cavalry Corps' gains, clear the area of any remaining German forces, and establish a deliberate defense. Although Byng believed III and IV Corps could achieve all its tasks within twenty-four hours, he realized it may take up to forty-eight hours for the cavalry and V Corps to accomplish their tasks.⁶⁶

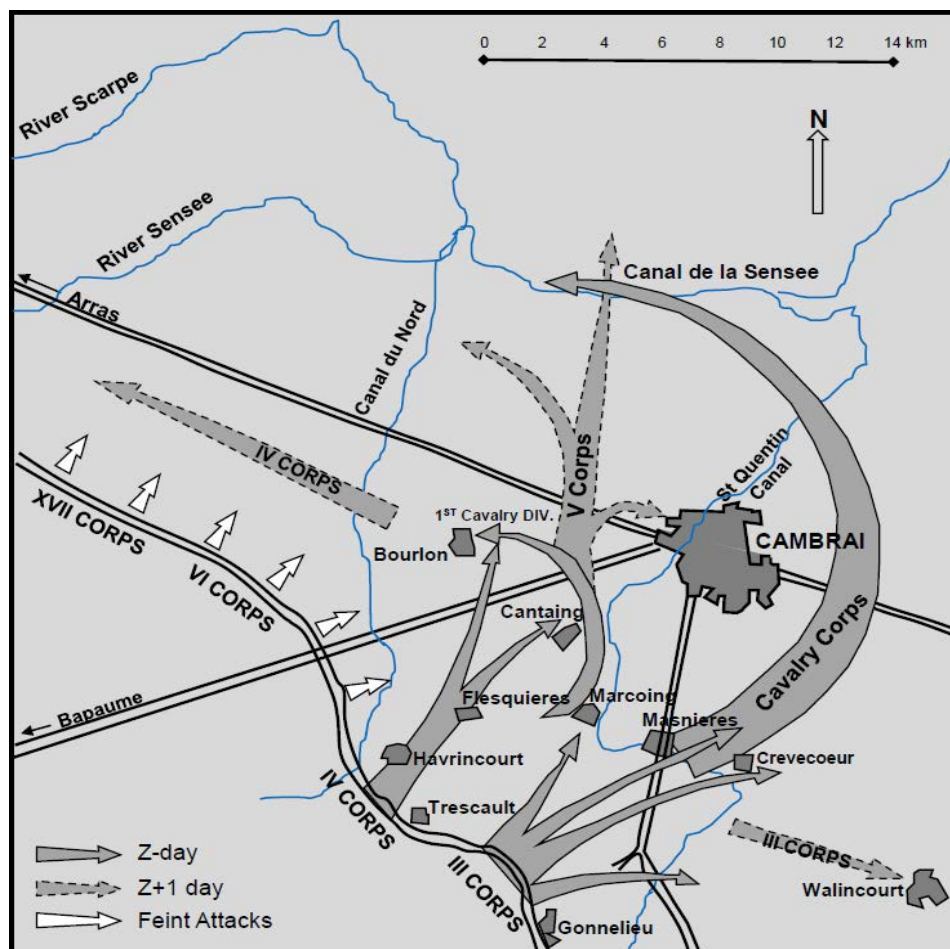


Figure 1. Third Army Concept of the Operation. Author's rendition of map in Jeffery Williams, *Byng of Vimy: General and Governor General* (London: Leo Cooper, 1983), 176.

⁶⁶ Turner, *Cambrai 1917*, 6.

As tanks began to move forward, hundreds of Allied aircraft flying low and targeting German front line positions with machine-gun fire and bombs, muffling the distinctive sound of armor on the move. As the tanks headed into no man's land at 6:20, Third Army's artillery began a devastating forty-five-minute barrage to obscure German front line trenches, neutralize the main battle zone, and conduct counterbattery fire.⁶⁷ With the infantry close behind, tanks maneuvered freely across the craterless terrain and both tanks and infantry enjoyed the effectiveness from Allied aircraft and artillery as they closed within the German front line defenses. The 3 defensive wire belts, each around 50 yards deep, proved unable to stop the tanks from breaching upwards of 350 lanes, allowing the infantry to pass through without difficulty.⁶⁸

The British achieved complete surprise, and throughout the front-line trenches German HQ units saw warning rockets, still unaware of the true extent of the attack. Upon achieving their initial objectives, III and IV Corps HQs regained control of their organic artillery and were now responsible for controlling artillery fire. Heavy artillery units remained under the control of Third Army and fired artillery missions by coordination through corps-level liaisons attached to Third Army.⁶⁹ By 8:00 a.m., III and IV Corps secured the entire Hindenburg main defensive line. Lead echelon brigades began clearing the German trench lines while second echelon forces with tank support passed through to attack the Hindenburg's rear support line. As the divisions continued to move towards their primary objectives, German resistance in III Corps' area was slight and the divisions managed to secure their objectives. In IV Corps' area, resistance was more notable, but the 62nd secured Havrincourt by 9:00 a.m. and continued advancing towards Graincourt to protect the flank of the 51st.

By 11:30 a.m., almost all the Hindenburg trench system along the six-mile front was secure with the Germans sustaining heavy losses compared with minimal British losses. The

⁶⁷ Cavaleri, "Overcoming the Battlefield Stalemate," 117-118.

⁶⁸ Cooper, *The Ironclads of Cambrai*, 99.

⁶⁹ Simpson, "The Operational Role of British Corps Command on the Western Front," 150-151.

Germans attempted to reinforce the Hindenburg line with units that recently arrived from Russia, but the speed and surprise of Third Army's attack prevented them from committing the reserve in time.⁷⁰ Instead these units took up defensive positions along the villages, canal crossing sites, and ridgelines southwest of Cambrai to delay the British. With the Germans now anticipating a withdrawal from the Cambrai sector, only the capture of Flesquieres and securing key bridgeheads in III Corps' sector delayed the Cavalry Corps' planned exploitation.⁷¹

The Germans understood the value of Flesquieres Ridge in preventing an isolation of Cambrai and they placed an effective reverse slope defense around this area. These defenses proved too formidable for the 51st to penetrate and seize Flesquieres, but across the remainder of the front, III and IV Corps accomplished most of its tasks. The 62nd seized Graincourt, and the 6th Division, assigned to III Corps but to the right of the 51st, successfully secured Ribecourt. Flesquieres now represented a bulge on the line that could have been enveloped by either the 6th or the 62nd, if only the corps commanders had conducted adjacent unit coordination more effectively. Major General Braithwaite, commander of the 62nd, did offer to assist Harper by attacking Flesquieres from the rear, but Harper who had yet to bring up his division reserve, turned down Braithwaite's offer.⁷² Braithwaite then missed a decisive opportunity to secure Bournon after a cavalry patrol confirmed that Haig's key piece of terrain was unoccupied by the Germans, who were in full retreat. Braithwaite, a seasoned division commander but an avid supporter of current doctrine, felt compelled to halt for fear of exposing his right flank, and would not advance towards Bournon until he could move in concert with Harper's Division.⁷³

Throughout the day, III Corps, commanded by Lieutenant General Sir William Pulteney, made steady progress securing crossing sites along the Saint Quentin Canal. The 29th Division

⁷⁰ Cooper, *The Ironclads of Cambrai*, 112.

⁷¹ Ibid.

⁷² Miles, ed., *History of the Great War*, 86.

⁷³ Cooper, *The Ironclads of Cambrai*, 123.

secured Marcoing and the 20th Division secured Masnieres. By all accounts III Corps had a successful day and all its divisions accomplished their primary tasks by 3:00 p.m.⁷⁴

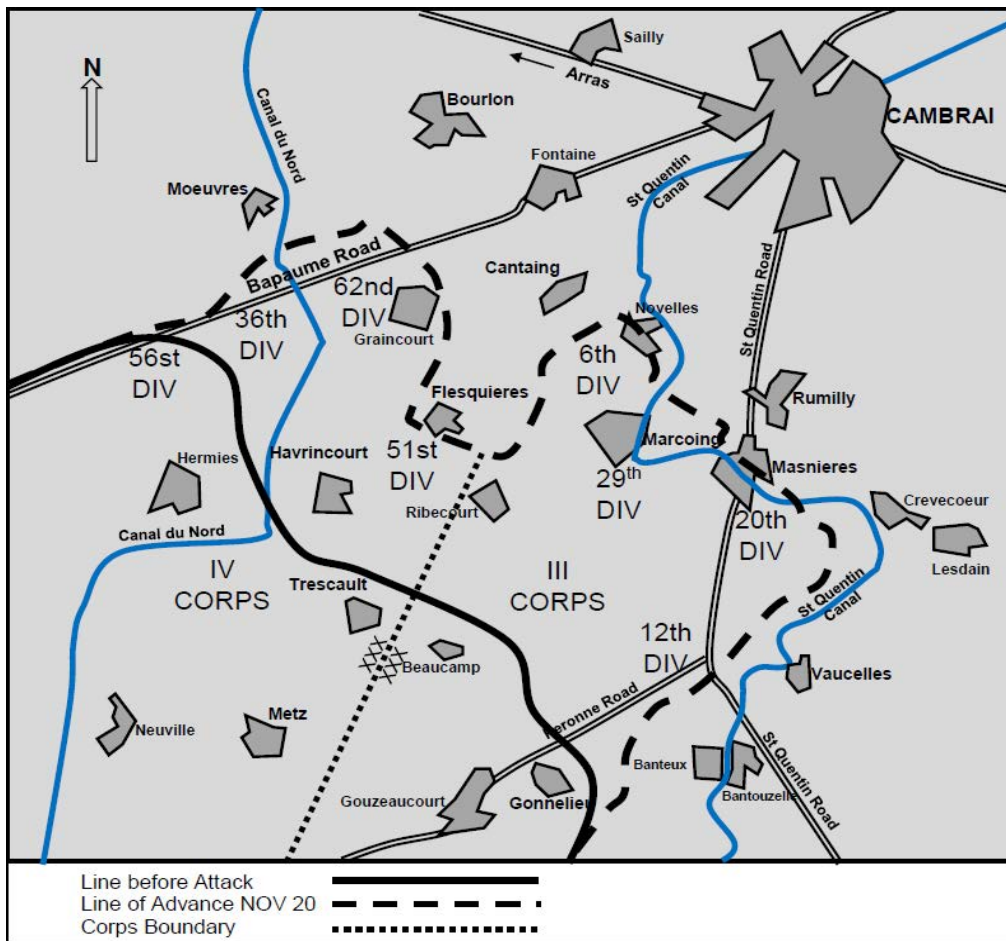


Figure 2. British Advance by Nightfall, November 20, 1917. Author's rendition of map in Bryan Cooper, *The Ironclads of Cambrai* (Barnsley, South Yorkshire: Pen & Sword Books, 2010), 104.

By mid-afternoon Byng's Army achieved one of the greatest penetrations in the war.⁷⁵ Except at Flesquieres, the German defense was in disarray with many units falling back towards Cambrai. While the III and IV Corps maintained the momentum towards its objectives, massive unorganized congestion along the limited road networks revealed lapses in army and corps-level

⁷⁴ Anthony Leask, Putty, *From Tel-el-Kebir to Cambrai: The Life and Letters of Lieutenant General Sir William Pulteney, 1861-1941* (West Midlands, England: Helion, 2015), 629; Cooper, *The Ironclads of Cambrai*, 124.

⁷⁵ Hughes, "The Monstrous Anger of the Guns," 246.

headquarters' planning.⁷⁶ These delays prevented artillery and sustainment units from echeloning forward to support the infantry and cavalry exploitation. With maneuver forces now outside the artillery umbrella, units became apprehensive about advancing forward and chose instead to wait for a more favorable combat power ratio against the Germans. As dusk approached, operations halted with many objectives still within grasp, had Third Army simply maintained the tempo. The Germans took advantage of the pause to reorganize its defenses with fresh reserves to halt any further advance on Cambrai.

Third Army's Culmination—November 21 to 27

Frustrated by the shortcomings of the first day, particularly at Flesquieres, Haig agreed to continue the battle and set new objectives for November 21. Although the British considered their casualties light (approximately 4,000), the Tank Corps sustained 47 percent attrition with 179 of 378 tanks out of action.⁷⁷ There were three preliminary objectives on November 21 before the Cavalry Corps could reattempt the isolation of Cambrai. First, III Corps would seize Rumilly and Crevecoeur to expand the bridgehead across the Saint Quentin Canal. Second, IV Corps would seize Flesquieres and Fontaine. Lastly, IV Corps would additionally secure the village and ridgeline around Bournon. Although the German situation was bleak on the evening of November 20, the effective railway network brought in reinforcements allowing the Germans to piecemeal a defensive line to combat British day two objectives.

As British subordinate HQs tasked its units to execute the day two activities, the weather deteriorated bringing non-stop rain for the next thirty-six hours. During this time, the Germans withdrew their forces defending Flesquieres, leaving the village unoccupied. Early morning patrols identified this break and the 51st quickly occupied the village and prepared for the next attack towards Fontaine. The assault on Fontaine was intended as a combined arms attack.

⁷⁶ French, "The 51st (Highland) Division During the First World War," 280.

⁷⁷ Turner, *Cambrai 1917*, 52.

However, due to the 2nd Tank Brigade receiving its orders late, they did not reach the 51st before the prescribed offensive start time. Unwilling to wait, the 51st started the assault at 10:30 a.m. and quickly found it challenging with the Germans defending high ground positions with clear visibility. Tanks arrived by 1:30 p.m. and with its artillery overmatch, the 51st seized Fontaine by 5:15 p.m. marking the high point in the entire battle with Cambrai only two miles away.⁷⁸ The gate was open for exploitation but with the 51st taking unsustainable casualties, Harper ordered a halt and would not advance until the 62nd secured Bourlon on his flank.⁷⁹ Rather than reinforce success, Harper withdrew most of the division south to Cantaing to consolidate and reorganize leaving only the depleted 4th Seaforth Battalion to defend Fontaine.

The 62nd made a valiant effort to seize Bourlon but throughout the day as the division sustained casualties, the Germans grew in strength and denied them this key terrain.⁸⁰ Likewise in the east, Pulteney's III Corps failed to secure its objectives, leaving his infantry so depleted he recommended to Byng that III Corps halt and prepare a strong defensive line due to the stiffening German resistance.⁸¹ Byng agreed with Pulteney and ordered III Corps to consolidate all ground and prepare defenses to defeat a German counterattack.⁸²

As day two ended, halting III Corps allowed Byng to solely focus on achieving Haig's primary objective of capturing Bourlon. The forty-eight-hour limit for the operation expired leaving Haig with the decision to either continue the battle or consolidate his gains. Haig chose to continue the battle for two reasons: one, although the infantry was exhausted, the Cavalry Corps and V Corps were still unused. Two, with the capture of Fontaine from the previous day, Byng

⁷⁸ Cooper, *The Ironclads of Cambrai*, 143-144.

⁷⁹ Ibid., 142.

⁸⁰ Miles, ed., *History of the Great War*, 113.

⁸¹ Leask, Putty, *From Tel-el-Kebir to Cambrai*, 633.

⁸² Ibid.

believed the British could envelope and overwhelm the Germans at Bourlon.⁸³ Utilizing V Corps and augmented with cavalry, Byng believed a coordinated assault could force the Germans off the ridge. At this point, with surprise gone and less than forty operational tanks remaining, Cambrai turned into a completely different battle in which maneuver and breakthrough reverted to a force on force slugging match with the defender maintaining the advantage.

November 22 was a day of preparation for the final attack on Bourlon but then an unexpected loss occurred which disrupted the British plan for the next day. After German aircraft noticed the light defenses around Fontaine, the Germans counterattacked. Harper, assuming Fontaine could be retaken after Bourlon was seized, did not reinforce this vital position and instead ordered the battalion defending Fontaine to withdrawal back to Cantaing, ceding Fontaine back to the Germans.⁸⁴ Byng now had to change his scheme of maneuver and divert combat power away from the Bourlon attack to retake Fontaine. Additionally, intelligence failed to identify the reinforcement of Bourlon by four German divisions from the XIV Corps which had arrived from Arras over the previous forty-eight hours.

Byng planned and allocated an impressive amount of resources for the attack on November 23. IV Corps attacked with 4 infantry divisions, 36 tanks, and 1 cavalry division to retake Fontaine and seize Bourlon. Six field artillery brigades supported IV Corps' attack and the RFC provided upwards of 50 aircraft to support ground operations. Harper's 51st Division would retake Fontaine to allow 1st Cavalry Division to pass through and envelope Bourlon from the north while the 40th Division (reassigned from V Corps) attacked Bourlon supported by 29 tanks.

The German XIV Corps opposed them along a linear defense-in-depth with the 3rd Guards Division in reserve at Cambrai. Although the British held an artillery advantage, the fresh German divisions defended along built-up areas with good visibility. The Germans used the

⁸³ Williams, *Byng of Vimy*, 191.

⁸⁴ Cooper, *The Ironclads of Cambrai*, 155.

terrain to minimize the British advantages and isolated the infantry away from the tanks.⁸⁵ With 40th Division rushed to the front, there was no time to rehearse tactics with its supporting tanks resulting in poor coordination for the combined attack on Bourslon. These variables proved too formidable and the attack failed, resulting in high losses to the tank corps, a 30 percent attrition rate to the RFC, and little ground gained in the Bourslon Woods.⁸⁶

Haig—still desperate to achieve his political goal of ending 1917 with a success story—kept in place his order for Third Army to seize Bourslon, reinforcing Byng with an additional two divisions (the 2nd and 47th) to help him accomplish this task.⁸⁷ Using these divisions and the untapped cavalry as dismounted infantry, Byng continued to attack Bourslon up through November 27 when Haig realized they no longer had the combat power to continue, effectively causing Third Army to culminate.⁸⁸ Third Army now found itself in an untenable defensive position forming a salient nine miles wide and four miles deep without sufficient forces to secure this terrain. The northern portion of the salient was reasonably secure with good defensive positions and visibility of the enemy. The eastern portion, held by both III and VII Corps, was less protected and more vulnerable to German counterattack.

The German Counterattack—November 30 to December 7

The German Second Army counterattacked with 18 divisions task organized into 3 corps-sized elements on November 30. British intelligence knew that 11 German Divisions had traveled to the Cambrai area to reinforce the Hindenburg Line, with 3 of these divisions arriving just forty-eight hours prior to the counterattack starting. However, this intelligence did not reveal whether these troops were to be used as an offensive force or to reinforce German defenses.⁸⁹ The aim of

⁸⁵ Turner, *Cambrai 1917*, 61.

⁸⁶ Miles, ed., *History of the Great War*, 133.

⁸⁷ Cooper, *The Ironclads of Cambrai*, 172; Jeffery Williams, *Byng of Vimy*, 194-195.

⁸⁸ Williams, *Byng of Vimy*, 196; Miles, ed., *History of the Great War*, 158.

⁸⁹ Beach, *Haig's Intelligence*, 265.

the counterattack was to regain the lost terrain by envelopment on the British right flank. The German XIII Corps, the main effort, attacked the British III Corps to reoccupy Flesquieres and Havrincourt. The German XXIII Corps, to the south, attacked the seam between the British III and VII Corps to fix these units from reinforcing the British 6th and 29th Divisions. In vicinity of Bourlon, the German XIV Corps attacked to reoccupy the village of Graincourt. With Haig and Byng still focused on the north, the German plan took full advantage of the long salient in the line by attacking the weakest point.

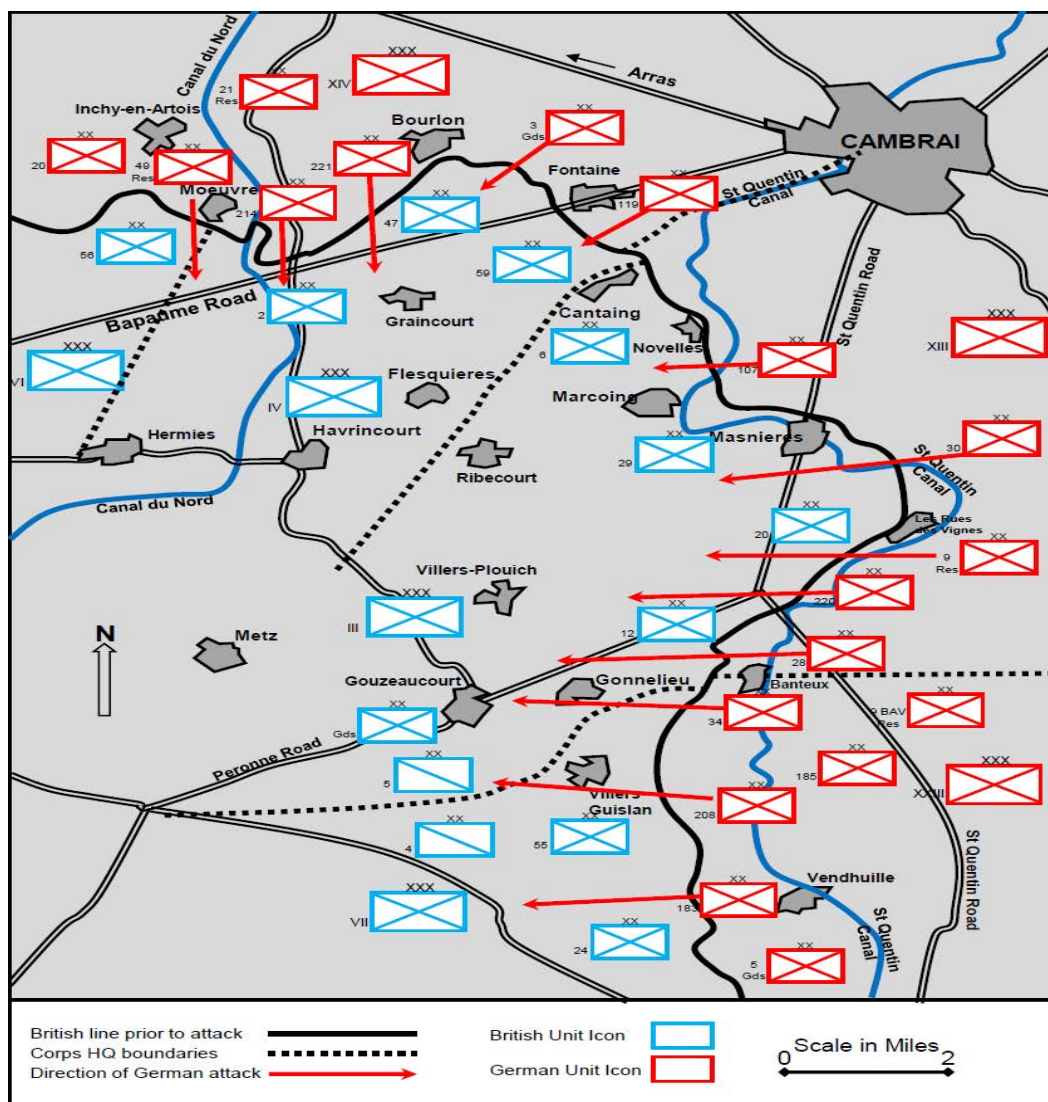


Figure3. German Counterattack, November 30, 1917. Author's rendition of map in Alexander Turner, *Cambrai 1917: The Birth of Armored Warfare* (New York: Osprey, 2007), 79.

The British were accustomed to German counterattack techniques but were surprised by the ferocity and direction of this attack. Intelligence reports indicated the Germans were not strong enough in the east to attack, leading the British to believe a counterattack would come from Bourlon.⁹⁰ When the attack started at 7:00 a.m., panic arose throughout this sector, causing the 12th and 20th Divisions of III Corps and the 55th Division of VII Corps to retreat from their positions. Consistent with the lack of adjacent unit coordination between units in Third Army, fire support coordination measures were never established after the initial attack on November 20.⁹¹ This resulted in apprehension at corps HQs about firing into their friendly lines once the German counterattack began, for fear of fratricide.⁹² As the 12th and 20th Divisions fled in disorder, it took Pulteney until 9:30 a.m. to gather a good understanding of the situation and another two hours to contain the German counterattack.⁹³

By 10:00 a.m., lead elements of the German XXIII Corps advanced five kilometers behind British lines, leading to jubilation throughout the leading German regiments much like the early success the British achieved on day one of Cambrai.⁹⁴ The German XIII Corps achieved initial success against the British 12th and 20th Divisions, but further north along the Saint Quentin Canal, the British 6th and 29th Divisions took advantage of the fixed urban defenses that provided excellent visibility. The Germans did not anticipate the resolve of these forces; in fact, had the 6th and 29th Divisions not checked the German attack, the XIII Corps could have advanced to Flesquieres with ease, given that Byng had no reserves left to halt this advance.⁹⁵

⁹⁰ Tim Travers, *How the War Was Won: Command and Technology in the British Army on the Western Front 1917-1918* (New York: Routledge, 1992), 28.

⁹¹ Simpson, "The Operational Role of British Corps Command on the Western Front," 155; Leask, Putty, *From Tel-el-Kebir to Cambrai*, 642.

⁹² Travers, *How the War Was Won*, 28-29.

⁹³ Leask, Putty, *From Tel-el-Kebir to Cambrai*, 640-642.

⁹⁴ Sheldon, *The German Army at Cambrai*, 237.

⁹⁵ Cooper, *The Ironclads of Cambrai*, 198.

As the German XIV Corps attacked Bourslon at 9:00 a.m., the British were ready. With Byng believing this the likely place for a German counterattack, the British easily defended this area with enfilading machine gun fire on both flanks and accurate artillery fire destroying German units unable to mask their movement.⁹⁶ With scenes reminiscent of the Somme and Verdun, casualties were heavy leaving the Germans unable to secure the northern objectives.⁹⁷ Although the northern attack was only a diversion, the unexpected resolve with which the British defended in this area left the Germans disappointed in their day one results.⁹⁸

With the Germans advancing up to three miles on Third Army's right flank, by mid-afternoon the British situation was relatively stable, but still precarious. The Germans, who had not conducted a major offensive on the Western Front since the "Second Ypres" in 1915, had reason to be optimistic that follow-on attempts to seize Metz and encircle the British Third Army would succeed.⁹⁹ However, subsequent days of the counterattack resembled more of a boxing match between two exhausted fighters than an organized battle.¹⁰⁰ The German Second Army commander admitted by December 2 that the counter-offensive had "run itself out."¹⁰¹

Exhausted and with no means of defending the salient or reinforcing Byng with fresh units, Haig directed on December 2 to select a good winter defensive line and prepare for a withdrawal no later December 5.¹⁰² The line chosen fell along the German Hindenburg Support line along the Flesquieres Ridgeline in the north and traveling southeast along the towns of Villers Plouich and Gouzeaucourt. From December 4-7, the British withdrew to their new

⁹⁶ Turner, *Cambrai 1917*, 80.

⁹⁷ Ibid.

⁹⁸ Cooper, *The Ironclads of Cambrai*, 199.

⁹⁹ Miles, ed., *History of the Great War*, 226; Sheldon, *The German Army at Cambrai*, 273.

¹⁰⁰ Turner, *Cambrai 1917*, 86.

¹⁰¹ Miles, ed., *History of the Great War*, 248.

¹⁰² Williams, *Byng of Vimy*, 202-203.

defensive line, leaving enough rearguard forces to deceive the Germans.¹⁰³ The ultimate results of the Cambrai offensive showed little profit in terms of ground won, with a British northern advance of only two miles after eighteen days of fighting. In total the British sustained 44,207 casualties and 158 artillery guns lost to the Germans' 53,300 and 145, resulting in a cruel disappointment that did not achieve Byng's operational goals or Haig's strategic aims.¹⁰⁴ Although evidence shows the Cambrai offensive forced the Germans to divert as many as thirteen eastern theater German divisions—previously scheduled for the Italian Front—to reinforce the west, the British War Cabinet expected more and Haig's reputation fell to a career low.¹⁰⁵

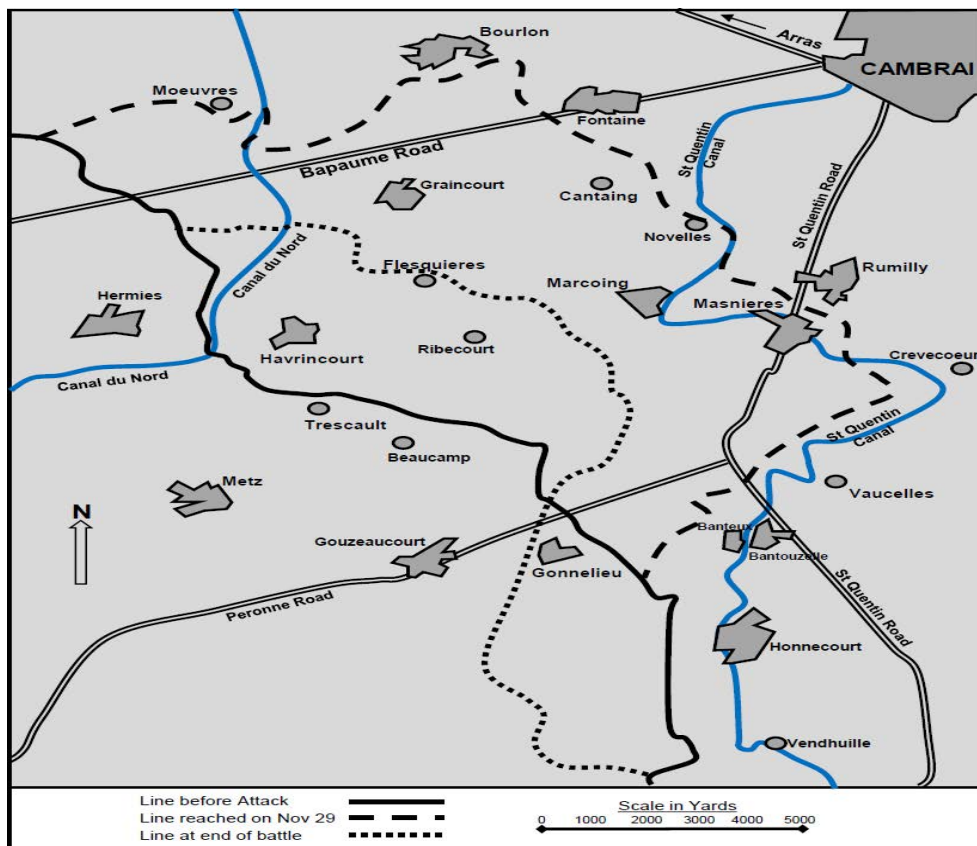


Figure 4. Battle of Cambrai, November 20 through December 7, 1917. Author's rendition of map in Captain Wilfred Miles, ed., *History of the Great War: Military Operations France and Belgium, 1917* (Nashville, TN: Battery Press, 1991), Sketch A.

¹⁰³ Williams, *Byng of Vimy*, 203.

¹⁰⁴ Miles, ed., *History of the Great War*, 273-274.

¹⁰⁵ Miles, ed., *History of the Great War*, 275; Cooper, *The Ironclads of Cambrai*, 217.

Cambrai Vignettes & Analysis

Third Army's Cambrai plan was ambitious given Byng's geographic and resource restrictions. However, the BEF could have achieved its objectives by simplifying planning, synchronizing phasing and transitions more effectively, and resourcing the operational approach to focus mainly on achieving the decisive operation. Although it successfully used surprise and mass to reach its initial objectives, the BEF culminated before it could successfully advance the exploitation force due to a lack of coordination measures and mission command at key transition points. Byng's meticulous planning during the initial phase of the operation is commendable, but the lack of planning once the successful breakout occurred receives fair criticism.¹⁰⁶

Surprise at Cambrai

As a principle of joint operations, commanders use surprise to strike at a time and place, or in a manner for which the enemy is unprepared. Cambrai was a quiet part of the Western Front with miles of unmolested terrain over which tanks maneuvered against an ill-equipped enemy. With Third Army moving thousands of soldiers and hundreds of motorized vehicles into the OE, Byng knew surprise was the only way to prevent the Germans from reinforcing the area. To ensure surprise, Third Army stressed secrecy within the planning and preparation of the battle. Third Army staff officers started rumors about alternate locations where a British attack would take place, tank officers removed all RTC insignia before conducting recons, and a story was crafted that a permanent tank and infantry combined arms training school was being constructed in Albert, France. Third Army took these actions to deceive the Germans as to the true intentions for the upcoming battle. To minimize the ability for German aircraft to conduct reconnaissance, movement of forces into their assembly areas and attack positions took place only at night. As tanks moved into their hide sites, tank crews used large brooms so they could quickly sweep

¹⁰⁶ Wilson, *The Myriad Faces of War*, 486.

away the tank tracks left on dirt roads to minimize the chance of German aircraft spotting tank movements from the air.¹⁰⁷

Secrecy for the upcoming operation was so strict that RFC aircraft were limited in the number and types of missions they were authorized and only flew six hundred sorties from October 26 to November 19. The missions focused on artillery ranging, photographic reconnaissance, air defense, and disrupting German rear-guard and supply depots.¹⁰⁸ Although the BEF took elaborate and creative precautions to ensure secrecy and surprise for the upcoming operation, these precautions ultimately inhibited its efforts to gather tactical-level intelligence.¹⁰⁹ Gaps in intelligence included information requirements such as confirming the disposition of German artillery, ensuring bridges indicated on maps were serviceable, and confirming the disposition and strength of enemy reserve units.

Third Army's Line of Operations, Phasing, and Transitions

In US Army doctrine, a line of operations (LOO) is the directional orientation of a force in time and space from its base of operations to the completion of its assigned task.¹¹⁰ Operations designed along LOOs sequence the actions required to reach the desired end state. Within this sequencing, organizing decisive points, phases, and geographic or force-oriented objectives allows a unit to visualize its operational approach. Within a LOO, phasing enables better organization to focus efforts, concentrate combat power in time and space, and achieve objectives within a logical sequence.¹¹¹ Transitions further organize a LOO by changing the focus of an operation during execution. Transitions require planning and preparation well before execution to

¹⁰⁷ Smithers, *Cambrai: The First Great Tank Battle*, 103.

¹⁰⁸ Edward R. Hooten, *War Over the Trenches: Air Power and Western Front Campaigns, 1916-1918* (Hersham, Surrey: Midland, 2010), 190.

¹⁰⁹ Beach, *Haig's Intelligence*, 263.

¹¹⁰ US Army, AD RP 3-0 (2016), 2-5.

¹¹¹ *Ibid.*, 2-8.

maintain tempo and minimize risk. Prior to executing a transition, such as an attack followed by an exploitation, rehearsals between the assigned units are recommended to confirm coordination measures and minimize friction during execution.

General Byng organized Cambrai into three phases. Phase One started with the breakthrough of the Hindenburg line followed by the seizure of key terrain at the canal crossings sites at Masnieres and Marcoing. Phase one ended after Third Army established a defensive line from Masnieres-Beaurevoir and bridgeheads across the Saint Quentin Canal. Once phase one was complete, phase two began with the Cavalry Corps—the decisive operation—seizing Bourlon Ridge, then advancing through the crossing sites to isolate Cambrai and the crossing sites along the Sensee River, ending phase two. In phase three, V Corps, Third Army’s reserve, was responsible for clearing the area between Cambrai, the St. Quentin Canal, the Sensee River, and Canal du Nord of any remaining German units. This was an ambitious plan placing heavy emphasis on the Cavalry Corps’ ability to conduct a passage of lines quickly through the forward elements of III and IV Corps, once the phase one objectives were complete. In the event of delay within this transition, the Germans would retain the potential to completely desynchronize the entire British plan.

A passage of lines, or “leapfrogging” as the British called it throughout the nineteenth century and WWI, is “an operation in which a force moves forward or rearward through another force’s combat positions with the intention of moving into or out of contact with the enemy.”¹¹² As an enabling tactical task, the forward passage of lines continues an attack to sustain the tempo of an offense by transferring responsibility of an area of operations from one commander to another.¹¹³ The HQs directing a passage of lines is responsible for determining when the passage

¹¹² Hubert C. Johnson, *Breakthrough: Tactics, Technology, and the Search for Victory on the Western Front in World War I* (Novato, CA: Presidio Press, 1994), 190-191; Paddy Griffith, *Battle Tactics of the Western Front: The British Army’s Art of Attack, 1916-1918* (New Haven: Yale University Press, 1994), 56-57; US Army, ADRP 1-02 (2016), 1-71.

¹¹³ US Army, FM 3-0 (2017), 5-16.

starts and ends. Although the concept of leapfrogging units while conducting a passage of lines seems simple, throughout WWI this enabling task required precise synchronization, making the maneuver troublesome for even the most experienced units.¹¹⁴ Due to the required coordination between two distinct units and the risk involved in passing through another unit's lines during combat operations, attaching liaison officers to help coordinate these actions mitigated some of the risks. The passage of lines, and the transition between phases one and two required detailed planning and coordination, such as the artillery support plan, the location and size of passage lanes, logistic support required for the cavalry, and a specified time when the cavalry would officially take responsibility for the area of operations upon completion of the passage of lines.

In the case of Cambrai, Third Army directed the sequencing of the Cavalry Corps passing through elements of III and IV Corps beginning phase two of the operation. The transition to the exploitation phase was the most important aspect of the battle, but there is no evidence to prove Byng confirmed these coordination measures were in place. This lack of coordination later caused devastating delays that nearly desynchronized the operation.

The 51st Division at Flesquieres: Operational Reach and Tempo

For a unit to achieve success throughout its LOO it must maintain a balance of endurance, momentum, and protection, to maintain operational reach. When a unit reaches the end of this tether, culmination occurs and it no longer has the capability to continue an operation.¹¹⁵ Endurance is enabled by anticipating requirements and efficiently using available resources. Without endurance, a unit cannot maintain the desired tempo. Commanders aim to control the tempo by retaining and exploiting the initiative to achieve the end state. This requires a commander to synchronize his resources effectively, emplace command and control mechanisms for subordinate commanders to maximize mission command, and avoid unnecessary

¹¹⁴ Griffith, *Battle Tactics of the Western Front*, 56-57.

¹¹⁵ US Army, ADRP 3-0 (2016), 2-9.

engagements not critical to mission accomplishment.¹¹⁶ When commanders control the tempo, they naturally control the momentum of the battle by staying ahead of the enemy's decision cycle and minimizing enemy advantages. Lastly, analyzing enemy and environmental effects within an OE enables commanders to determine protection requirements to maintain its critical capabilities.

The 51st Highland Division was one of the most experienced divisions in the BEF, and its previous success in Flanders made it one of the few British units feared by the Germans.¹¹⁷ Harper, who had commanded the division since early 1916 was a well-respected commander.¹¹⁸ Since taking command Harper continuously employed progressive tactics, but shortcomings in command and control and timely logistics limited the extent of his successes.¹¹⁹ By November 1917, the 51st was an extremely capable infantry unit believing firmly in the TTPs perfected during the hard fighting in Flanders.¹²⁰ It seemed the perfect unit to undertake the critical task of seizing Flesquieres.¹²¹

Although the 51st was very capable, the division had not previously conducted operations with tanks and its hard-fought TTPs did not account for operating as a combined arms team. Many traditionally-minded infantry commanders who observed the tanks' poor performance at the Somme and Third Ypres did not believe tanks could cure the stagnation of trench warfare. Harper, "a narrow-minded infantry officer of the old school," disregarded the tank crews' recommendations, and ordered his division to operate using its previously successful TTPs.¹²²

¹¹⁶ US Army, ADRP 3-0 (2016), 2-7.

¹¹⁷ Cooper, *The Ironclads of Cambrai*, 113.

¹¹⁸ French, "The 51st (Highland) Division During the First World War," 46.

¹¹⁹ *Ibid.*, 261.

¹²⁰ *Ibid.*

¹²¹ Cooper, *The Ironclads of Cambrai*, 113.

¹²² Cooper, *The Ironclads of Cambrai*, 113; French, "The 51st (Highland) Division During the First World War," 55; Travers, *How the War Was Won*, 6.

The 51st used 70 Mark IV tanks along with 2 of its 3 infantry regiments to achieve its initial objectives on November 20. Unlike the other infantry divisions that followed immediately behind their tanks, Harper ordered his infantry to remain well behind and allow them to breach the counter-mobility obstacles without any infantry support.¹²³ However, this lack of unity did not prevent the 51st from achieving its initial objectives by 8:30 a.m. By Third Army's time-table, the 51st was not supposed to move to its next objective of Flesquieres until 9:30. Rather than maintaining the initiative and tempo, Harper ordered the division to stop and not advance to its next objective until the prescribed time.¹²⁴

Knowing that the Flesquieres Ridge was key terrain in the defense of Cambrai, this one-hour delay gave the Germans enough time to reorganize their forces and bring up additional reserves to establish a hasty defense.¹²⁵ With the element of surprise gone and knowing the only weapon effective against tanks were field-guns, the Germans moved four batteries of 77mm field artillery guns forward to support the reverse slope defense.¹²⁶

Completely unaware of the Germans defense supported with artillery, the 51st started the attack at 9:30 a.m. Following Harper's instructions, the infantry remained four hundred meters behind the tanks. The tanks had little difficulty breaching the counter-mobility obstacles but as the infantry advanced, the Germans engaged them with machine-gun fire, bringing the advance to a halt. Unaware the infantry was no longer behind them, the 77mm guns opened fire, destroying 27 of the 70 unsupported tanks and completely halting the advance on Flesquieres.¹²⁷

¹²³ French, "The 51st (Highland) Division During the First World War," 55.

¹²⁴ Cooper, *The Ironclads of Cambrai*, 114.

¹²⁵ Ibid.

¹²⁶ Ibid., 116.

¹²⁷ Ibid., 117-120.

The inability of the 51st to secure Flesquieres within the time-table forced an operational pause that delayed IV Corps' attempt to secure Bournon.¹²⁸ Harper's failure illuminated multiple fatal flaws within Third Army's plan: the lack of adjacent unit coordination across the multiple Corps HQs, the lack of flexibility in the synchronization of the plan, and the lack of initiative that subordinate commanders were authorized by their higher HQs.

Failing to Exploit Success: Lack of Synchronization

By mid-afternoon on November 20, Byng's Army achieved one of the greatest penetrations in the war.¹²⁹ Except at Flesquieres, the German defense was in disarray after abandoning all three zones of the Hindenburg Line, with many units falling back towards Cambrai. It was at this point that Byng's Army failed to achieve the decisive operation because of poor synchronization and command and control. A successful isolation of Cambrai could only occur through one synchronized plan. Unfortunately, the corps commanders under Third Army lacked both innovative minds like Byng's and corps-level experience in sustained combined arms maneuver.¹³⁰ Lacking this experience, these corps commanders could not establish a culture of initiative among their subordinate commanders.¹³¹ Further, Byng provided his corps commanders unwarranted flexibility, since they had never attempted a combined arms penetration involving hundreds of tanks, airplanes, infantry, and cavalry on such a large scale.¹³²

Pulteney had commanded III Corps since the fall of 1914, but since then his unit had participated only in the slow, methodical battles of 1915 to 1917. Like Lieutenant General Sir Charles Woollcombe, who had commanded IV Corps since early 1916, Pulteney's past command

¹²⁸ French, "The 51st (Highland) Division During the First World War," 267.

¹²⁹ Hughes, "The Monstrous Anger of the Guns," 246.

¹³⁰ Williams, *Byng of Vimy*, 203.

¹³¹ Simpson, "The Operational Role of British Corps Command on the Western Front," 192.

¹³² Travers, *How the War Was Won*, 22.

experiences did not allow him to visualize the operational approach needed to exploit success.¹³³ For his divisions to maintain the momentum, Pulteney needed to set the conditions ahead of time for his infantry divisions to quickly consolidate its gains, bring sustainment assets forward, and echelon his corps artillery forward to support a continued advance.

While the III and IV Corps maintained the momentum towards their objectives, massive unorganized congestion along the limited road networks identified where army and corps-level HQs had lapsed in the planning.¹³⁴ Infantry reserves, logistical supplies, engineer assets, artillery units and elements from the cavalry all converged throughout the day, travelling through unimproved lanes to reach their next destination which caused fatal delays in the planned exploitation.¹³⁵ In what Tim Travers described in his critique on the Battle of Cambrai as the “paralysis of command,” many of the corps and division commanders did not know how to exploit their gains because exploitation remained a cavalry function.¹³⁶ Although the infantry was exhausted, low on ammunition, with the artillery echeloning forward, commanders across the front merely waited for the cavalry to accomplish the next objectives rather than maintaining the initiative to secure visible objectives undefended by the Germans.

As dusk approached, operations halted with many objectives still within grasp, had Third Army simply maintained the tempo. The Germans took full advantage of the pause to realign its defenses with fresh reserves to halt any further advance towards Cambrai. With the initiative lost, Byng never again had the chance to isolate Cambrai and achieve his operational objective. His hope of giving the BEF a much-needed victory after a dismal 1917 thereby eluded his grasp.

¹³³ Travers, *How the War Was Won*, 28-30.

¹³⁴ French, “The 51st (Highland) Division During the First World War,” 280.

¹³⁵ Simpson, “The Operational Role of British Corps Command on the Western Front,” 153-154.

¹³⁶ Tim Travers, *How the War Was Won*, 28-30; Richard Holmes, *The Western Front* (New York: TV Books, 2000), 59-60.

The Cavalry Corps: Command and Control & Simplicity

The corps-level HQs handled four primary activities for the British Army during WWI: artillery, administration, planning, and reconnaissance.¹³⁷ Due to the size of corps HQs in this era and their immobile, large-caliber artillery guns, they remained geographically static throughout most operations. Corps HQs planned both the operational and administrative aspects of operations, while divisions only had to get their troops to the right place at the right time.¹³⁸ At Cambrai, this system's inefficiency limited initiative within the subordinate commands, particularly since corps HQs stayed up to five miles behind the line of advance. With divisions simply doing what the corps planned once execution began, they often neglected cross-boundary and adjacent-unit coordination. In the BEF's top-down command climate, each subordinate unit depended on its parent HQs to provide situation and intelligence updates.¹³⁹ At Cambrai, brigades often could not maintain the tempo because their parent HQs ordered frequent halts to allow the division HQs time to catch up. These difficulties during the first forty-eight hours of the battle caused subordinate units to miss several chances to seize objectives while undefended, because their parent commands did not allow these units to press temporary advantages or exploit opportunities.¹⁴⁰

Jubilation occurred at Third Army HQs, from the reports confirming the successful breakthrough, but impaired visual signaling and slow transmissions caused leaders at both the corps and army echelons to grow cautious.¹⁴¹ Air-to-ground visibility fell to zero where smoke covered the battlefield, ground wire communication was frequently disrupted by tanks and artillery that cut the wires, and carrier pigeons were not reliable sources for information sharing.

¹³⁷ Kenyon, "British Cavalry on the Western Front," 208.

¹³⁸ Ibid.

¹³⁹ Ibid., 208-209.

¹⁴⁰ Simpson, "The Operational Role of British Corps Command on the Western Front," 154-155.

¹⁴¹ Miles, ed., *History of the Great War*, 62-63.

Until visibility improved, dispatch riders, limited by their speed, were the most effective source to disseminate information.¹⁴² With Byng's corps commanders inexperienced with commanding fluid offensive operations, the tempo slowed down as units waited for orders to press the attack while the exploitation force, still in its assembly areas, waited for confirmation to advance.¹⁴³

While both III and IV Corps were achieving success during the first morning of Cambrai, the Cavalry Corps contributed little outside of tactical-level patrolling to support information requirements. Kavanagh severely restricted his cavalry divisions tasked with supporting III and IV Corps by not providing operational control of his divisions to the corps commanders.¹⁴⁴ Instead, Kavanagh was the only leader who could authorize when the cavalry divisions would pass through III and IV Corps to conduct the exploitations. Additionally, unlike III and IV Corps that advanced to their next objectives on a synchronized timeline, the Cavalry Corps operated off decision points.¹⁴⁵ Poor communications resulted in several missed opportunities that the cavalry could have exploited had Kavanagh allowed his divisions to exercise disciplined initiative. Two key objectives—the 1st Cavalry Division's seizure of Bourlon, and the envelopment of Cambrai from the west by 2nd and 5th Cavalry Divisions—could have been accomplished if only III and IV Corps had the authority to task the cavalry divisions.¹⁴⁶ Kavanagh later received criticism from officers like Woollcombe and J. F. C. Fuller for the lack of initiative and adaptability that his Cavalry displayed at Cambrai, but Byng authorized such decision-making diversity throughout his subordinate leaders. The lack of simplicity that one overall synchronization timetable could have enabled reflects more on Byng than any of his corps commanders.

¹⁴² Simpson, "The Operational Role of British Corps Command on the Western Front," 153.

¹⁴³ *Ibid.*, 154.

¹⁴⁴ Kenyon, "British Cavalry on the Western Front," 166.

¹⁴⁵ *Ibid.*, 167-168.

¹⁴⁶ *Ibid.*, 168-172.

The poor performance of the cavalry corps during Cambrai can seem bewildering, particularly given the many respected cavalry commanders and staff officers assigned to the BEF and GHQ. In Fuller's scathing assessment of the Cavalry Corps and Kavanagh during Cambrai, he asserted that the corps lacked cavalry spirit because Kavanagh led from the rear rather than the front. He believed that by displaying more initiative, with a commander who led from the front, the corps could have cleared Bourlon within thirty minutes after the 62nd secured Graincourt. Fuller argued, "Instead, they did nothing but wait. It was not their fault, but the fault of their command, which was handling a pursuit on trench-warfare lines."¹⁴⁷

Fuller's assessment of Kavanagh, who remained in command until the end of the war, is harsh but fair. Still, Byng deserves even greater criticism for allowing the cavalry to operate using different procedures than the other combat units at Cambrai. As the former cavalry school commandant and a former brigade and division cavalry commander, Byng should have monitored the planning and execution of his exploitation arm in greater detail. His experience as a three-time battlefield corps commander should have enabled him to anticipate the difficulties of echeloning sustainment and fires assets forward in support of the advancing infantry and cavalry, particularly after his corps commander experience during the Gallipoli campaign. If III and IV Corps had exercised operational control over its supporting cavalry divisions, they could have determined the best time and place to exploit success during the battle rather than watching the opportunity slip through their hands.

Final Analysis

After Cambrai Haig acknowledged his faults, stating publicly that it was a mistake to continue the attack after November 22, when Third Army experienced acute exhaustion and lack of resources.¹⁴⁸ Haig's willingness to accept blame, while noble and fair, highlights Byng's

¹⁴⁷ Cooper, *The Ironclads of Cambrai*, 133.

¹⁴⁸ Turner, *Cambrai 1917*, 89.

limited acceptance of his own responsibility for the lack of command and control and poor judgement he displayed throughout the battle. Although Haig relieved three of his corps commanders (Woollcombe, Pulteney, and Snow) after Cambrai, citing a lack of confidence in their abilities to lead future operations, Byng remained commander of Third Army for the rest of the war.¹⁴⁹ He was an innovative and capable field commander, but when faced with unexpected crisis, such as the German counterattack at Cambrai or the spring offenses in 1918, Byng lacked the ability to make quick decisions, and gather the necessary resources to defeat the Germans.¹⁵⁰ In both German attacks, Byng did not emphasize the fundamentals of the defense and allowed too much flexibility amongst his subordinate commanders to defend their assigned areas versus a standardized defensive plan.¹⁵¹ This lack of coordination amongst his subordinate commanders led J. F. C. Fuller to criticize Byng for his reluctance to go against his subordinate commanders' wishes versus imposing his better judgement during the planning or execution of an operation.¹⁵²

Lastly, given that Byng was the only commander within Third Army with the experience of maneuvering a corps-sized unit under similar battlefield conditions; he should have placed himself in a better location to command and control Third Army. He knew several of his subordinate leaders lacked the "flexibility in mind and method" to move from static to maneuver warfare.¹⁵³ Although his corps commanders demonstrated poor leadership at Cambrai, these leaders employed new technologies that they did not understand fully, and therefore did not trust.¹⁵⁴ Tanks' effectiveness remained an open question after their poor performance at the Somme and Third Ypres, and air support was a revolutionary weapon that many commanders

¹⁴⁹ Williams, *Byng of Vimy*, 205.

¹⁵⁰ Beckett and Corvi, eds., *Haig's Generals*, 60.

¹⁵¹ *Ibid.*, 62.

¹⁵² *Ibid.*

¹⁵³ Williams, *Byng of Vimy*, 203.

¹⁵⁴ Todd W. Weston, "Haig at Cambrai: Lessons in Operational Leadership" (Newport, RI: Naval War College, 1998), 12, accessed July 28, 2017, <http://usacac.army.mil/organizations/cace/carl>.

were unaware how best to employ as part of a combined arms team. For the first time at Cambrai, these new weapon systems allowed for the return of maneuver warfare—a circumstance for which many commanders found themselves unprepared.¹⁵⁵

Although the failure to seize Flesquieres at the designated time threw off the synchronization of the attack, this was not the fatal flaw that prevented Third Army from accomplishing the strategic aim. Instead, Byng and his staff failed to plan for optimal positioning of the Cavalry Corps, leaving it unable to exploit success at the first opportunity, with artillery echeloned forward and V Corps positioned to follow and support the exploitation. When writing about the breakthrough of Byng's Army at Cambrai, Field Marshal Paul von Hindenburg, Supreme Commander of the German Army observed,

the subordinate commanders on the English side had not been equal to the demands and possibilities of the situation. By neglecting to exploit a brilliant initial success they let victory be snatched from them by troops far inferior to their own in numbers and quality. The British high command seemed to have failed to concentrate the resources required to secure the execution of their plans and their exploitation in case of success.¹⁵⁶

Conclusion

In strategic terms the BEF gained nothing from conducting the Battle of Cambrai, but tactically the battle represents a transition from the stagnant trench warfare of 1915 to 1917 back to fluid maneuver warfare that the BEF desired since 1914.¹⁵⁷ Tanks accomplished all they could during the battle, and the Tank Corps learned the valuable lesson that tanks could not fight effectively in the conditions of the WWI battlefield without infantry support. Haig and Byng realized how close they came to achieving operational success and learned in future battles, like Amiens in August 1918, how to comprehensively plan major penetrations that accounted for

¹⁵⁵ Weston, "Haig at Cambrai: Lessons in Operational Leadership," 1.

¹⁵⁶ Edward J. Maloney, "A Critical Analysis of the Employment of Tanks by the British in the Battle of Cambrai" (Individual Research Study, Fort Leavenworth, KS: Command and General Staff School, 1933), 37.

¹⁵⁷ Cavaleri, "Overcoming the Battlefield Stalemate," 122.

echeloning fires, sustainment, cavalry employment, and reserve forces. The updates to British doctrine after Cambrai allowed subordinate leaders, still unfamiliar with large-scale maneuver warfare, to understand the planning requirements and actions expected of them. When the BEF 1918 summer campaign started, its leaders had faith that the new approach of “advance in depth” would work.¹⁵⁸

At Cambrai, the BEF failed to reach its intended goals because of a series of missed opportunities stemming from an improperly planned, synchronized, and resourced operational approach. Although it successfully used mass to reach its initial objectives, the attack culminated before it could accomplish the decisive operation. This occurred because of three key flaws in the plan: a lack of simplicity, improper phasing and transitioning of the exploitation force, and ineffective command and control systems.

As the US Army looks to change its focus back to large-scale combat operations against opponents with peer capabilities, the Battle of Cambrai provides a gleaming example of an Army that lacked the experience to conduct large-scale combined arms maneuver warfare.¹⁵⁹ Since the start of Operation Enduring Freedom in 2001, followed by Operation Iraqi Freedom in 2003—both of which morphed into long-term counterinsurgency and stability operations—atrophy set in within US Army division and corps HQs, with a generation of officers now lacking the experience of participating in large-scale combat.¹⁶⁰ Like the BEF adjusting its operational approach in 1918, the US Army’s refocus towards a unified doctrine and readiness exercises that stress operations against a peer threat will enable the US Army to gain the experience in planning, preparing, and executing large-scale ground combat operations.

¹⁵⁸ Cavaleri, “Overcoming the Battlefield Stalemate,” 118-120; Miles, ed., *History of the Great War*, 284-285.

¹⁵⁹ Lt. Gen. Mike Lundy and Col. Rich Creed, “The Return of U.S. Army Field Manual 3-0, Operations,” *Military Review* 97, no. 6 (November- December 2017): 15.

¹⁶⁰ Gen. David G. Perkins, “Preparing for the Fight Tonight: Multi-Domain Battle and Field Manual 3-0,” *Military Review* 97, no. 5 (September-October 2017): 6-7.

In the large-scale battles of the future, the US Army will operate across all domains and will need to anticipate opportunities and transition points within the OE quickly to mitigate enemy advantages. By preparing these transition points ahead of time with the necessary resources, coordination measures, and mission command systems in place, the US Army will maintain its operational tempo and keep the enemy off-balance across the multi-domain battlefield. Achieving this harmony starts with innovative and flexible commanders who are well-versed in operational art, employing cross-domain fires, and synchronizing combined arms maneuver across the OE to defeat a peer or near-peer adversary.

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