

1918: DEFINING VICTORY

FEEDING VICTORY: THE LOGISTIC IMPERATIVE BEHIND THE HUNDRED DAYS Ian M Brown

The planning of an offensive is easy; any armchair strategist can do it. It is the mounting that requires professional knowledge and experience.

Sir James Edmonds¹

In the early morning hours of 21 March 1918 three German armies attacked Sir Hubert Gough's Fifth Army and part of Sir Julian Byng's Third Army. Fifth Army, badly under strength for the length of front they held, buckled and rapidly broke in the face of superior numbers and, in most locations, highly effective German tactics. Fifth Army, however, continued to fight and, in spite of reports that led the German high command to believe otherwise, managed to slow the German onslaught. Nonetheless, Fifth Army lost a comparatively vast tract of French countryside in the ensuing days and the German success has been celebrated by historians ever since. This is unfortunate because it obscures both the logistic lessons of 1918 and the BEF's outstanding record in that field.

Despite Fifth Army's defeat, and in spite of later German offensives that also occupied large tracts of land, the offensives did not end the war. Indeed, only seven months later, the allies had turned the tables on the German Army, reoccupied all of the land lost in the spring and more, and in the process driven the German high command to the realisation that an armistice had become necessary. In spite of their becoming a costly failure, the German spring offensives have exerted a strong impact on the historiography of the Great War, particularly in the last quartercentury. While both the internal school that evolved from Liddell Hart's writings (and also called the 'mud-and-blood' school) and Edmonds' external school have vocal and effective adherents, today's historiography is changing the face of the debate over the Great War. Two modern schools are increasingly shaping the historiography. The first is the Germanophile school that is largely prevalent in the United States, and the second might best be termed the 'Commonwealth' school because it originated in the works of authors who largely hail from the former British Empire.

The Germanophile school has a distinguished lineage, tracing its roots to GC Wynne's *If Germany Attacks: The Battle in Depth in the West* (1940). A number of distinguished authors, such as Trevor N Dupuy, Timothy Lupfer and William Lind helped this school to evolve and its most recent contributor is Martin Samuels. This school is attractive to many readers, particularly in the United States, because it extols the virtues of manoeuvre warfare while condemning attritional warfare. Unfortunately, the school's boundaries define attrition warfare as, in essence, that which is not manoeuvre-oriented. As a result, the German Army of 1918 is lauded in works such as Timothy Lupfer's *The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War* (1981) because they attempted a manoeuvre warfare solution to the trenches. This loses sight of the question of whether or not this approach proved wise; it simply praises them for trying. This leaves the Germanophile school in the opposite corner to the Commonwealth school because the latter attempts to get beyond the glamour of manoeuvre to assess the relative merits of what happened based on the military situation of the time.²

The Commonwealth school presents a balanced view of the BEF (and to a lesser degree the German Army) because it endeavours to synthesize the best of both of the older schools. Until recently, this school has been driven by the scholarship of authors based in Britain, Canada and Australia—Shelford Bidwell, Dominick Graham, Tim Travers, Robin Prior and Trevor Wilson, in particular. Taken collectively, this school's works argue that the British high command made some colossal errors during the Great War—Tim Travers's *The Killing Ground: The British Army, the Western Front and the Emergence of Modern Warfare, 1900-1918* (1987), for example, provides a scathing indictment of Haig's style of command.

However, this school is also able to illustrate that the BEF made tremendous strides during the war in the fields of tactical and operational methods that resulted in an offensive force that, in the summer of 1918, proved unstoppable. The BEF's remarkably tight integration of a highly effective operational system based on the suppressive power of artillery and sound small unit, combined arms tactics proved less glamorous, but ultimately more effective, than the German solution in the conditions of the time.

The weakness of all of the schools of thought on the Great War has been in the areas of administration and logistics. While most modern authors are cognizant of its importance, logistics generally receives short shrift. The two classic logistic studies, Martin van Creveld's seminal *Supplying War: Logistics from Wallenstein to Patton* (1977) and Julian Thompson's *The Lifeblood of War: Logistics in Armed Conflict* (1991) cover the Great War only in passing. Further information can be gleaned from the biographies of various senior officers, particularly administrative ones such as William Robertson or John Cowans; and AM Heniker's *Transportation on the Western Front* (1937) is a treasure-trove. There is little else. An understanding of logistic issues is, however, vital for a sound understanding of the War's final year. Logistics and staff-work, for example, go a long way towards explaining the German failures in 1918. They also provide the primary explanation for the BEF's opening of the 'hundred days' in the Amiens vicinity.

Six main ports supplied the bulk of the BEF'S needs in 1918: Rouen (the largest), Dunkirk, Boulogne, Le Havre, Calais and Dieppe (the smallest). Other, smaller ports, such as Le Tréport, supplemented the six main ports, and a cross-Channel barge service linked directly with the BEF's Inland Water Transport (IWT) canal services. This all fed two lines of communication, northern and southern, which ran supplies to depots and on up through to the railheads, where tactical supply services (primarily light railway systems and horse-drawn wagons) took over. Of the two lines of communication, the southern line had more port capacity, so the BEF had to ensure the security of south-north railway communication.

The BEF had arrived at this system through a long, onerous period of trial and error. By the late spring of 1917, however, the above system had been set up and its control had devolved onto a single officer who reported directly to Haig—the Director-General of Transportation. This new system worked exceptionally well under static warfare conditions, as the 1917 offensives had shown. Whatever one's opinion on the wisdom or handling of the Passchendaele offensive, the BEF had launched four enormous offensives in 1917, none of which suffered from supply problems at the operational level; tactically, the BEF suffered serious resupply problems at Passchendaele, but operationally, the supplies had been available and had reached the railheads. Compared to the Somme, the 1917 offensives proved logistically anticlimactic. Unfortunately, none of the 1917 offensives had shown what to expect of the logistic support that the BEF might expect in mobile or semi-mobile warfare.³ As a result, the BEF focussed its attention on the northern Channel ports due to their proximity to the front lines.

GHQ fixated on Channel Ports to the point that they did not study the rest of their rear areas enough.⁴ This led them to an inadequate appreciation of the importance of their southern line of communications to the overall well-being of the BEF. The table below indicates the expected weekly shipments that the BEF had planned for in 1917, broken down by the port's location on the northern or southern line of communication.

TABLE 1
Southern Line of Communications Receipts
as a Percentage of Total Receipts
(tons per week)

	<i>Northern LOC</i>	<i>Southern LOC</i>	<i>Total</i>	<i>Southern Percentage</i>
RE Stores	24,250	16,450	40,700	40
Supplies				
- Fuel	4630	4150	8780	47
- Forage	15,200	20,770	35,970	58
- General	10,270	13,250	23,520	56
- POL	1560	1500	3060	49
Railway Stores	11,250	-	11,250	0
RFC	375	1375	1750	79
Ordnance Stores	4070	4000	8070	50
EFC	2050	1400	3450	41
MT Vehicles	-	1160	1160	100
Parcels	-	500	500	100
Mails	1130	850	1980	43
Ammunition	30,000	35,000	65,000	54
Total	104,785	100,405	205,190	49

Source: WO 95/32, Quartermaster-General Branch, War Diary, Nov-Dec 1916, 'Estimated Weekly Tonnage to be Discharged at Ports in France', Public Record Office, Kew.

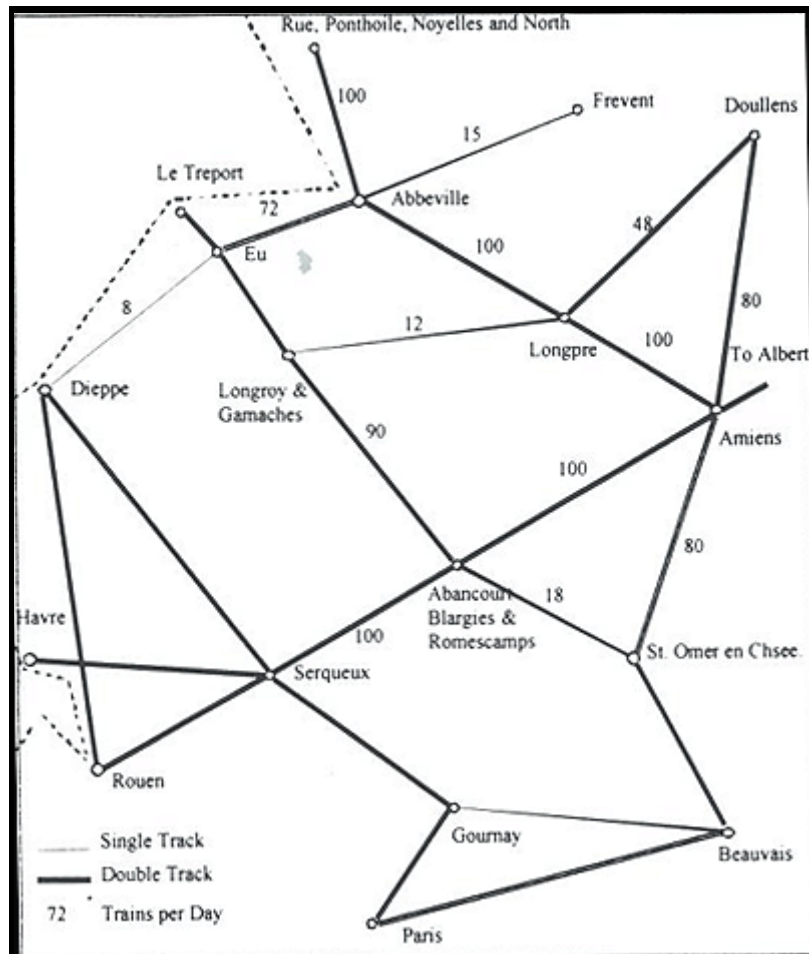
Clearly, the BEF had done a generally solid job of diversifying the arrival of shipments such that roughly half of everything came in via the southern ports. However, significantly more than half of the BEF held positions north of the Somme (very roughly, the dividing point for a north-south determination), therefore, any serious threat to the limited crossings over the Somme would be magnified. Furthermore, none of the railway stores came into southern ports, which would have left the BEF reliant on a one-sided construction programme should the crossings be threatened.

GHQ's fixation on the Channel Ports led them to defend inadequately the most vital part of their lines of communication, the Amiens-Abancourt-Abbeville area. For supplies landing at Dieppe, Le Havre or Rouen, the BEF only had three double-tracked rail routes northward over the Somme River. The first route ran through Serqueux- Abancourt-Eu and then north over the Somme at Abbeville. The second ran Serqueux-Abancourt-Amiens and north, while the third ran Serqueux-Beauvais (via Paris)-St Omer-Amiens and north (see Figure 1: Rail Schematic, March 1918). The BEF also had a single track running Dieppe-Eu capable of handling only eight trains per day, with the possibility of more with considerable effort on the part of switching staffs, and a Longroy-Longpré spur that could handle a dozen trains per day. Clearly, the loss of Amiens would have been very painful, reducing the BEF to one primary route northwards with the secondary one through Longroy-Longpré. If they managed to lose the Abancourt area also, the result would almost certainly have been catastrophic—indeed, this area, as a single area, had more strategic value even than Amiens (though Amiens would feel the threat first). Should the BEF lose control of Abancourt, the single coastal track would have been completely incapable of meeting the BEF's demands. Retrospectively, Gough offered another, more threatening though far more difficult for the Germans, possibility:

If he [the Germans] would have pushed his advance through Amiens to Abbeyville [sic], and held off the French in the direction of Compiègne with his left hand, so to speak,—threatening Paris, the British Army would have been in a most dangerous situation, with their backs to the sea,—the small ports of Calais and Boulogne insufficient to supply them, isolated and cut from the French, and exposed to a general assault by superior numbers.⁵

Either scenario would have been a nightmare one for the planners at GHQ, but these scenarios only arose after the Germans began their offensives because GHQ had looked too much to the northern Channel ports. Some of the fixation on the northern Channel ports is understandable—all the northern line of communications fed through them, they were close to the front lines, and if they fell into German hands, the extensive rail lines that served them would not be much use for anything but evacuations. In light of the success of the German counterattacks at Cambrai, however, which gave some indication that the Germans might be able to spring a more open style of warfare on them. GHQ ought to have given more consideration to the Amiens-Abancourt area.

FIGURE 1
Railway Schematic, March 1918



Source: AM Heniker, *Transportation on the Western Front* (London: HMSO, 1937), 398; WO 153/824, Railway Map of Northwest France, Public Record Office, Kew.

The 'Michael' offensive drove Fifth Army backward toward Amiens and, by 26 March, the QMG recognised the threat for what it was—a blow that had the potential to drive the BEF from France. Moreover, QMG Branch understood the dire nature of that threat, and began to make contingency plans. The first, the so-called Scheme X, dealt with stores, personnel and animals in the Amiens-Abbeville-Blargies-Dieppe area. The second, Scheme Y, added evacuation plans for Calais, Dunkirk and the Abbeville-Abancourt-Dieppe areas. The serious nature of the threat, that the Germans might seize Amiens and drive a wedge between the BEF and the French, is underscored by the QMG's willingness practically to give up his three northern base ports. Once GHQ had been informed that the BEF would maintain, at all costs, a continuous front with the French, the QMG again modified the plan. Scheme Z, or the Z Plan, became the final contingency plan to be adopted only in the gravest circumstances. It called for the evacuation of all troops north of the Somme River in order to maintain a continuous front. This would certainly sacrifice the northern base ports, as well as the

enormous investment on infrastructure that had been required in prior years to develop the northern line of communication. The BEF had spent the better part of three years building this line of communication, along with its attendant infrastructure—rail improvements, depots, bases, port improvements, road improvements, light railways, ammunition depots. All would have to be moved or destroyed should the Z Plan be needed.

Luckily for the BEF, the German Army advanced too fast, their poor decisions at the operational and strategic level leading the forward troops to the position where they outran their support services. As a result, they had to pause long enough for the Allies to manage to fill in the holes.⁶ After the 'Michael' offensive had petered out, Rawlinson wrote to Henry Wilson:

There can be no doubt that his first attack on the Cambrai-St Quentin front was directed on Amiens primarily with a view to separating the British and French Armies, but with the secondary object, if he failed in the first, of reaching a position from which he would be within striking distance of the vitally important railway centres of Amiens and Abancourt, for the severance of the railways at these two places would cut off the Armies in the North from railway communication with the rest of France.⁷

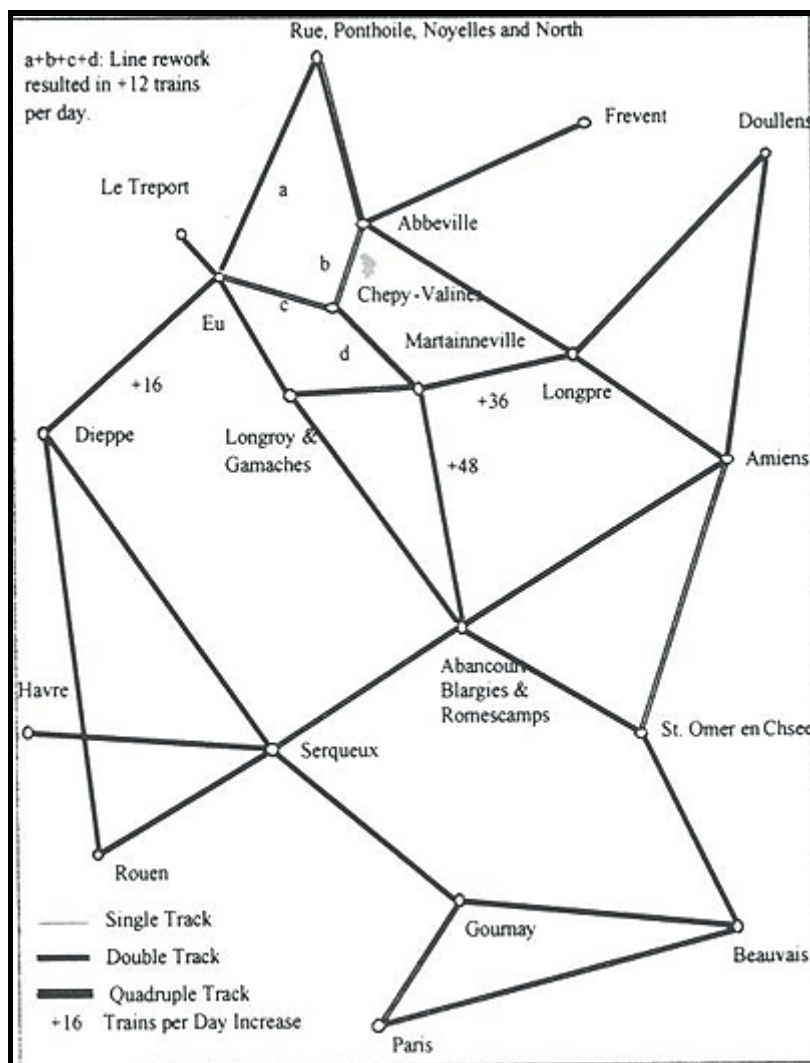
In this, Rawlinson differed from Gough. While neither proved correct in terms of German intentions, both had come up with plausible guesses as to those intentions. Both based their guesses on what they knew would hurt the BEF—any severing of its logistic infrastructure. Neither counted, however, on the lack of strategic planning inherent in Ludendorff's gamble, nor with the apparent ignorance on the German side of the importance of logistics to an army whose lifeline led overseas.

When the 'Michael' offensive struck Fifth Army it took some time for the BEF to understand the magnitude of their problem and to react. Once they understood what they faced, GHQ rushed troops south to shore up Fifth Army and, incidentally, to cover Amiens. Foch's appointment to supreme command also came out of the ensuing crisis. On the administrative front, the QMG and his fellow officers adopted a number of policies and expedients designed to get vital infrastructure and the like out of the way while simultaneously maintaining a high level of resupply to the troops. Only so much could be evacuated, however. In spite of GHQ's efforts, practically all of Fifth Army's light railway infrastructure fell into German hands along with a number of broad gauge locomotives and wagons. These losses would prove more difficult to replace than the more typical military losses of artillery, machine guns and the like. Indeed, the losses in artillery could be made up from stocks that the BEF held in reserve before the battle began. The railway losses could not. What could not be evacuated, GHQ attempted to issue to troops or destroy. Herculean effort on the part of Haig's logisticians mitigated the worst of the problems and it would appear that 'In spite of the difficulties, everyone seems to get his rations every day'.⁸

As of the middle of April, the Allies had 86 divisions (six of them cavalry) north of the Somme River. These had, in part, to be supplied from south of that river with the main double line from Beauvais to Amiens under fire.⁹ If we allow British scales to the allied divisions (20 infantry and three cavalry divisions) then the lines of communication had to move 43 trains per day to simply keep these them supplied at a basic level—to say nothing of the requirements should they need to fight. Furthermore, numerous trains had to be allowed for to move supplies to depots and dumps both north and south of the Somme. As a result, the BEF instituted a massive program of railway construction on the Somme crossings designed to ease congestion in Amiens area caused by German encroachment. The results may be seen when Figure II: Schematic of Somme Crossings, August 1918, is examined. The BEF had completely reconfigured the crossings in the Abbeville area, allowing far more trains to cross without having to go near Amiens. A number of lines had been twinned, particularly the Abancourt-Martainneville-Longpré line which re-routed 36 extra trains per day west of Amiens, and the Dieppe-Eu line had seen a quadrupling of capacity. While the Abancourt area remained a critical one, the Germans could no longer threaten it and, unlike in March, the difficulty in the Amiens area had become little more than an irritant. While the BEF could have happily used the extra capacity allowed by a fully utilised Amiens, they no longer required it for their own security.

The BEF learned some hard logistic lessons during the 'Michael' offensive. The first dealt with internal communication. It appears that the various branches at GHQ did not frequently communicate on formal face-to-face occasions, relying instead on copying each other with message traffic. Major-General GP Dawnay (Deputy CGS), for example, first mentioned Q Branch in his letters to his wife only on 13 April, when he wrote: Conference with QMG and Director-General of Transportation at 10 AM'; he did, however, originate, send and read substantial quantities of message traffic that had been copied to other branches of the staff.¹⁰ In spite of the apparent lack of intimate contact, Dawnay evidently got on well with Travers Clarke (the QMC), which is indicative that information likely made its way back and forth informally.¹¹

FIGURE 2
Railway Schematic, August 1918



Source: AM Heniker, Transportation on the Western Front (London: HMSO, 1937), 401; WO 153/824, Railway Map of Northwest France, Public Record Office, Kew.

The second dealt with railheads—they had often been placed too close to the front lines leaving them vulnerable to capture. This forced Fifth Army to abandon ammunition and supplies and to site their railheads further behind the front. As a temporary expedient, Fifth Army simply tried to dump ammunition on the roadsides for the guns, but they found that they had better success moving the ammunition right up to the guns by lorry. As far as the troops went, Fifth Army's formations discovered that if they fed and resupplied the infantry by area, rather than trying to find all of one's own troops—to have done otherwise would have created even more confusion in the rear areas.¹² In spite of all of the problems created by the chaos of

the retreat, Fifth Army managed to hold itself together. On 4 and 5 April, the Germans launched their final effort in the Amiens area—a limited push that seized ground up to Villers Bretonneux, just on the outskirts of Amiens. This seems to indicate that the Germans had belatedly realized the Amiens held some importance to the BEF. However, Fifth Army retained the teeth to mount a small but effective local counter attack that recaptured Villers-Bretonneux and stopped the Germans for good in the Amiens area.¹³

The BEF clearly realised the importance of the Amiens-Abancourt area to their continued existence. In April, Rawlinson had predicted (incorrectly) that this area would be the logical one for the next German attack. He used this to justify keeping a large force in the Amiens area.¹⁴ By May Rawlinson stated: 'There can be no question but that the Amiens area is the only one in which the enemy can hope to gain such a success as to force the Allies to discuss terms of peace.' He went on, though, to say: 'The Allies have fully realized that the Amiens area is the decisive one, and, since the appointment of Foch as Generalissimo, large forces have been collected and preparations made to meet a hostile offensive in this region'. He noted that the region contained, as of 4 May, 22 British divisions, 16 French divisions, plus a reserve of four to six French divisions.¹⁵ The question, then, is why did the Germans not push this area harder earlier and, given its importance, how did they miss it? The answer appears to be that the German high command did not look for such vulnerability, choosing, instead, to believe that hammer-blows driven by tactics would succeed in defeating the Anglo-French armies.

On 4 July the BEF launched its first significant counter-attack when 4th Australian Division supported by battalions of 2nd and 3rd Australian Divisions, four companies of 33rd US Division, and five companies of tanks attacked German positions in front of Hamel. In selecting the Australians, General Rawlinson picked the best troops he had available, which is indicative of his wish for a successful attack; and given his appreciation in April, this should have been no surprise. The planners arranged for this force to be supported by over 600 guns (300 of them heavy artillery) and, though this only allowed one field piece per 25 yards of front, the lack of formidable defences and the significant discrepancy in morale between the Australians and Germans resulted in success. The operational method mirrored what the BEF would use later in the summer—limited objectives, under the range of the field and heavy artillery and careful consolidation on the final phase fines. Moreover, in spite of the tanks, 4 Australian Division made no effort to push beyond these limits. The commander evidently realised the futility of attempting a break out given the limitations of foot-power. The Battle of Hamel is a fascinating but relatively minor action that the BEF fought in very large measure to add 'depth to our defences on the Hill 104—Villers Bretonneux plateau, the safety of which was vital to the defence of Amiens'.¹⁶ Hamel certainly bought a little more breathing space for Amiens. It could, however, have been launched elsewhere. The BEF faced no shortage of areas where the Germans held positions that could not be termed much more than rudimentary. Hamel, however, presented an opportunity to use tanks with some of the most aggressive infantry in the BEF and, simultaneously, a locale that had great logistic significance, so they took it.

During June and July, Rawlinson developed a plan to relieve the danger that the Germans still posed to Amiens. Haig approved his plan and consented to sending the Canadian Corps to bolster the Australian Corps, thus providing Rawlinson with nine of the very best divisions in the BEF for his spearhead. Other than his decision to approve Rawlinson's plan, Haig's decision to commit both Dominion corps speaks volumes of the importance of Amiens, as did other issues. First, Haig and Rawlinson chose to plan the attack in the utmost secrecy. Currie did not first hear word of the plan until 20 July and, at a conference two days later at Fourth Army headquarters, he agreed to conceal the actual plan from his own immediate subordinates. As a result, Canadian divisional commanders proceeded under the assumption that they would be moved to Second Army for an attack on Orange Hill. GHQ even went so far as to issue false orders for the Canadian Corps to move to Second Army on 29 July. In fact, only a token force went to Second Army. Currie did not reveal the true nature of the plan to his divisional commanders until 29 July. At that point, GHQ had less than ten days to coordinate the move with the Canadians.¹⁷ It should be remembered that the Canadian Corps had not lost one battalion per brigade in 1917 and, in fact, had increased the size of each of their battalions at the time such that each Canadian division had the rough manpower of two

British divisions. As a result, the Canadian move entailed planning more suitable to moving eight divisions, or nearly three corps—it would have been far easier to move the Australians north. These examples speak volumes of Haig's grasp of the importance of the Amiens area.

Fourth Army's attack into the German defences near Amiens (far weaker than in other sectors, it must be noted) proved a tremendous success. By nightfall the two Dominion corps had driven the Germans back some eight miles, capturing numerous prisoners and guns in the most successful British attack of the war to that point. In the immediate aftermath of the opening day, GP Davvnay wrote: 'Prisoners into five figures and guns into three—and a great step taken towards the disengagement of Amiens'.¹⁸ Over ensuing days, the attack lost momentum, as did all attacks in that war, but, unlike in previous years, Haig heeded requests from his field commanders to break the offensive off and renew it elsewhere. Having bought breathing space in front of Amiens (roughly 20 miles), Haig clearly felt able to accede to the requests British staffs and commanders at many levels understood just what freeing Amiens meant to the BEF. Had they not done so, the attack might not have been launched.

By focussing their efforts almost solely on attempting to create a break-out (as opposed to a break-in and break-through), the German Army either forgot Clausewitz's centre of gravity, or chose the wrong one—choosing to believe that the loss of territory might drive the Allies out of the war, without asking of what value the lost territory had to those same Allies. Had the German high command asked 'how can we cut the British lines of communication?' they would likely have launched far more effective offensives, possibly crippling the BEF beyond repair, even if they did not inflict massive casualties on that force.¹⁹ The German tactics in 1918 became an end to themselves rather than a means to an end. Even then, the German infantry tactics did not mesh particularly well with the artillery, the most devastating weapon on a Great War battlefield. The BEF learned during the offensives that the German 'barrage described is not a true creeping barrage, the smallest "lift" being 200 yards. It is obvious, therefore, ... that the enemy attaches less importance than ourselves to the close following of the barrage by the attacking infantry'.²⁰ Indeed, the barrages used to help crack British lines bear a remarkable similarity to those used by the BEF on 1 July 1916—for which Haig and his fellow officers have been roundly criticised ever since. The BEF provides a marked contrast to the German system.²¹

The German style of offensive warfare in 1918 emphasised the initiative and self-reliance of the infantry above all else. It relied little on artillery except as the tool for helping to break open the defenders' front lines. The German Army used a tremendous weight of shell in short and intensive bombardments before they changed to a form of creeping barrage. Once the bombardment changed over to the lifting barrage, the infantry attacked and pushed as far and as hard as they could, continuing even after they had advanced past the range of their artillery support. This system did work. It caused tremendous dislocation in British defences, led to the capture of large numbers of artillery pieces and defending troops, and allowed the German Army to capture vast tracts of territory in amounts not seen since 1914. However, it had some serious flaws. First, by limiting the artillery to the role of a tool used to crack the defence open, the German system left its infantry extremely vulnerable to British artillery as the attack progressed. Since the infantry could move ahead far more swiftly than the artillery could possibly follow, the infantry effectively lost its artillery within hours of the attack opening. In contrast, the defenders could fall back on their artillery, and on replacement guns being rushed up to make good losses. This ultimately led to high casualties amongst the German spearhead units. Second, the German system left little provision for rest or recuperation. The attacking infantry had to keep moving forward as rapidly as possible. This led to exhaustion and further increased casualties as British defences stiffened and tired German troops had to put in unsupported attacks on the improving positions. Third, by stressing speed at all costs, the Germans made inadequate provision for resupplying their spearhead troops. Finally, the German offensives lacked a strategic vision beyond a vain hope that they might somehow win the war. The German Army did not target locales whose capture might hurt the BEF—such as Amiens, Abancourt or Abbeville—they simply looked to grab territory. All in all, this made for an offensive system that could seize large tracts of territory, but at a substantial cost in lives and morale.

In contrast, the BEF succeeded admirably at the strategic level. They had fixated too much on the Channel ports in the late winter and early spring, but they did recognise the threat that the first German offensive posed to their lines of communication and reacted appropriately, strengthening the Amiens area throughout that first offensive. Indeed, by early April, the Germans could do little against the defences in that area. Luckily for the BEF, though, no later offensives targeted the Amiens area, for it seems likely that the forces brought to bear in the later offensives (such as 'Georgette') could have seized Amiens and threatened areas further west. The improved strategic vision at GHQ is also evidenced by the fact that the BEF's first limited counter-attack came at Hamel in the immediate Amiens vicinity and their first large-scale counter-offensive had as its primary goal the freeing up of Amiens. Finally the immense railway reconstruction and extension efforts behind Amiens point to a sound grasp of logistics in the BEF. Clearly, GHQ understood logistics. This is also evident in the British style of attack in 1918.

The British style of offensive warfare in 1918 lacked the glamour of the German stormtroopers, but it did prove effective. This style may be simply described as a limited-objective, set-piece attack. It featured very sound infantry tactics and all-arms cooperation under the cover of an artillery umbrella. As such, it relied on sound logistics and the understanding that infantry supported by artillery had far more power than those who lacked it. The BEF's logistic excellence had allowed them to develop this style of attack and, throughout the summer and autumn of 1918, the German Army seldom checked the BEF's advance. Indeed, the ultimate reign on the BEF's advance had little to do with the German Army. By October the BEF found itself too far in advance of its railheads to press the German withdrawal. This inability to move the supplies forward fast enough, left the BEF unable to come to grips with their retreating opponents and proved far more effective at slowing the BEF than had any German defence during 1918.

An understanding of logistics is vital to understanding the course of the final year of the Great War. The German Army had the opportunity, in March and early April, to deal a crippling blow to the BEF. Their inability to focus on what made the BEF vulnerable—a line of communication stretching out of France to Britain, North America and beyond—meant that they squandered their one real chance to improve the terms of an armistice. The BEF's understanding of their own vulnerability, belated though it was in the case of the Amiens area, allowed them both to defend successfully and to lay the logistic groundwork for the summer counter-offensives. By August the area behind Amiens had seen tremendous railway reconstruction that, in part, would later allow the BEF to support four armies in simultaneous offensive operations. That these operations featured an artillery-intensive and logistically demanding style of warfare simply reemphasises the excellence of the BEF's logistic infrastructure—both mental and material. For the BEF, logistics truly helped define the victory.

Endnotes

1. Edmonds Memoirs, chap 21, 'The Final Offensive', Brigadier-General Sir James Edmonds Papers III/15, Liddell Hart Centre for Military Archives, King's College, London.
2. Cf also William Lind's *Maneuver Warfare Handbook* (1985) and Martin Samuels' *Command or Control? German and British Infantry Tactics in the First World War* (1992) which is very good for the German side of the equation, but much less reliable for the British.
3. Cf Ian M Brown, *British Logistics on the Western Front 1914-1919* (Westport, CT Praeger, 1998), chap 6, 'Geddes's Legacy: Transportation in France and Its Impact on Tactical, Operational and Strategic Decision Making in 1917', 155-74, *passim*.
4. Tim Travers, *The Killing Ground: The British Army, the Western Front and the Emergence of Modern Warfare, 1900-1918* (London: Allen & Unwin, 1987), 223-5.
5. Gough to Shaw-Sparrow, 18 August 1918, W Shaw-Sparrow Papers, 48203, vol 1, British Library.
6. Burnett-Stuart mss, 82, Burnett-Stuart Papers 3/6/6, Liddell Hart Centre for Military Archives, King's College, London.
7. Rawlinson to Wilson, 'An Appreciation', 18 April 1918, Field Marshal Sir Henry Wilson Papers, HHW 2/13, Imperial War Museum, London [IWM].
8. GP Dawnay to Mrs GP Dawnay, 27 March 1918, Major-General GP Dawnay Papers, 69/21/3, IWM.
9. Rawlinson to Wilson, 'An Appreciation', 18 April 1918, Field Marshal Sir Henry Wilson Papers, HHW 2/13, IWM.
10. GP Dawnay to Mrs GP Dawnay, 13 April 1918, Major-General GP Dawnay Papers, 69/21/3, IWM Dawnay's papers also contain a great many operations priority signals from GHQ to Fifth Army, especially on 22 March, which GHQ internally copied to the AG, QMG, DGT, Engineer-in-Chief and Director of Signals.
11. Cf Dawnay's comments on Travers Clarke in GP Dawnay to Mrs GP Dawnay, 9 June 1918, Major-General GP Dawnay Papers, 69/21/3, IWM.
12. 'The A and Q Work in the 12th Division', ts, EHE Collen Papers, vol III, IWM.
13. Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918* (Oxford: Blackwell, 1992), 284-5.
14. Rawlinson to Wilson, 'An Appreciation', 18 April 1918, Field Marshal Sir Henry Wilson Papers, HHW 2/13, IWM.
15. Rawlinson to Wilson, 'An Appreciation', 4 May 1918, *ibid*.
16. SS 218, *Operations by the Australian Corps Against Hamel, Bois de Hamel, and Bon de Vaire, 4th of July, 1918* (France: Army Printing and Stationery Services, July 1918). See p 3 for participants; p 5 for the artillery, p 2 for the state of German defences, morale, the limitation of the depth of attack, and the purpose of the attack.
17. N Webber to R Brutinel, 15 February 1919, 'Amiens Narrative, RG9 III D2, v 4802, file 135, National Archives of Canada; Arthur W Currie, *Canadian Corps Operations During the Year 1918—Interim Report* (Ottawa: Queens Printer, 1919), 27-29, 32; D Watson, Diary, 29 July and 1 August (misdated as 1 July) 1918, Major-General Sir D Watson Papers, MG30 E69, NAC.
18. GP Dawnay to Mrs GP Dawnay, 9 August 1918, Major-General GP Dawnay Papers, 69/21/3, IWM.
19. Ivor Maxse felt that the German intention had been to drive a wedge between the French and British Armies, then to turn and destroy the British Army in France. Cf 'Narrative of the German Attack on XVIII Corps From from 21st March-27th March 1918', 1, General Sir Ivor Maxse Papers, 69/53/9-45, IWM. This opinion had been garnered from captured prisoners and, interestingly enough, it indicates that the Germans did not understand the BEF's logistic vulnerability. Had they seized Amiens, they could, with little pressure, have simply watched the BEF melt away as the Royal Navy, presumably, evacuated it from the Continent. Having seized Amiens, they could have turned on the French instead.
20. 'Notes on the Recent Fighting-No 10', 6 May 1918, Major-General GP Dawnay Papers, 69/21/2, IWM.
21. For a detailed analysis of the differences in operational methodology, see Ian M Brown, 'Not Glamorous, But Effective: The Canadian Corps and the Set-Piece Attack, 1917-1918', *The Journal of Military History* 58 (July 1994): 421-44, *passim*.