

Managing Armageddon

**The science of transportation and the British
Expeditionary Force, 1900-1918**

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

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Abstract

At its most fundamental level, the First World War in northern Europe was fought between two competing industrial systems. The efficient production and delivery of materials from the factory to the front lines played a critical role in deciding the outcome of the conflict. This thesis examines the management of the second of those factors, the provision of a flexible, effective logistics organization in the rear of the British Expeditionary Force [BEF] on the Western Front. The thesis draws upon war diaries generated by the administrative departments, and the personal papers of individuals concerned with maintaining the supply lines of the BEF and ensuring that the BEF's 'tail' continued to wag. It reverses historiographical trends which have stressed the influence of the war upon the societies which fought it, to instead emphasize the manner in which highly-skilled experts from some of Britain's largest and most complex businesses were able to contribute recognizable industrial techniques and working methods to improve the efficiency of the BEF's transportation infrastructure and the operations systems employed upon it.

This thesis rejects post-war claims, most vociferously asserted by David Lloyd George, as to the obstinacy and insularity of the British Army as an institution. The administrative success of the BEF was the result of civil-military combination and cooperation. The most famous manifestation of this process, the appointment by Lloyd George of Sir Eric Geddes to the position of Director-General of Military Railways during the Battle of the Somme, was not unique. This thesis argues that the British Army actively sought out and engaged with transport experts both prior to and during the war, a practice which consolidated a longstanding, triangular, working relationship between the British Army, the State, and the prominent railway companies of late-Victorian and Edwardian Britain.

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List of abbreviations used in the text

ASC	Army Service Corps
AWM	Australian War Memorial
BEF	British Expeditionary Force
BLSC	Brotherton Library Special Collections
CID	Committee of Imperial Defence
CIGS	Chief of the Imperial General Staff
C-in-C	Commander-in-Chief
<i>DBB</i>	<i>Dictionary of Business Biography</i>
DGMR	Directorate-General of Military Railways
DGT	Directorate-General of Transportation
DMO	Directorate of Military Operations
ERSC	Engineer and Railway Staff Corps
FSR	Field Service Regulations
GHQ	General Headquarters
GQG	<i>Grand Quartier Général</i>
GWR	Great Western Railway
HMSO	His/Her Majesty's Stationery Office
ICE	Institute of Civil Engineers
IGC	Inspector-General of Communications
IWM	Imperial War Museum
IWT	Inland Water Transport
LHCMA	Liddell Hart Centre for Military Archives
LNWR	London and North-Western Railway
LSE	London School of Economics
LSWR	London and South-Western Railway
LYR	Lancashire and Yorkshire Railway
NER	North-Eastern Railway
<i>ODNB</i>	<i>Oxford Dictionary of National Biography</i>
PoW	Prisoner of War
PRO	Public Record Office
QMG	Quartermaster-General
REC	Railway Executive Committee
REMLA	Royal Engineers Museum Library and Archive

RKR	Rohilkund and Kumaon Railway
ROD	Railway Operating Division
RUSI	Royal United Services Institution
SECR	South-Eastern and Chatham Railway
TNA	The National Archives of the United Kingdom

Introduction

I have to show how the professional soldiers who fought so valiantly in the stricken area also found themselves unable to cope with the vast problem of Movement which this unprecedented war set before them, and how here again disaster was narrowly averted by the aid of the civilian expert. I am not arraigning the professional soldier, but only the supercilious folly miles behind the shell area which stigmatized all civilian aid in the construction or direction of the war machine as unwarranted interference by ignorant amateurs.¹

David Lloyd George

At its most fundamental level within its most significant theatre of combat, the First World War was a contest between two competing military-industrial systems. In such a dispute, the efficient production and delivery of matériel from factory to front line would play a critical role in determining the outcome. This study will assess claims made by the wartime Prime Minister David Lloyd George that the British Expeditionary Force [BEF] was handicapped in its operations by the predominance of insular, incompetent ‘inexperts’ within its senior ranks,² that the British Army was incapable of understanding the implications of modern warfare, and was both unable to offer solutions to the problems it faced, and unwilling to accept the advice of those who possessed skills and experience in avenues with a clear and demonstrable utility in the prosecution of an industrial war. This thesis examines the coordination and management of the logistics network on the Western Front, emphasizing the importance of the ‘science of transportation’ to the conduct of the First World War,³ and analysing the validity of Lloyd George’s assertion that it was only through his ‘forcing’ of ‘unwanted civilians’ upon the army in the summer of 1916 that the BEF reluctantly agreed to engage with the myriad talents and abilities prevalent within an industrialized society such as pre-war Britain.⁴

At its peak strength, the BEF contained far more ‘employees’ than even the largest firms in pre-war Britain. Sir Douglas Haig, later to become the personification of callous,

¹ D. Lloyd George, *War Memoirs of David Lloyd George*, 2 vols. (London: Odham’s Press, 1938), I, p. 470.

² Lloyd George, I, pp. v–vi.

³ The phrase ‘science of transportation’ is introduced in M.G. Taylor, ‘Land Transportation in the Late War’, *Royal United Services Institution [RUSI]. Journal*, 66:464 (1921), 699–722 (p. 705).

⁴ Lloyd George, I, p. 474.

obstinate generalship,⁵ was at the time portrayed by the American journalist Isaac Marcossan as the ‘General Manager of the British Armies, Unlimited’.⁶ The BEF was, in the words of the Quartermaster-General’s [QMG] final report, ‘a mighty business undertaking’.⁷ Contemporaries also remarked upon the ‘business-like’ character of the force, stressing the importance of the ‘Board of Directors’ at General Headquarters [GHQ] upon whose shoulders rested the daunting task of coordinating this colossal mass of men and machinery.⁸ Whilst previous studies have engaged with the ‘workers’ of the Western Front, discussing tactical improvements on the battlefield and how the ‘tools’ of the army were enhanced (or invented) during the conflict,⁹ far less is known about the processes and structures which were created and maintained in order to deliver those workers and their tools to the front line in sufficient quantities, and with sufficient rapidity, for them to effectively carry out their responsibilities.

The vitriolic ‘battle of the memoirs’ played out by the leading soldiers and statesmen in the British war effort during the 1920s and ‘30s – typified by the works of Lloyd George and Sir William Robertson – in which both ‘frocks’ and ‘brass hats’ sought to apportion the ‘blame’ for mismanaging the campaign upon their rivals,¹⁰ has succeeded in overshadowing the myriad logistical issues facing the BEF.¹¹ These were challenges which offered a clear area in which civilian experts could offer technical assistance to the military. Utilizing documents created both by the BEF and by the multitude of civilians who contributed to the operations of the British forces within and without the established hierarchy of the army, this thesis seeks to supplement

⁵ K. Simpson, ‘The Reputation of Sir Douglas Haig’, in *The First World War and British Military History*, ed. by B. Bond (Oxford: Clarendon Press, 1991), pp. 141–62 (p. 141).

⁶ I.F. Marcossan, *A Visit to Sir Douglas Haig* (New York: George H. Doran, 1917), p. 6.

⁷ London, The National Archives [TNA]: Public Record Office [PRO] WO 107/69 Work of the QMG’s branch of the staff: and directorates controlled, *British Armies in France and Flanders 1914-1918: Report*, p. 1.

⁸ ‘G.S.O.’, *G.H.Q. (Montreuil-Sur-Mer)* (London: Philip Allan & Co., 1920), pp. 2, 30–5.

⁹ P. Griffith, *Battle Tactics on the Western Front: The British Army’s Art of Attack, 1916-18* (New Haven, CT: Yale University Press, 1994); S. Bidwell and D. Graham, *Fire-Power: British Army Weapons and Theories of War, 1904-1945* (Barnsley: Pen & Sword, 2004); J.P. Harris, *Men, Ideas and Tanks: British Military Thought and Armoured Forces, 1903-1939* (Manchester: Manchester University Press, 1995); A.J. Saunders, ‘A Muse of Fire: British Trench Warfare Munitions, Their Invention, Manufacture and Tactical Employment on the Western Front, 1914-18’ (unpublished Doctoral Thesis, University of Exeter, 2008).

¹⁰ D. Lloyd George, *War Memoirs of David Lloyd George*, 2 vols. (London: Odham’s Press, 1938); W.R. Robertson, *Soldiers and Statesmen, 1914-1918*, 2 vols. (London: Cassell & Co., 1926).

¹¹ It is particularly noticeable that two of the most enduring histories of the conflict pay scant attention to logistics. See B.H. Liddell Hart, *History of the First World War* (London: Cassell, 1970); A.J.P. Taylor, *The First World War: An Illustrated History* (London: Hamish Hamilton, 1963).

the work of Andrew Suttie in dismissing the validity of the *War Memoirs*. The memoirs, Suttie argues, ‘tapped successfully into a popular mood of disillusionment and disenchantment, and in turn helped reinforce some of the central myths of the First World War’.¹² Whereas Suttie concentrated his text upon ‘what were unarguably both major episodes in the history of the Great War and in Lloyd George’s wartime career’,¹³ this thesis covers ground which lay outside Lloyd George’s direct supervision except for during the period between June and December 1916 when he held the role of Secretary of State for War. Through an examination of the British Army’s logistical considerations both in the preparations for, and conduct of, the First World War, this thesis tests the legitimacy of Lloyd George’s claims that the army was institutionally ‘handicapped by ingrained distrust, misunderstanding and contempt’ for all businessmen.¹⁴

As Proença and Duarte have illustrated:

Logistics accounts for all activities in war that are pre-conditional to the use of the fighting forces. It is the *condition of possibility* for the conduct of war, and becomes a tactical or strategic concern to the exact extent that it affects the engagement or the use of (the results of) engagements in war.¹⁵

Despite their recognized importance as a foundation for the prosecution of war, however, the intricacies of logistics have, as experience of the First World War receded, taken a back seat to more glamorous (and controversial) debates over the tactics and strategy of the BEF.¹⁶ Transport, as contemporary observers understood, was ‘so inextricably interwoven with modern commerce and industry’ that it could not be separated from the history of such matters.¹⁷ The history of warfare, particularly in the colossal engagements of the twentieth century, is no different. The multitude of administrative tasks collected under the umbrella of ‘general routine’ in the war diaries of the units involved have yet to be the subject of thorough investigation,

¹² A. Suttie, *Rewriting the First World War: Lloyd George, Politics and Strategy, 1914-1918* (Basingstoke: Palgrave Macmillan, 2005), p. 8.

¹³ Suttie, p. 5.

¹⁴ Lloyd George, I, p. 83.

¹⁵ D. Proença and E.E. Duarte, ‘The Concept of Logistics Derived from Clausewitz: All That Is Required so That the Fighting Force Can Be Taken as a Given’, *Journal of Strategic Studies*, 28:4 (2005), 645–77 (pp. 645–6). Emphasis in original.

¹⁶ J. Thompson, *The Lifeblood of War: Logistics in Armed Conflict* (Oxford: Brassey’s, 1991), p. 3.

¹⁷ C. Travis, ‘The Science of Railroading. A Further Plea for the Establishment of a Transport Institute’, *Great Central Railway Journal*, 13:3 (1917), 40–42 (p. 40).

despite their critical importance as the lifeline upon which the vast armies of the First World War were dependent.¹⁸ This thesis aims to amend this deficiency.

In this respect the historiography of the First World War is not unique, despite the pioneering work of Martin van Creveld in underlining the importance of logistical support as a precursor to successful military operations. Demonstrating that it was logistical factors which fixed the parameters of what an army could, or could not, achieve on the battlefield,¹⁹ van Creveld highlights that whilst the amount of food and fodder to be transported remained largely unchanged from previous eras, the *impedimenta* of the industrial army – the guns, aeroplanes, machinery and other equipment – significantly increased the quantities of ammunition, spare parts and other tools required in the zone of military operations.²⁰ As David Edgerton has noted, the subjects of maintenance and repair, both central to the continued operation of an efficient transport network and therefore fundamental to the continuation of a ‘material war’, have been ‘largely left in the margins’ of historical writing.²¹ Unfortunately, van Creveld’s text does not materially alter this prognosis: rather than providing a comprehensive evaluation of the supply challenges facing the armies on the Western Front, the text merely examines the logistical feasibility of the so-called Schlieffen Plan before moving on to 1933.²² Paul Harris’ account of the final hundred days of the war exemplifies the prevailing trend; despite the author’s recognition of the ‘essential’ importance of logistics and military engineering, he devotes just over one page of the text to a discussion of these topics.²³

¹⁸ See, for example, the daily entries recorded in Canberra, Australian War Memorial [AWM], AWM4/25/49/1 K Ammunition Park, 1st ANZAC Corps, February 1917.

¹⁹ M. Van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge: Cambridge University Press, 1977); K. Neilson, ‘Total War: Total History’, *Military Affairs*, 51:1 (1987), 17–21 (p. 18).

²⁰ Van Creveld’s calculations are based upon the quantities of food and fodder consumed per man or animal. The absolute quantities of both items required during the First World War were, of course, unprecedented in volume. See Van Creveld, p. 110.

²¹ D. Edgerton, *The Shock of the Old: Technology and Global History since 1900* (London: Profile, 2006), p. 77.

²² Van Creveld, p. 141. Van Creveld’s conclusion that the Schlieffen Plan failed as the ‘old methods were inadequate to handle the demands of modern war’ merely amplifies the absence of any attempt to investigate how the Allies eventually *did* solve this conundrum.

²³ J.P. Harris, *Amiens to the Armistice: The BEF in the Hundred Days’ Campaign, 8 August-11 November 1918* (London: Brassey’s, 1998), pp. 54–5.

The historiography of the First World War has placed a great deal of emphasis upon investigating the impact of the conflict upon the societies and peoples that lived through it in the past fifty years.²⁴ This thesis will invert this now familiar framework, to illustrate that those societies were not passive recipients of the violence of the war. They were integral components, making deliberate choices which shaped the character and conduct of the conflict. The investigation of these choices is paramount to further understanding both of how the war was fought, and also why it was able to be sustained for over four years. It seeks to build on work by John Bourne, examining the impact that the products of an industrialized society were able to have upon the character of the war.²⁵ Whereas Bourne's essay looks at the manner in which soldiers were able to adapt familiar *working* practices to the unfamiliar surroundings of the combat regiment, this thesis will instead focus upon men who contributed – for the most part – on the fringes of the army; officials in quasi-military, quasi-civilian functions for which their pre-war careers in some of Britain's largest and most complex private enterprises acted as highly relevant apprenticeships. These were men who adapted their *managerial* practices to the unprecedented (but not necessarily unfamiliar) demands of industrialized conflict in the service of their nation.

Both before and during the war, and in the historical analysis of the period which has followed, these members of Britain's industrial elite have been largely denigrated in comparison to their contemporaries both in the United States and in Germany, Britain's direct opponent on the Western Front. As Searle notes, 'Germany assumed the dual role of model and enemy' in pre-war debates over Britain's competitiveness,²⁶ whilst Lloyd George's words of 3 June 1915 are also illustrative of the contemporary mind set:

We are fighting against the best organized community in the world, the best organized whether for war or peace, and we have been employing too much the haphazard,

²⁴ A. Marwick, *The Deluge. British Society and the First World War* (London: Bodley Head, 1965); J.M. Winter, *The Great War and the British People* (London: Macmillan, 1986) are just two examples which focus upon the British experience.

²⁵ J. Bourne, 'The British Working Man in Arms', in *Facing Armageddon: The First World War Experienced*, ed. by H. Cecil and P.H. Liddle (London: Leo Cooper, 1996), pp. 336–50 (p. 336).

²⁶ G.R. Searle, *The Quest for National Efficiency: A Study in British Politics and Political Thought, 1899-1914* (Oxford: Blackwell, 1971), pp. 54–7.

leisurely, go-as-you-please methods, which, believe me, would not have enabled us to maintain our place as a nation even in peace very much longer.²⁷

Examples of ‘a civil servant being ignorant of technology, a businessman not investing in a modern machine, or a soldier doubting the efficacy of new weapons’ have been used to create an image of British business, and indeed the entire British ruling class, as having been ‘congenitally short-sighted’ and incapable of responding to the spread of new techniques, equipment and working methods across the globe.²⁸ Contemporary admirers of US-German ‘dynamism’ and critics of perceived British deficiencies have been held up as illustrations of unheeded prescience, heralding the predictable consequences for Britain’s status as a ‘Great Power’.²⁹

Correlli Barnett’s 1986 study *The Audit of War* typifies such material. Barnett’s Edwardian Britain comprised a workforce of unskilled ‘coolies’ and a managerial class hostile towards professional education. The result was a low output of graduate scientists and engineers,³⁰ and a ‘crisis of British industry’ exemplified by an over-reliance upon ‘rule-of-thumb’ methods as opposed to the rigorous sponsorship and application of scientific knowledge in Germany and the emergence of standardization and mechanization in the United States.³¹ The South African War, with its mass rejection of volunteers from major urban centres due to their lack of physical fitness, embodied British ‘decline’ and, although her industrial lead ensured she would remain a Great Power, the Britain depicted in this ‘declinist’ literature was, if not the sick man of Europe, then undoubtedly a ‘weary titan’ at the outbreak of the First World War.

Such a pessimistic outlook raises a series of difficult questions however. Were Britain in such a relatively weak position in 1914 – populated by an unfit, uneducated, unskilled

²⁷ D. Lloyd George, *Through Terror to Triumph: Speeches and Pronouncements of the Right Hon. David Lloyd George, M.P., since the Beginning of the War*, ed. by F.L. Stevenson (London: Hodder & Stoughton, 1915), p. 104.

²⁸ D. Edgerton, ‘The Prophet Militant and Industrial: The Peculiarities of Correlli Barnett’, *Twentieth Century British History*, 2:3 (1991), 360–79 (p. 366).

²⁹ A survey of the ‘mountain of apparently damning evidence on the [abilities of the] British businessman’ can be found in D.C. Coleman and C. Macleod, ‘Attitudes to New Techniques: British Businessmen, 1800-1950’, *The Economic History Review*, 39:4 (1986), 588–611.

³⁰ C. Barnett, *The Audit of War: The Illusion and Reality of Britain as a Great Nation* (London: Macmillan, 1986), pp. 187, 206–7.

³¹ Barnett, p. 208; H.L. Gantt, *Industrial Leadership* (New Haven, CT: Yale University Press, 1916), p. 15; S.B. Saul, ‘The American Impact on British Industry 1895-1914’, *Business History*, 2:1 (1960), 19–38 (pp. 19, 24).

workforce, and led by an elite more concerned with ‘rural romanticism’ than the latest technological advances – how then was she able to organize the largest, most wide-ranging, most ‘total’, war effort in British military history?³² How were the complexities and scales of industrial warfare not only recognized, but also coordinated with such success against the apparent ‘model’ of industrial efficiency, Germany?³³ And how was all of this achieved despite the frequent requirements for negotiation and compromise understood as an essential prerequisite for the maintenance of a successful coalition?³⁴ As the Russo-Japanese War had ably demonstrated in 1904-1905, it was not simply enough to have a larger resource base than one’s opponents.³⁵ Those assets had to be physically moved to the battlefield and, if necessary, produced quickly, efficiently and of a sufficient quality to be of benefit to the fighting troops. In short, therefore, Allied success on the battlefields of the Western Front was dependent upon the creation, coordination and effective management of an immense, integrated production and distribution network. As the effects of attrition (both human and material) eroded the strength and capacity of France to service the armies fighting on her soil, British workers, and British managers, became increasingly essential to the maintenance and direction of the BEF and the Franco-British alliance. How was it possible for a nation populated by transport managers,

³² On the lure of ‘rural mythology’, centred on the idea of an ‘unchanging England’, see M.J. Wiener, *English Culture and the Decline of the Industrial Spirit, 1850-1980*, 2nd edn (Cambridge: Cambridge University Press, 2004), pp. 49–63.

³³ F.K. Puckle, *Lectures on Supply Organization and Transportation* (Washington, DC: Army War College, 1918), p. 15. The German ‘model’ was not merely restricted to industrial efficiency. Certain commentators, such as F.N. Maude and Colonel Seely, also felt that ‘as the German Army now stands, I believe it to be the most perfect engine of war ever yet put together’. Maude, quoted in H. Bailes, ‘Patterns of Thought in the Late Victorian Army’, *Journal of Strategic Studies*, 4:1 (1981), 29–45 (p. 33); J.E.B. Seely, *Adventure* (London: William Heinemann, 1930), p. 124. Henry Wilson would also compare the efficiencies of the British and German armies and states in lectures delivered at Camberley, with conclusions which were broadly unfavourable to Britain. See London, Imperial War Museum [IWM], Papers of Field-Marshal Sir Henry Wilson, HHW 3/3/5 Lecture: ‘Standards of Efficiency. Lecture I’, i-vii.

³⁴ J. Hughes and J. Weiss, ‘Simple Rules for Making Alliances Work’, *Harvard Business Review*, 85:11 (2007), 122–31 (p. 123); G. Sheffield, ‘Introduction’, in *Britain and France in Two World Wars: Truth, Myth and Memory*, ed. by R. Tombs and E. Chabal (London: Bloomsbury, 2013), pp. 19–28 emphasizes the significance of the ‘endless meetings’ attended by senior military and political figures in the sustenance of the Franco-British ‘business arrangement’ during the war.

³⁵ The difficulties experienced by the Russians during that conflict in bringing their strength to the battlefield are discussed in F. Patrikeeff and H. Shukman, *Railways and the Russo-Japanese War: Transporting War* (London: Routledge, 2007).

perceived at the time as being ‘content to go on working by the antiquated methods’ of the 1870s,³⁶ to be able to respond successfully to these unprecedented logistical concerns?

That the ethos, workforce and, crucially, a pool of managerial talent capable of meeting this challenge existed in Britain has been central to the arguments forwarded by David Edgerton. In the opening decades of the twentieth century, Edgerton identifies Britain as ‘a military-industrial-scientific complex which was... second to none’.³⁷ Whilst *Warfare State* covers the period 1920-1970, this thesis provides a chronological precursor to Edgerton’s work, seeking to establish whether Britain’s defence capabilities and plans prior to and during the First World War were shaped by supposedly ‘untechnically minded’ professional soldiers,³⁸ or whether Britain’s preparations and operations were carried out by a far more wide-ranging cadre of bureaucrats, technicians and management experts, both civil and military in background.

An investigation of this nature is overdue. In the historiography of British logistics in the First World War, the only member of the British managerial pool to benefit from detailed historical study is Lloyd George’s ‘blue-eyed boy’, Sir Eric Geddes.³⁹ The work of other civilians, and the vast majority of professional soldiers employed in ‘Q and A’ rather than ‘G’ duties, both before and after Geddes ‘showed what *transportation* meant’ on the Western Front,⁴⁰ is yet to receive similar attention. Pope and Wheal’s *Dictionary of the First World War* is indicative. Whilst Geddes receives an entry, his successor as Director-General of Transportation in France, Sir Philip Nash, does not. In addition, the only soldier to hold the position of QMG during the war to merit inclusion is Sir William Robertson, who went on to become Chief of the Imperial General Staff [CIGS] and a vital component of civil-military relations at the strategic level.⁴¹ Contrary to the picture painted by Lloyd George’s memoirs,

³⁶ G. Paish, *The British Railway Position* (London: The Statist, 1902), p. 12.

³⁷ D. Edgerton, *Warfare State: Britain, 1920-1970* (Cambridge: Cambridge University Press, 2006), p. 1.

³⁸ Liddell Hart, p. 310.

³⁹ A.C. Geddes, *The Forging of a Family. A Family Story Studied in Its Genetical, Cultural and Spiritual Aspects and a Testament of Personal Belief Founded Thereon* (London: Faber & Faber, 1952), p. 230; K. Grieves, *Sir Eric Geddes: Business and Government in War and Peace* (Manchester: Manchester University Press, 1989). For a discussion focused upon Geddes’ political career during this period, see P.K. Cline, ‘Eric Geddes and the “Experiment” with Businessmen in Government, 1915-22’, in *Essays in Anti-Labour History*, ed. by K.D. Brown (London: Macmillan, 1974), pp. 74–104.

⁴⁰ M.G. Taylor, ‘Land Transportation’, p. 705. Emphasis in original.

⁴¹ S. Pope and E.A. Wheal, *Dictionary of the First World War* (Barnsley: Pen & Sword, 2003).

Geddes was not the first civilian to attempt to apply distinctly ‘civilian business methods’ to the administration and logistical support of the BEF. The political, material, organizational and strategic factors which impacted upon the success of such schemes has yet to be thoroughly discussed, and will be a key aim of this thesis.⁴²

Since the war, the British logistics effort has been the subject of just two full-length studies. The first, by Colonel A.M. Henniker, appeared in 1937 as part of the *Official History* series produced under the editorship of Brigadier-General Sir James Edmonds.⁴³ It remains the largest review of the BEF’s logistical operations during the conflict, and is a vital source of organizational and hierarchical details alongside narrative descriptions of the challenges experienced by the transport staff on the Western Front. The text is unashamedly ‘pro-military’ in outlook. Rather than any latent deficiencies in the army’s command structure, Henniker argues that a lack of foresight on the part of the government, coupled with a lack of faith in the ability of the soldiers to effectively discharge their duties, were responsible for many of the difficulties experienced at the front prior to Geddes’ arrival in the summer of 1916. Geddes is also central to the more recent study, Ian M. Brown’s *British Logistics on the Western Front*.⁴⁴ Brown argues, building upon ‘learning curve’ assessments of the war such as those articulated by Gary Sheffield, that the BEF’s evolution in combat tactics and battlefield command could not have occurred without superb leadership in the fields of logistics and administration.⁴⁵ ‘Administrative excellence’ from mid-1917 onwards, built upon a foundation provided by Geddes, freed the BEF’s ‘teeth’ from having to concern themselves with questions of supply, their material requirements being satisfied by an increasingly efficient ‘tail’.⁴⁶ However, Geddes’ mission was by no means a unique manifestation of the BEF’s attempts to synthesize civilian

⁴² It is also worth noting that a number of articles investigating the utilization of modern management practices in Britain choose to use 1914 as a ‘full stop’ rather than examining the application of such techniques in the prosecution of the war effort. See, for example, Saul; K. Whitston, ‘The Reception of Scientific Management by British Engineers, 1890-1914’, *The Business History Review*, 71:2 (1997), 207–29.

⁴³ A.M. Henniker, *History of the Great War. Transportation on the Western Front, 1914-1918* (London: His Majesty’s Stationery Office [HMSO], 1937).

⁴⁴ I.M. Brown, *British Logistics on the Western Front, 1914-1919* (London: Praeger, 1998).

⁴⁵ I.M. Brown, *British Logistics*, p. 1; G. Sheffield, *Forgotten Victory. The First World War: Myths and Realities* (London: Headline, 2001).

⁴⁶ I.M. Brown, *British Logistics*, p. 13.

and military expertise on the Western Front. Brown's superficial treatment of the contributions of those operating both on the fringes of, and within, the extant military hierarchy during the war will be rectified in this thesis.

A further corollary of the personalized memoir battle in Britain after the war has been to overshadow understanding of developments between the constituent parts of the Allied coalition. The relationship between the French and British armies was not static either before or during the First World War. The association of the two forces, and of the wider political union between the two nations, was subject to numerous negotiations and reassessments as the fighting progressed. The influences of key variables: the relative strengths of the two armies; the remaining material and human resources of the empires engaged; the impact of enemy action and the introduction of allies or associated powers; all factored into the outcome of multilateral negotiations involving subtle compromises over short-term difficulties to assist the long-term realization of the overall strategic goal of victory. As Lloyd George acknowledged in November 1917, 'it was national prejudice and susceptibility, prestige and delicacy' that prevented the formation of an Allied War Council prior to the final twelve months of hostilities.⁴⁷ Understanding the influences of these elements is at an embryonic stage, and this thesis will locate logistical considerations within this slowly developing field.⁴⁸

As yet, only William Philpott and Elizabeth Greenhalgh have addressed the development of the 'tempestuous' Franco-British relationship in monographs, placing the entente's political, military and civil-military relations at their centre.⁴⁹ Both emphasize the divergent priorities, strategies and outlooks at work within France and Britain during the course of the war, and the difficulties experienced by those tasked with maintaining a balance between

⁴⁷ 'Allied War Council. Mr Ll. George on Strategy', *The Times*, 13 November 1917, p. 7.

⁴⁸ G. Sheffield, "'Not the Same as Friendship": The British Empire and Coalition Warfare in the Era of the First World War', in *Entangling Alliances: Coalition Warfare in the Twentieth Century*, ed. by P. Dennis and J. Grey (Canberra: Australian Military History Publications, 2005), pp. 38–52.

⁴⁹ W. Philpott, *Anglo-French Relations and Strategy on the Western Front, 1914-18* (Basingstoke: Macmillan, 1996); E. Greenhalgh, *Victory through Coalition: Britain and France during the First World War* (Cambridge: Cambridge University Press, 2005). The first volume of Roy Prete's planned trilogy on Franco-British relations prior to the Somme is a useful supplement to the above. See R.A. Prete, *Strategy and Command: The Anglo-French Coalition on the Western Front, 1914* (Montreal, QC: McGill-Queen's University Press, 2009).

national sovereignty and the wider interests of the coalition.⁵⁰ As such, both authors demonstrate how the entente suffered from many of the problems associated with the formation of corporate alliances.⁵¹ The mechanisms and procedures of modern, industrialized warfare were a novel civil-military – and increasingly international civil-military – concern, requiring diplomacy and conciliation, but also creating a unique environment for the implementation of innovative managerial solutions to exceptional administrative challenges.⁵² In no place was this more evident than in the provision and maintenance of adequate transport facilities where, for example, the demands of the Belgian state required far more consideration from its coalition partners than Belgium's relatively small force (at least once the BEF had increased in size) received in terms of the military decision-making process.⁵³ The question of supplying the BEF, therefore, was not solely of great concern to British administrators, but was also subject to the political, military and technical considerations of the French Army and state, engaged as they were in war of national survival on their own territory.

The number of troops mobilized by each army ensured that 'living off the land' was impossible for an extended period of time. The transport network in the Franco-Belgian borderland was therefore responsible for the provision of almost everything that the armies required in order to fight and survive on the Western Front. Table 0.1 gives some small indication of the scale of the task involved in moving supplies inland from the coast, and of the implications inherent in the BEF's expansion during the war. The extant road and rail systems were essential to the sustenance of the troops, the maintenance of their equipment, and to the evolution of the material-intensive combat methodologies which characterize the second half of

⁵⁰ R. Grattan, 'The Entente in World War I: A Case Study in Strategy Formulation in an Alliance', *Journal of Management History*, 15:2 (2009), 147–58.

⁵¹ Hughes and Weiss.

⁵² The British management consultant, Lyndall Urwick, described the armies of 1918 as 'the most efficient human machines the world has ever seen. There was less waste of effort, less friction in their working, better adaptation to the end in view, than can be discovered in any other form of human organization'. See Henley-on-Thames, Greenlands Academic Resource Centre, Papers of Lyndall Urwick, 1/2/9 The Soldier, the Worker, and the Citizen, lecture to the Fabian Society, 1919, p. 3.

⁵³ Henniker, pp. 93–101; W. Philpott, 'Britain, France and the Belgian Army', in *'Look to Your Front!' Studies in the First World War by the British Commission for Military History*, ed. by B. Bond et al (Staplehurst: Spellmount, 1999), pp. 121–35.

the conflict in particular.⁵⁴ The supply units which utilized those systems also relied upon a juxtaposition of technologies. The BEF in 1914 was equipped with modern lorries, but was also dependent upon some 55,000 horses; whilst the ‘iron horse’ of the railways would be responsible for the bulk transportation of the vast majority of stores, the dense canal networks of France and Belgium would also be pressed into action. This thesis will investigate the manner in which ‘civilianization’ assisted the BEF to integrate these networks in the pursuit of an efficient and reliable connection between the factories of Britain (and the world) and the front line.⁵⁵

The thesis consists of three sections. The first discusses the period before the war. It will investigate the manner in which the language, culture and principles of ‘big business’ infused the debate over British military reorganization in the wake of the South African War, within a political atmosphere charged with calls for ‘national efficiency’ and economy in military expenditure. Utilizing documents generated by political and military figures, this section will illustrate that the expeditionary force which ultimately went to war in 1914 was far from the product of an ‘insular’ army, operating within a ‘bubble’ beyond the control and oversight of the government.⁵⁶ Instead, it was a force whose organizational structure and preparations for war were developed by a combination of military and civilian figures.

	Highest Daily Feeding Strength	Highest Monthly Issues	
		Frozen Meat (lbs.)	Bread (lbs.)
1914	65,919	1,022,396	1,598,944
1915	311,242	6,826,306	7,950,682
1916	381,620	9,201,062	10,694,650
1917	692,423	17,346,498	12,776,070
1918	670,266	21,658,847	15,875,667

Table 0.1 Highest Monthly Issues from the Port of Boulogne to the BEF, 1914-1918

Source: WO 107/69 Work of the QMG’s branch, p. 30.

⁵⁴ R. Thompson, ‘Mud, Blood and Wood: BEF Operational Combat and Logistico-Engineering during the Battle of Third Ypres, 1917’, in *Fields of Battle: Terrain in Military History*, ed. by P. Doyle and M.R. Bennett (Dordrecht: Kluwer, 2002), pp. 237–55.

⁵⁵ The primary concern of this thesis will be the operation and coordination of inland logistical systems from the Channel ports to the battle zone. The considerable naval effort has been discussed in C. Ernest Fayle, *Seaborne Trade*, 3 vols. (London: John Murray, 1920-1924); C. Ernest Fayle, *The War and the Shipping Industry* (Oxford: Oxford University Press, 1927).

⁵⁶ A.J.P. Taylor, *War by Time-Table: How the First World War Began* (London: Macdonald, 1969), p. 19; E. Grey, *Twenty-Five Years, 1892-1916*, 2 vols. (London: Hodder & Stoughton, 1925), I, pp. 93, 242; Lloyd George, I, pp. 28–31.

Furthermore, this section emphasizes that the mobilization scheme which ultimately despatched the BEF to the continent in August 1914 was not the consequence of a military diktat forced upon an unwilling Cabinet, but the outcome of a collegiate, collaborative process which took advantage of Britain's latent expertise in moving men and goods over long distances, and was restricted by the nature of Britain's diplomatic relations with her eventual allies, France and Belgium, alongside the logistical considerations attached to the transport of an armed force from the British isles.

The second section of the thesis concentrates upon the first half of Britain's war on the Western Front, a period of remarkable expansion from roughly 150,000 men in August 1914 to over one million prior to the opening of the Battle of the Somme. In this period of unprecedented human and material growth, the war diaries and reports created by the BEF are analysed in order to assess the validity of Lloyd George's claim that the army was both incapable of reacting to the logistical challenges brought about by modern warfare among industrialized nations, and unwilling to seek assistance from those outside the military profession. It will demonstrate that the BEF did interact with civilian experts during this period, and addresses the factors both organizational and inter-Allied which influenced the varying degrees of success experienced by such men. Finally, the section concludes with a dissection of the logistical preparations for the Battle of the Somme, the BEF's first attempt at a major offensive on the Western Front and the catalyst behind the despatch of Sir Eric Geddes to France in late August 1916.

The third and final section addresses three key questions relating to the transportation mission led by Geddes in 1916 and its aftermath. Firstly, why was it Sir Eric Geddes that Lloyd George chose for the job in the first instance? Secondly, to what extent did the transport mission, and the directorates established as a result of Geddes' findings, suffer from the intransigence and self-preservation of the soldiers which Lloyd George promoted so vociferously in his post-war writing? And finally, how did the BEF's logistical operations actually benefit from the influx of civilians and the business methods of Britain's transport industry in the final two years of the conflict? Evaluating the records and reports produced by the BEF both during and

immediately after the war, this section will examine why, despite the colossal demands of the *Materialschlacht*, the British would not again experience a transportation ‘crisis’ on the scale of that encountered during the latter half of 1916.⁵⁷

Reliable logistics were the bedrock upon which the BEF fought the ‘rich man’s war’ from the Battle of Arras onwards,⁵⁸ consuming ammunition in prodigious quantities, and the conduit for allowing the Franco-British coalition to make effective use of their resource advantage over the Central Powers as the war continued.⁵⁹ The efficient, dependable exploitation of the transport networks of France and Belgium was therefore fundamental to the supply and sustenance of the armies which gradually overthrew the German forces opposing them. In a conflict on such a global scale, and of unprecedented intensity and complexity, these networks could not be operated by purely military means. This thesis will seek to relocate discussions on civil-military relations away from the prevalent, narrowly-focused perspective founded on the vituperative, personalized arguments of Britain’s highest ranking soldiers and statesmen. Instead, it will place them within a more holistic consideration of Britain’s role within an international coalition on the Western Front. It was a contribution dependent upon effective organizations, systems, planning and management;⁶⁰ each built upon elements familiar to the industrialists and businessmen of the period. Diagrams, graphs, and formulae were key components of eventual battlefield success.⁶¹ The First World War on the Western Front was a modern, industrial war, demanding the input and insight of all manner of expertise and technical skills. Whilst the introduction of emerging managerial and scientific techniques into the wartime

⁵⁷ London, Parliamentary Archives, Papers of David Lloyd George, LG/E/1/5/16 Geddes to Lloyd George, 19 November 1916.

⁵⁸ The phrase ‘rich man’s war’ originates from John Bourne and is used in this context in G. Sheffield, *The Chief: Douglas Haig and the British Army* (London: Aurum, 2011), pp. 101–2. The combination of positional warfare and secure logistics fostered ‘prodigality in munitions expenditure’ amongst the armies on the Western Front. See H. Strachan, *The First World War: To Arms* (Oxford: Oxford University Press, 2001), p. 999.

⁵⁹ Britain and France’s combined income was some sixty per cent greater than that of the Central Powers in 1914, whilst the combined gross domestic product of the Triple Entente exceeded that of Germany, Austria-Hungary and the Ottoman Empire by around fifty-five per cent. It was the Allies, therefore, who stood better equipped to deal with a long-term war of materiel. See H. Strachan, *The Outbreak of the First World War* (Oxford: Oxford University Press, 2004), p. 225; B. Supple, ‘War Economies’, in *The Cambridge History of the First World War: The State*, ed. by J.M. Winter, 3 vols. (Cambridge: Cambridge University Press, 2014), II, 295–324 (p. 298).

⁶⁰ J.M. Bourne, *Britain and the Great War, 1914-1918* (London: Edward Arnold, 1989), p. x.

⁶¹ H. Essame, *The Battle for Europe, 1918* (London: Batsford, 1972), p. 3.

economy has been acknowledged in recent years,⁶² this thesis sheds new light on just a fraction of the myriad abilities and skills that were drawn into the service of the army over the course of the twentieth century's first great conflagration.

⁶² Supple, II, p. 314.

Part 1: Preparing for Armageddon

*If there were no military plans made beforehand we should be unable to come to the assistance of France in time, however strongly public opinion in Britain might desire it.*¹

Sir Edward Grey

*War is a matter of business, and the results of good organization and political foresight, coupled with professional capacity, will infallibly produce their effect and secure the victory.*²

Lieutenant-Colonel Edward May

On 5 August 1914, the British Prime Minister Herbert Asquith, accompanied by prominent figures both political and military, chaired the first gathering of the War Council. The discussions focused upon the strategy to be pursued by Britain following the expiration of the ultimatum to Germany the previous night. The primary conclusion of that meeting, modified following further consultations the next day, was that troops of the BEF were to be sent as soon as possible to link up with French troops already mobilizing across the Channel.³ The eventual location of deployment, the size, and the character of this ‘continental commitment’, further debated between the Allies before Sir John French first led his troops into battle, was the outcome of a decade-long process of Franco-British, and even longer civil-military, preparation. The culmination of these developments was the despatch of the ‘best trained, best organized, and best equipped British Army that ever went forth to war’.⁴

British military planning in the early twentieth century did not take place within a vacuum. Discussions over defence policies took place concurrent with a wide-ranging debate over the direction of national economic strategies and within the cut-and-thrust of domestic politics.⁵ The structure of the army that ‘went forth’ from Southampton in early August 1914 was a direct result of politician-led reforms and military reorganizations in response to Britain’s last major war, in South Africa between 1899 and 1902. The most famous of the civilian

¹ Grey, I, p. 75.

² Quoted in Urwick Papers, 1/2/1 Organisation of the Defence of the Empire, 1910, p. 1.

³ TNA: PRO CAB 22/1 Secretary’s Notes of a War Council Held at 10, Downing Street, 5 and 6 August 1914.

⁴ J.E. Edmonds, *History of the Great War. Military Operations, France and Belgium, 1914*, 2 vols. (London: Macmillan, 1928), I, pp. 10–11.

⁵ A.L. Friedberg, ‘Britain and the Experience of Relative Decline, 1895–1905’, *Journal of Strategic Studies*, 10:3 (1987), 331–62.

reforms, those of Lord Esher and Richard Haldane, have been the subject of intense scrutiny in the historiography of the pre-war British Army.⁶ Simultaneously, the reformation of the army in the wake of the embarrassments of South Africa into a professional, well-trained, efficient fighting force, has also garnered recent attention from historians.⁷ It was within the tactical and administrative environment engendered by these two processes, inextricably linked to the longstanding, fractious relationship between the state and the army,⁸ that Britain's response to war in August 1914 would be mapped out.

Unlike in France and Germany, instinctively wedded to 'Plan XVII' and the 'Schlieffen Plan' respectively, Britain was not committed to any 'war by timetable' in the opening days of a European war.⁹ The decision to go to war, and the nature of the contribution which followed, were reached by governmental resolve rather than the rigidity of railway schedules.¹⁰ That said, the scheme which would ultimately place the BEF on the Western Front incorporated in its logistical preparations the most thorough example of civil-military cooperation in British military history. Although the hierarchical structure of the Franco-British alliance itself was a 'work in progress' when war broke out,¹¹ the newly created Directorate of Military Operations [DMO] was able to complete a comprehensive mobilization scheme for the BEF prior to August 1914. That this was the case was, in large part, thanks to the exertions and technical expertise of Britain's transport industries.

The evolution of modern, matériel-intensive, industrial warfare brought with it the establishment of an army requiring quantities of men, munitions, and equipment incomparable

⁶ See, for example, J. Gooch, *The Plans of War: The General Staff and British Military Strategy, c.1900-1916* (London: Routledge & Kegan Paul, 1974); E.M. Spiers, *Haldane: An Army Reformer* (Edinburgh: Edinburgh University Press, 1980); W.S. Hamer, *The British Army: Civil-Military Relations, 1885-1905* (Oxford: Clarendon Press, 1970).

⁷ S. Jones, *From Boer War to World War: Tactical Reform of the British Army, 1902-1914* (Norman, OK: University of Oklahoma Press, 2012); T. Bowman and M. Connelly, *The Edwardian Army: Recruiting, Training, and Deploying the British Army, 1902-1914* (Oxford: Oxford University Press, 2012).

⁸ H. Strachan, *The Politics of the British Army* (Oxford: Clarendon Press, 1997).

⁹ This statement, made famous by A.J.P. Taylor, has been debunked by David Stevenson. See A.J.P. Taylor, *War by Time-Table*; D. Stevenson, 'War by Timetable? The Railway Race before 1914', *Past & Present*, 162 (1999), 163-94.

¹⁰ K. Neilson, 'Great Britain', in *War Planning 1914*, ed. by R.F. Hamilton and H.H. Herwig (Cambridge: Cambridge University Press, 2010), pp. 175-97 (p. 193).

¹¹ W. Philpott, 'The Making of the Military Entente, 1904-14: France, the British Army, and the Prospect of War', *The English Historical Review*, 128:534 (2013), 1155-85 (p. 1185).

in previous British military experience, all of which necessitated the provision of transport on both land and sea. For the most part airbrushed from the process of military preparation, the contribution of Britain's largest transport companies to the development of a workable mobilization scheme emphasizes the critical role played by transportation in the opening phase of the First World War. Operating in a period during which the dominant military ideology of the time stressed the importance of a swift, potentially decisive battle,¹² the BEF was mobilized, sent to the relevant coastal ports, and transferred to France in what appeared to be 'a model of railway organization'.¹³ The previous over-concentration upon the political and military dimensions of Britain's entry into the war has overshadowed the pre-existence of a particularly fruitful tripartite relationship in Britain; between the government, the larger railway companies, and the British Army. It was the investigations, processes and procedures that these groups contributed to and collaborated upon which propelled the BEF to war in August 1914.

¹² S. Van Evera, 'The Cult of the Offensive and the Origins of the First World War', *International Security*, 9:1 (1984), 58–107.

¹³ Sir Charles Deedes, quoted in K. Jeffery, *Field Marshal Sir Henry Wilson: A Political Soldier* (Oxford: Oxford University Press, 2006), p. 102.

1.1: The ‘greatest single business concern in the country’: National efficiency and the political reorganization of the British Army, 1900-1914

On 23 January 1900, Lord Rosebery opened a new town hall and municipal office building in Chatham. As the local dignitaries gathered for lunch in the great hall, the former Prime Minister rose to speak on a matter ‘near to his heart’,¹⁴ the war in South Africa. The impact of the ongoing Boer War was felt far beyond the confines of the army which fought it. The embarrassments of Ladysmith and Nicholson’s Nek in late October 1899 had shocked and dismayed the British public; the confidence placed in the ability of the army to defeat the ‘strange, grotesque’ civilian militia opposing it was severely dented.¹⁵ The ‘humiliation’ of Black Week in December 1899 exacerbated the sense of public despondency, fuelling fears of invasion and focusing attentions upon the wide disparity between Britain’s position among the Great Powers and her ability to ‘fight hard’ for that status.¹⁶

To Rosebery, however, the ‘warning’ of the South African War was not merely to be heeded by the military. Lessons were required to be learned not just in imperial defence, but in education and the administration of public affairs as well.¹⁷ No longer could Britain afford to simply ‘muddle through’, there was a clear need for

examining the condition of the defences of the Empire, and their administration by the public offices charged therewith, and... the need for conducting the business of the country, as administered by all the various Departments of State, upon ordinary business principles and methods.¹⁸

Although Britain would eventually bring the war in South Africa to a successful conclusion, the memories of Colenso, Magersfontein and Stormberg fed into perceptions of an ongoing British ‘decline’ that went beyond the battlefield to the heart of British society.¹⁹ The deficiencies in British civil-military management of the army were emphatically underlined by Black Week,

¹⁴ ‘Lord Rosebery on the Lessons of the War’, *The Times*, 24 January 1900, p. 7.

¹⁵ Quotation from A. Conan Doyle, *The Great Boer War* (London: Smith, Elder & Co., 1900), p. 124.

¹⁶ Searle, pp. 35–42.

¹⁷ A. White, *Efficiency and Empire* (London: Methuen & Co., 1901), p. vii.

¹⁸ Hamer, p. 180.

¹⁹ J. Tomlinson, ‘Thrice Denied: “Declinism” as a Recurrent Theme in British History in the Long Twentieth Century’, *Twentieth Century British History*, 20:2 (2009), 227–51 (p. 229); D. Steele, ‘Salisbury and the Soldiers’, in *The Boer War: Direction, Experience and Image*, ed. by J. Gooch (London: Frank Cass, 2000), pp. 3–20 (pp. 9, 16).

and contributed greatly to the clamour for an intensive parliamentary review of all aspects of the army's performance in the conflict. Rosebery himself followed up his speech in Chatham by 'calling for a statement in Parliament as to the sufficiency of the military policy of the government'.²⁰

Rosebery's comments summed up the mood of reform campaigners. The 'patch up and botch up' amendments which had characterized previous War Office reorganizations amidst the political priorities of the moment would no longer suffice; any administrative changes would need to be placed on a 'scientific', 'methodical' foundation.²¹ If Britain wished to remain a global power, the 'tortoise of investigation, method and preparation' had to replace the 'hare which leaves everything to the inspiration and effort of the moment'. Following comprehensive investigations of her organizations, structures and working practices (a central pillar of the systematic management ideology beginning to gain a foothold in the United States),²² Rosebery believed that Britain would be in possession of an 'Empire on a business footing'. Over the course of the next decade, a series of civilian-led committees would sequentially help first to shape the War Office into a more recognizably 'business-like' department, and then to overhaul the organization of the army itself. They would create the environment in which the British Army of the pre-war era was to be forged, and therefore played a vital role in ensuring that Britain possessed a military force capable of intervening in a continental conflict.

The Dawkins committee and the Elgin commission: Establishing the causes of inefficiency

The first of the 'tortoises' commissioned to investigate the conduct of the South African War was appointed in December 1900, a result of the intensifying political pressure on the government to act. Primarily interested in questions regarding procurement and financial controls within the army, and explicitly requested not to consider any 'organic changes in the

²⁰ Hamer, p. 56.

²¹ Unless otherwise stated, the quotations in this passage are taken from 'Lord Rosebery', *The Times*, p. 7.

²² J. Yates, 'Evolving Information Use in Firms, 1850-1920: Ideology and Information Techniques and Technologies', in *Information Acumen: The Understanding and Use of Knowledge in Modern Business*, ed. by L. Bud-Frierman (London: Routledge, 1994), pp. 26-50; Gantt, p. 28.

constitution of the War Office',²³ the Dawkins committee did however raise a number of concerns over the constitution of the army's head office. These issues would be expanded upon by Lord Esher in his wide-ranging commission after the war. Although referred to by Searle as 'a committee of business men',²⁴ and chaired by a member of Lord Rosebery's Administrative Reform Association, the Dawkins committee was in fact a civil-military composite. Alongside the chairman, Clinton Dawkins,²⁵ sat two military figures: the Commandant of the Staff College at Camberley, Herbert Miles; and the former secretary of the Colonial Defence Committee, Sir George Clarke.²⁶ Four others made up the committee. Three were Members of Parliament: Ernest Beckett, a banker who was also a captain in the Yeomanry Cavalry; Sir Charles Welby, former Private Secretary to Lord Lansdowne at the War Office;²⁷ and William Mather, chairman of the engineering firm Mather and Platt. Mather's appointment ensured that the committee received the input of a man with considerable experience of utilizing scientific methods in industrial organizations, and a keen interest – as demonstrated by his campaigning to increase funding for, and access to, technical education – in the promotion of innovative working practices.²⁸ The final member, George Gibb, General Manager of the North-Eastern Railway [NER], contributed a similar enthusiasm for modern business methods and, like Mather, had extensive knowledge of the latest management and administrative concepts being experimented with in the United States.²⁹

²³ *Committee on War Office Organisation. Report of the Committee Appointed to Enquire into War Office Organisation, Cd. 580*, (hereafter *Dawkins Committee*), 1901, XL.179, p. 1.

²⁴ Searle, pp. 118–19.

²⁵ Dawkins was a former Private Secretary to the Chancellor of the Exchequer and a partner of J.P. Morgan's. See Hamer, pp. 180, 187; Searle, pp. 88–90.

²⁶ The Colonial Defence Committee represented the first attempt to address questions of imperial defence requiring technical expertise. However, the lack of senior naval and military members on the committee, coupled with the narrow scope of its activities (it was concerned only with matters of colonial defence rather than the whole spectrum of British strategic interests) somewhat minimized the committee's impact. See D.C. Gordon, 'The Colonial Defence Committee and Imperial Collaboration: 1885-1904', *Political Science Quarterly*, 77:4 (1962), 526–45 (p. 532).

²⁷ Beckett and Welby would also participate in Churchill's Army Reform Movement. See Seely, pp. 96–9.

²⁸ G. Tweedale, 'Mather, Sir William (1838-1920)', *Oxford Dictionary of National Biography [ODNB]* (Oxford: Oxford University Press, 2004) <<http://www.oxforddnb.com/view/article/45649>> [accessed 14 September 2014].

²⁹ Gibb's experience of what the railway press dubbed 'American practice' was a fundamental ingredient of Eric Geddes' management education, and will therefore be dealt with in more detail below, chapter 3.1.

Both Mather and Gibb were the heads of large business undertakings, the systems of which it was desired to replicate in the closest manner possible within the War Office.³⁰ In May 1901, even whilst the fighting continued in South Africa, the committee reported that:

The general structure of the War Office organization has been built up piecemeal as the result of constant changes and compromises. Principles of administration and of business have been too frequently subordinated to temporary exigencies, or to personal and political considerations.³¹

Alongside evidence from senior military and political figures with obvious links to the machinations of the department, the committee also obtained the views of those at the Admiralty with regard to the extant practices of the Royal Navy. Furthermore, and demonstrating the committee's adherence to the terms of reference issued prior to the beginning of their investigations, 'information was also obtained from railway companies, from important manufacturing companies, and from large cooperative societies with reference to their business procedure'.³² It was upon these foundations that the remodelled War Office would be shaped.

Dawkins' private shock 'at the chaos he had uncovered and... the ineptitude of the War Office generals' bears resemblance to Lloyd George's attacks on the military administrators tasked with overseeing the prosecution of the First World War.³³ The committee's public conclusions, however, were a stark condemnation of the organization of the War Office as a whole, and were viewed as a clear victory for the Commander-in-Chief [C-in-C], Lord Wolesley, in his ongoing dispute with the government over the administration of the army.³⁴ Constant changes and compromises based on temporary, fluctuating priorities rather than upon established principles of sound administration had created an environment in which each

³⁰ *Dawkins Committee*, unpaginated terms of reference.

³¹ *Dawkins Committee*, p. 2. The primacy of short-term requirements over long-term considerations as to future policy was also a key factor governing British operations during the first two years of the First World War. See below, part two.

³² *Dawkins Committee*, p. 1. The companies consulted were: the Army and Navy Co-Operative Society; the Civil Service Co-Operative Society; Armstrong, Whitworth and Company; the Midland Railway; the London and North-Western Railway [LNWR]; Vickers, Sons and Maxims; Rylands and Sons; the Great Northern Railway; and the Co-Operative Wholesale Society. See *Minutes of Evidence Taken before the Committee Appointed to Inquire into War Office Organisation, Together with Appendices, Digest, and Index*, Cd. 581, 1901, XL.207, pp. 443–9.

³³ Searle, p. 119.

³⁴ T.G. Fergusson, *British Military Intelligence, 1870-1914: The Development of a Modern Intelligence Organization* (Frederick, MD: University Publications of America, 1984), pp. 115–16.

department lacked a thorough comprehension of its own duties.³⁵ The result was confusion. A ‘mass of unnecessary routine work’ created an overburdened staff reluctant to use their own initiative, and high officials unavoidably became engrossed in everyday tasks rather than devoting their time to matters of future policy and ‘questions of real importance’.³⁶ Overall, several ‘well-defined principles of management’ were judged to be ‘conspicuously absent’ from the War Office, most notably: the division of work into well-defined sections; the definition of duties and responsibilities accompanied by the requisite delegation of powers; adequate machinery for coordinating the civil and military work of the office under the authority of the Secretary of State; and, fundamental to the developments of the next decade, ‘adequate provision for dealing with questions of policy and military preparation, unhampered by administrative routine work’.³⁷

Put simply, the British Army of the late nineteenth century lacked both the administrative foundations to promote efficiency and to encourage future planning, and a ‘central coordinating authority under the Secretary of State’.³⁸ The ‘poisonous’ relationship between the principal civilian and military figures at the head of the army, Lords Lansdowne and Wolesley respectively,³⁹ merely exacerbated the disconnect between British defence policy and the information upon which that policy was founded both within the War Office and, by extension, throughout the Empire. As Hamer notes, the personal animosity of the two men meant that Lansdowne was first officially informed of documents outlining the military preparations of the Boers through the Colonial Office rather than the C-in-C. As a consequence of personal animosities, divorcing the civil and military elements of army administration, coupled with the War Office’s absorption in a routine of ‘directing local affairs’ rather than the ‘consideration of questions of general policy’,⁴⁰ there existed a deficiency of what Lisa Bud-

³⁵ Hamer, p. 187.

³⁶ *Dawkins Committee*, p. 2.

³⁷ *Dawkins Committee*, p. 3.

³⁸ *Dawkins Committee*, p. 21.

³⁹ K. Surridge, ‘Lansdowne at the War Office’, in *The Boer War: Direction, Experience and Image*, ed. by J. Gooch (London: Frank Cass, 2000), pp. 21–40 (p. 23).

⁴⁰ Gooch, *The Plans of War*, p. 33; Hamer, pp. 187–8.

Frierman has referred to as ‘information acumen’ at the highest level of authority.⁴¹ Data which had been collected had not been adequately disseminated and discussed by those responsible for the implementation of policies based on that information. The result was a ‘glaring weakness’ in Britain’s ability to plan for war in the years immediately preceding the South African War.⁴²

The simile chosen to indicate the committee’s recommendation for a coordinating authority to resolve this divide between knowledge and policy is indicative of the wider preoccupations of the period. A ‘Board of Directors’ was promoted as a forum in which intelligence could be discussed, and one in which ‘a clearly defined and rational division of business responsibility is maintained among the departments with close association and union for a common object’.⁴³ Rather than increasing the profitability of a firm, that common object would be ensuring the establishment and constant revision of the defence policy of the British Empire. There was, according to Dawkins, ‘no reason to doubt that the methods adopted... for securing economy and efficiency [in a large business] could be effectively employed’ in the higher administration of the War Office.⁴⁴ Of the civil and military ‘business groups’ identified by Dawkins, the extant War Office was full of overlapping jurisdictions; lacking in systematic coordination to separate administrative and executive functions; and, due to the C-in-C being ‘overweighted with other duties more properly appertaining to him’, devoid of a coherent planning department to study ‘questions of Imperial and Colonial defence, the study of problems of military organization, intelligence, mobilization and the strategic use of railways’.⁴⁵

Although the Dawkins committee was primarily tasked with investigating issues related to procurement and financial controls, it is clear from the report of May 1901 that far more substantial changes in the organization of the War Office were deemed to be desirable. However, rather than build upon the recommendations made by Dawkins to create a framework for a new

⁴¹ Although primarily interested in business organization, Bud-Frierman’s central conclusion is worthy of note, and will be returned to in part three: ‘Success or failure is often determined by the presence or absence of keen insight and skill in generating, handling and interpreting information’. See L. Bud-Frierman, ‘Information Acumen’, in *Information Acumen*, ed. by Bud-Frierman, pp. 7–25 (p. 24).

⁴² Fergusson, p. 109.

⁴³ *Dawkins Committee*, p. 21.

⁴⁴ *Dawkins Committee*, p. 20.

⁴⁵ *Dawkins Committee*, pp. 20-1.

War Office, the Royal Commission established in 1902 under the chairmanship of Lord Elgin declared that the object of its appointment was limited to the discovery of ‘inefficiency or defects in the administration of the army, where disclosed by the facts of the war in South Africa, and to indicate their causes wherever possible’.⁴⁶ Neither the ‘detail’ of the wider military management system nor an elaborate scheme for the reorganization of the army lay within the province of the commission. As a consequence, although it did uncover some of the deficiencies present in the War Office during the campaign, the ‘report of the Elgin commissioners was chiefly valuable as a military history of the war’.⁴⁷

It would be left to one member of the commission, Lord Esher, to return to the ideas first promulgated by Dawkins in 1901. In a widely publicized note appended to the Elgin report, Esher repeated the judgment that administration by ‘Board’ was ‘the only practical remedy’ for the organizational defects of the War Office.⁴⁸ Such establishments had ‘been found to work successfully in every great commercial enterprise, in the Government of India, at the Admiralty, and – if the Cabinet may not inaptly be designated a Board – in the Government of the United Kingdom’. Littered throughout the note were the same themes as those raised by Dawkins three years earlier: decentralization of responsibility; the promotion of efficiency; the division of labour; and the separation of administrative and executive functions. All feature in the brief addendum.⁴⁹ In his wider case for the installation of a Board to act as a directing force in army affairs, Esher was tapping into an argument, which had been sporadically raised prior to the South African War, most notably by the Hartington Commission of 1890.⁵⁰ The difference, however, was that the war had now demonstrated beyond doubt the desperate need for change. The war in South Africa not only illuminated deficiencies in military training to be remedied by

⁴⁶ *Report of His Majesty’s Commissioners Appointed to Inquire into the Military Preparations and Other Matters Connected with the War in South Africa, Cd. 1789*, (hereafter *Elgin Commission*), 1904, XL.1, pp. 1–2.

⁴⁷ Gooch, *The Plans of War*, p. 32.

⁴⁸ *Elgin Commission*, p. 144. Unless otherwise stated, all quotes in this passage are taken from this source.

⁴⁹ *Elgin Commission*, pp. 144–6. These ideas would be further developed in the report subsequently presented by Esher’s own committee into War Office administration in 1904. See *War Office (Reconstitution) Committee. Report of the War Office (Reconstitution) Committee. (Part II)*, Cd. 1968, (hereafter *Esher Committee*), 1904, VIII.121, p. 2.

⁵⁰ P. Fraser, *Lord Esher: A Political Biography* (London: Hart-Davis, MacGibbon, 1973), pp. 92–3. For an analysis of the ‘pre-Esher’ discussions regarding the reform of the War Office, see Gooch, *The Plans of War*, pp. 1–29; Strachan, *Politics of the British Army*, pp. 121–2.

the professional soldier,⁵¹ it highlighted the increasing importance of ensuring that the administrative machinery of the nation as a whole was made ready for the implications of modern war. In Lord Esher, the new Prime Minister Arthur Balfour had a man convinced he could ‘take the War Office administration right through, from top to bottom, and endeavour to make it a first-class business machine’.⁵²

Esher’s ‘triumvirate’ and the establishment of the General Staff

The conclusion of hostilities in Pretoria in May 1902 created a military environment in which the reorganization of the War Office could be transformed from paper to practice. The replacement of Lord Salisbury by Balfour just over a month later added political will to the process. Balfour was more concerned with the problems of organization and strategic planning, and in the unique challenges of imperial defence, than his predecessor had been.⁵³ These interests, acting in concert with the ‘incompetencies being uncovered by the Elgin commission’,⁵⁴ helped bring about the creation of the Committee of Imperial Defence [CID] in December 1902. It was a body in which Balfour would take an active role prior to the fall of his government three years later.⁵⁵ By providing, for the first time, an interdepartmental forum for the discussion of strategic questions, the CID was an attempt, ‘in the contemporary spirit of “national efficiency”, to apply a broader and more systematic approach to defence planning’,⁵⁶ in line with the path recommended by Dawkins. Its influence on the direction of strategic defence planning was, however, to be somewhat limited in the years prior to the First World War. Far more control over Britain’s eventual deployment in France would be vested in the hands of Esher’s other most significant recommendation, the creation of a General Staff.

⁵¹ S. Jones, ‘The Influence of the Boer War (1899-1902) on the Tactical Development of the Regular British Army 1902-1914’ (unpublished Doctoral Thesis, University of Wolverhampton, 2009).

⁵² R.B.B. Esher, *Journals and Letters of Reginald, Viscount Esher*, 4 vols. (London: Ivor Nicholson & Watson, 1934), II, p. 23.

⁵³ G.W. Monger, *The End of Isolation. British Foreign Policy, 1900-1907* (London: Thomas Nelson & Sons, 1963), p. 93.

⁵⁴ Fraser, p. 87.

⁵⁵ J.P. MacKintosh, ‘The Role of the Committee of Imperial Defence before 1914’, *The English Historical Review*, 77:304 (1962), 490–503 (pp. 492–4).

⁵⁶ T.G. Otte, ‘The Foreign Office and Defence of Empire, 1856-1914’, in *Imperial Defence: The Old World Order, 1856-1956*, ed. by G. Kennedy (London: Routledge, 2008), pp. 9–29 (pp. 18–19).

The early history of the British General Staff has been the subject of comprehensive examination over the last forty years,⁵⁷ therefore this study will concentrate largely upon the department within the General Staff with responsibility for military intelligence and, of particular interest to this thesis, ‘for the development of strategic plans for the defence of Britain and the Empire’;⁵⁸ the DMO. Although Esher would explicitly stress that the General Staff established in Britain was not, as a result of the different conditions preponderant in military-focused Germany and the predominantly naval power of Britain, to function in the same manner as ‘the Great General Staff at Berlin’,⁵⁹ the DMO was to become the department of the British General Staff responsible for: the collection of information about the military capabilities of the British Empire; collating intelligence on Britain’s possible opponents in a future war; and preparing the mobilization schemes required to meet potential threats.⁶⁰ The directorate, therefore, would be intrinsically linked with the tasks of ensuring that Britain’s political leaders knew the identity and strength of her most likely opponent in a future war, and that the army would be ready to respond to external threats effectively.

Esher was attempting to infuse the War Office with a ‘planning department’ to match those of the largest corporations of the time,⁶¹ demonstrating an acknowledgement of the importance of thorough planning and coordination to an enterprise containing various specialists engaged on divided, but inter-related tasks.⁶² Yet in a foreshadowing of the fractious relationship between the ‘brass hats’ and their political leaders during the war, the implementation of the new organization did not proceed smoothly. The military figures to be replaced in the reformed War Office were, according to the future Field-Marshal and central figure in the post-war ‘soldiers versus statesmen’ battle, William Robertson, treated with

⁵⁷ See, for example, Gooch, *The Plans of War; The British General Staff: Reform and Innovation, c.1890-1939*, ed. by D. French and B. Holden Reid (London: Frank Cass, 2002).

⁵⁸ Fergusson, p. 203.

⁵⁹ *Esher Committee*, Part I, pp. 4-5.

⁶⁰ *Esher Committee*, Part II, p. 25.

⁶¹ *Esher Committee*, Part I, p. 8.

⁶² L.H. Gulick, ‘Notes on the Theory of Organization’, in *Papers on the Science of Administration*, ed. by L.H. Gulick and L.F. Urwick (New York: Institute of Public Administration, 1937), pp. 3–45 (pp. 5–6); F. James Butterworth, ‘Scientific Management and Motion Study’, *Royal Engineers Journal*, 34:2 (1921), 59–70 (p. 62).

nothing more than ‘scant courtesy’ in the reshuffle.⁶³ Lord Roberts, the outgoing C-in-C, complained to the Secretary of State for War, H.O. Arnold-Forster, about the ‘disgraceful treatment’ being meted out to the soldiers by the ‘triumvirate’ of Esher and fellow committee members, Admiral Sir John Fisher and Sir George Clarke, having been informed by letter on a Sunday afternoon that he had been relieved of his duties.⁶⁴ In a further example of the disastrous management of civil-military relations, the incumbent Director-General of Mobilization and Intelligence, Sir William Nicholson, was replaced without warning on 11 February 1904.⁶⁵ Despite being broadly sympathetic to Esher’s objectives, the future head of the DMO, Henry Wilson, encapsulated attitudes in the War Office at the time, describing the ‘triumvirate’ as ‘carrying on like madmen’ and proceeding with the reorganization in a ‘bull-headed way’.⁶⁶ The ‘clean sweep’ of soldiers connected to the previous system of administration was insisted upon by Esher in order to promote ‘fresh minds’ and the smooth inauguration of modern principles, unimpeded by the prejudices of those ‘connected with existing methods’.⁶⁷ However, the absence of a serving officer on the Esher committee also fuelled a sense of imposition within the army.⁶⁸

It was not only the soldiers who felt disconnected from the new organization, however. In line with the other appointments decided upon by the ‘triumvirate’, Colonel James Grierson was selected and installed as the first Director of Military Operations without Arnold-Forster having been consulted.⁶⁹ Not only did such actions lead to Arnold-Forster holding Esher partly

⁶³ W.R. Robertson, *From Private to Field-Marshal* (London: Constable & Co., 1921), pp. 136–7.

⁶⁴ I.F.W. Beckett, ‘H.O. Arnold-Forster and the Volunteers’, in *Politicians and Defence: Studies in the Formulation of British Defence Policy, 1845-1970*, ed. by I.F.W. Beckett and J. Gooch (Manchester: Manchester University Press, 1981), pp. 47–68 (p. 57).

⁶⁵ On Esher’s belief that ‘Old Nick’ needed to be removed, and the subsequent machinations to ensure his replacement, see Gooch, *The Plans of War*, pp. 49–54; Fraser, pp. 100–1.

⁶⁶ Wilson Papers, HHW 1/13 diary entries, 3, 10 and 11 February 1904. Charles Callwell, Deputy Assistant Quartermaster-General at the War Office during this period, was also critical of the ‘rather arrogant tone adopted by the committee’ towards the soldiers that were being replaced. See C.E. Callwell, *Field Marshal Sir Henry Wilson Bart, G.C.B., D.S.O.: His Life and Diaries*, 2 vols. (London: Cassell & Co., 1927), I, p. 54.

⁶⁷ *Esher Committee*, Part I, p. 10; Fraser, p. 90.

⁶⁸ Hamer, p. 232. The perception of an ‘outsider’ impinging upon the military sphere was also prominent within the War Office in the summer of 1916. See below, chapter 3.2.

⁶⁹ Gooch, *The Plans of War*, p. 55.

responsible for the failure of his own reforms whilst at the War Office;⁷⁰ the fact that Esher's reforms did not go before Parliament for debate also restricted the opportunity for Members to object to aspects of his far-reaching reorganization of army administration.⁷¹ As one commentator noted, as well as being insulated from the self-interests of deposed military figures, the 'triumvirate' also 'stood outside the parliamentary chaos' of party politics.⁷² Yet despite the rushing through of Esher's reforms and the re-population of the War Office with 'fresh minds', a combination of Treasury interference, constitutional wrangling over demarcations of responsibility, and the continuation of politico-military clashes between the Army Council and the Secretary of State over Arnold-Forster's own attempted reforms meant that the process of creating the General Staff was, much to Esher's frustration, slow and incomplete by the time Balfour's government fell in December 1905.

The Esher committee had created a blueprint for the reorganization of the War Office and the establishment of a General Staff. In doing so, the 'triumvirate' had exercised 'careless indifference' towards those in the military profession who were to be replaced,⁷³ and further entrenched the separation of the department from the authority of its political head, the Secretary of State for War.⁷⁴ The net result was that the contractor charged with turning Esher's blueprints into an organizational reality would need to both piece together the framework of the General Staff from the existing fragments built over the preceding years, and re-establish a working relationship between the Secretary of State and the army's senior officers. In addition, the new Secretary would, like those operating in the years prior to the South African War, yet again face constraints imposed by the short-term priorities of an incoming government over the long-term considerations of Britain's defence policy.

The fall of Balfour meant that the creation of the General Staff as a working organization and the 'brains of the army' would either have to be taken on by the incoming Liberal government headed by Henry Campbell-Bannerman, or abandoned. The prospects for

⁷⁰ Hamer, pp. 225–30.

⁷¹ Hamer, pp. 243–5; Gooch, *The Plans of War*, pp. 53–4.

⁷² W.T. Stead, quoted in Hamer, p. 238.

⁷³ Fraser, p. 102.

⁷⁴ Fraser, pp. 105–7.

the former appeared gloomy, particularly as the Liberals' election manifesto had criticized Balfour's 'costly and confused experiments' upon the army.⁷⁵ The cost of maintaining the army had profoundly dissatisfied the public, and there was great support within the Liberal Party for a policy of reduced spending at the War Office.⁷⁶ Within the Army Council itself there was a strong suspicion that a Liberal retrenchment would lead to a weakening of the army and the dissolution of the CID; feelings exacerbated both by Campbell-Bannerman's public confirmation of a policy of social reforms at the expense of the military budget and by his historic objections to army reform.⁷⁷ The man who would face the prospect of balancing his party's demands for fiscal consolidation with the fulfilment of Esher's vision for a British Army in the mould of a 'first-class business machine' was Richard Haldane.

Haldane and the creation of the British Expeditionary Force

Haldane was not the obvious choice to take over the War Office from Arnold-Forster. Yet, despite having entered the political arena through a university education in Philosophy and a career at the Bar, Haldane, although he claimed to have no preconceived ideas, had read widely on military theory and the foundations upon which the vast continental armies of Europe had been grounded.⁷⁸ Upon entering the 'kailyard' Haldane immediately sought to abandon the 'piecemeal', political expediency-dominated reforms which had dogged military administration in the late nineteenth century, and replace them with a holistic consideration of the most efficient organization of the British Army as a whole.⁷⁹ Unlike Esher, however, Haldane would not establish his vision of an economic, but effective, fighting force over the heads of the soldiers, but with their input and support.⁸⁰

⁷⁵ *Liberal Party General Election Manifestos, 1900-1997*, ed. by I. Dale (London: Routledge, 2000), p. 26.

⁷⁶ W. Funnell, 'National Efficiency, Military Accounting and the Business of War', *Critical Perspectives on Accounting*, 17:6 (2006), 719-51 (p. 723).

⁷⁷ S. Koss, *Lord Haldane, Scapegoat for Liberalism* (New York: Columbia University Press, 1969), p. 43; Spiers, p. 49; Searle, pp. 223-8.

⁷⁸ A.J. Anthony Morris, 'Haldane's Army Reforms 1906-8: The Deception of the Radicals', *History*, 56:186 (1971), 17-34 (p. 18); Searle, p. 229.

⁷⁹ F.B. Maurice, *Haldane. The Life of Viscount Haldane of Cloan*, 2 vols. (London: Faber & Faber, 1937), I, p. 170.

⁸⁰ Strachan, *Politics of the British Army*, p. 122; L.J. Satre, 'St. John Brodrick and Army Reform, 1901-1903', *Journal of British Studies*, 15:2 (1976), 117-39 (pp. 125-8); Gooch, *The Plans of War*, pp. 77-92.

Although Haldane would later claim that the BEF was formed as a direct response to the strategic problem of how best to aid France militarily in the event of war with Germany,⁸¹ it was the rather more prosaic influence of financial concerns and domestic pressures for frugality which acted as the principal driver of Haldane's reforms.⁸² Charged with responsibility for reducing the Army Estimates, Haldane adopted the language of efficiency as the basis for his alterations. To ensure the removal of 'waste', redundant formations with no conceivable role to play in a likely engagement were 'lopped off',⁸³ whilst those which remained were to be equipped strictly on the principle of organization for war. With the CID having judged in 1903 that an invasion of Britain was unlikely to achieve success,⁸⁴ and in acknowledgement of the global responsibilities attached to the security of a vast empire, Haldane concluded that the rationale of the army should be to prepare in peacetime a 'highly organized and well equipped force' which could be transported 'with the least possible delay to any part of the world'.⁸⁵ Consequently, 'superfluous London defences and... useless coastal guns' could be removed; their funding redirected into upgrading the forces destined for service overseas.⁸⁶

Yet despite complaints over insufficient funding having been a constant theme of army grievances throughout the nineteenth century, the rapid increase in military expenditure during the 1890s and into the South African War itself ensured that not all failures linked to the conduct of that campaign could be attributed to a lack of financial support from the Treasury.⁸⁷ Responsibility for the manner in which those funds were spent, however, lay with civilian administrators rather than the military; officers were not held accountable for the character of their spending. Rather, civilian scrutinizers obsessed over the 'smallest details' and the 'authority of spending' instead of focusing upon the efficiency with which the allocated funds

⁸¹ R.B. Haldane, *Before the War* (London: Cassell, 1920), p. 31.

⁸² Spiers, p. 192.

⁸³ Maurice, I, p. 181.

⁸⁴ TNA: PRO CAB 38/3/71 Draft Report on the Possibility of Serious Invasion, 11 November 1903.

⁸⁵ Maurice, I, pp. 169–70.

⁸⁶ Spiers, p. 57.

⁸⁷ W. Funnell, 'Accounting on the Frontline: Cost Accounting, Military Efficiency and the South African War', *Accounting and Business Research*, 35:4 (2005), 307–26 (pp. 310–11).

were being used.⁸⁸ As had been emphasized by the Esher committee,⁸⁹ and repeated by Haldane's Military Secretary upon Haldane's arrival at the War Office, the blame for wasteful military expenditure lay with the 'civilians [who had] complete control of all matters dealing with finance and accounting', which allowed the soldiers to absolve themselves from deficiencies in the army's preparedness for war.⁹⁰

The 'scientific expediency', by which the reform of the army was carried out through a process of 'rational calculation',⁹¹ was the product not of an extension of civilian administration but of the reverse. The fiscal responsibility for the management of army expenditure was devolved upon those most keenly placed to exercise it, the army itself. Haldane's reforms involved the administrative branches of the army taking on the form of several large businesses, all under the supervision of their own dedicated manager. Each officer was personally responsible for ensuring the economic working of their department and answerable to the Secretary of State. They would also be expected to carry out their duties with the same regard for fiscal economy as any civilian businessman.⁹² By increasing the role of the military within the army's financial decision-making process, Haldane encouraged each department to take more care over its internal spending and reduced the amount of expenditure on 'unnecessary' items.

The pursuit of economy through reductions and the removal of 'waste' was not all Haldane attempted to bring to the War Office, however. As he noted in an early speech, the promotion of military efficiency was a fundamental aspect of the Secretary of State's responsibility.⁹³ Providing a cost-effective army meant concentrating on both cost and effectiveness. The manner in which Haldane sought to achieve this goal involved the dissemination of 'business principles' throughout the army. In this sense, his actions yet again

⁸⁸ W. Funnell, 'Social Reform, Military Accounting and the Pursuit of Economy during the Liberal Apotheosis, 1906–1912', *Accounting History Review*, 21:1 (2011), 69–93 (pp. 80–5).

⁸⁹ *Esher Committee*, Part II, pp. 15–20.

⁹⁰ Funnell, 'Social Reform', pp. 81–2; H.A. Young, 'Practical Economy in the Army', *RUSI. Journal*, 50:344 (1906), 1281–85 (p. 1281).

⁹¹ Funnell, 'Social Reform', p. 71.

⁹² Funnell, 'Social Reform', p. 79.

⁹³ Spiers, pp. 48–9.

reflected the concept of national efficiency as expounded by Lord Rosebery at the height of the South African War.

Although the range and nature of Britain's potential enemies lay in stark contrast to the singular concern of Franco-Russian encirclement which dominated German strategic thinking, it was to Germany that Haldane looked, as he had already in terms of educational and industrial efficiency,⁹⁴ for inspiration and guidance in the creation of the new, more efficient army. The success of Bismarck's 'efficient army, organized and modelled on scientific principles', demonstrated to Haldane that modern warfare required qualities above and beyond the 'traditional' values of individual heroism and military genius; industrial armies demanded technical knowledge and scientific, methodical organization, business skills suited to the 'manipulation of material resources' in order to unleash the absolute power of the forces under command.⁹⁵ A trip to Berlin during his first year in office gave Haldane the chance to study the organization of the German General Staff in detail, and exposed him to an army he considered to be 'as near perfection as possible, and at a cost proportionately much less than ours'.⁹⁶ In particular, Haldane was struck by the degree of specialization in the German Army, where the General Staff took no part in the administration and supply of the forces, leaving the 'army in the field free from the embarrassment of having to look after its transport and supplies'.

It was a separation which Haldane, in accordance with Esher's recommendations,⁹⁷ wished to implement within the British Army. Such a 'divorce' would allow the General Staff to concentrate on the requirements of preparing the army for war: increased training and education for all ranks; and an improvement to the collection, dissemination and utilization of intelligence reports necessary to ensure Britain's strategic plans were based upon the most up-

⁹⁴ R.B. Haldane, *Education and Empire: Addresses on Certain Topics of the Day* (London: John Murray, 1902), pp. 1–38.

⁹⁵ Funnell, 'National Efficiency', pp. 723–4.

⁹⁶ Haldane's own account of this trip is given in R.B. Haldane, *Richard Burdon Haldane: An Autobiography* (London: Hodder & Stoughton, 1929), pp. 200–9. Unless otherwise stated, all quotes in this passage are taken from this source. Haldane's admiration for the German Army was also expressed in the CID meeting of 23 August 1911, when he referred to it as 'a perfect machine'. See TNA: CAB 2/2 Action to be taken in the event of intervention in a European War, 23 August 1911, p. 7.

⁹⁷ *Esher Committee*, Part II, pp. 22-3.

to-date information.⁹⁸ Yet Haldane had further ambitions, and also envisaged a thorough reorganization of the administrative staff which would provide the logistical support to this reformed army.⁹⁹ His goal was the creation of an administrative organization composed of highly skilled experts, ‘a thinking school of officers’ with a thorough knowledge of business methods – men ‘who desire to see the full efficiency which comes from the new organization’.¹⁰⁰

It was to be an organization based on the recognizable civilian business values of technical expertise, professional competence, and a commitment to economic and efficient working practices. Indeed, such was his commitment to the promotion of efficiency that one observer suggested that Haldane had invented the word.¹⁰¹ His longstanding advocacy of national efficiency, shared with colleagues across the political spectrum, had been demonstrated by Haldane’s becoming a founder member of a small and exclusive dining club founded by Sidney and Beatrice Webb in November 1902. The Co-Efficient Club provided an environment in which Haldane could immerse some of the ‘new school of officers’, those who had risen to prominence since South Africa, within the debate surrounding the ‘scientific problem’ which the reorganization of a modern army had generated.¹⁰² Prominent among them would be the future C-in-C of the BEF, Sir Douglas Haig.¹⁰³ Despite the club not blossoming into the political entity its founders desired, some of the group’s members would play a considerable role in the

⁹⁸ As Henry Wilson’s lectures to the students at the Staff College highlight, this ‘divorce’ would not absolve General Staff officers of the responsibility for acquiring knowledge of the ‘drudgery’ of administrative details fundamental to becoming a ‘superior commander’. See Wilson Papers, HHW 3/3/8 Lecture ‘Opening Remarks’, 23 January 1907; HHW 3/3/11 Wilson to Kiggell, 23 February 1910.

⁹⁹ Spiers, p. 151. As Strachan notes, such an organization was particularly relevant to the British Army due to the nature of Britain’s imperial responsibilities, the planning for which demanded, in the main, the fulfilment of tasks which were ‘administrative and logistical’ rather than the outcome of operational thought. See H. Strachan, ‘The British Army, Its General Staff and the Continental Commitment, 1904-1914’, in *The British General Staff*, ed. by French and Holden Reid, pp. 75–94 (p. 87).

¹⁰⁰ Funnell, ‘National Efficiency’, p. 728.

¹⁰¹ P. Grant, ‘Edward Ward, Halford Mackinder and the Army Administration Course at the London School of Economics, 1907-1914’, in *A Military Transformed? Adaptation and Innovation in the British Military, 1792-1945*, ed. by M. LoCicero, R. Mahoney, and S. Mitchell (Solihull: Helion, 2014), pp. 97–109 (p. 99); Searle, p. 3.

¹⁰² J. Terraine, *Douglas Haig: The Educated Soldier* (London: Cooper, 1990), p. 44.

¹⁰³ Spiers, p. 151.

development of the British Army prior to August 1914.¹⁰⁴ The work of Clinton Dawkins' civil-military committee towards the reorganization of the War Office along 'business lines' has been covered above, and the Foreign Secretary Sir Edward Grey's decision to authorize closer relations between the French and British armies has generated a colossal literature.¹⁰⁵ The contribution of the polymath, and co-founder of the London School of Economics [LSE] Halford Mackinder, however, has received comparatively little attention.¹⁰⁶

The 'Mackindergarten'

By the time Haldane entered the War Office, Mackinder had become Director of the LSE and both the man and the institution would assist in bringing Haldane's vision of an efficient, business-like administrative staff into being.¹⁰⁷ Mackinder, like Haldane a man committed to educational reform, also shared the Secretary of State's belief in the coincidental intent of both military and civilian 'business'. In Mackinder's view, 'power' replaced profit as the objective output of the army, and he suggested that the goal of military reform should be to create an army capable of producing

the necessary amount of power [to achieve victory] at the least possible cost, and one of the main elements in a city business tending to produce profits is the saving of working expenses... It is obvious that if you are to spend and yet be economical, you must spend with knowledge, and in accordance with a policy, in other words your expenditure must be efficient.¹⁰⁸

¹⁰⁴ Other members of the club included the playwright George Bernard Shaw, H.G. Wells, and the future pacifist Bertrand Russell, giving some indication of the breadth of intellectual, political and social views contained within the circle. See Searle, pp. 150–1.

¹⁰⁵ Monger; Z. Steiner, *The Foreign Office and Foreign Policy, 1898-1914* (Cambridge: Cambridge University Press, 1969); C.M. Clark, *The Sleepwalkers: How Europe Went to War in 1914* (London: Allen Lane, 2012); F.H. Hinsley, *British Foreign Policy under Sir Edward Grey* (Cambridge: Cambridge University Press, 1977).

¹⁰⁶ Robert Foley's recent article comparing British and German military learning practices is a notable example, omitting all reference to the LSE course from his survey of British officer training prior to the outbreak of war. See R.T. Foley, 'Dumb Donkeys or Cunning Foxes? Learning in the British and German Armies during the Great War', *International Affairs*, 90:2 (2014), 279–98 (pp. 285–6).

¹⁰⁷ As Peter Grant's recent chapter also notes, the role of Colonel Sir Edward Ward, formerly of the Army Service Corps [ASC], in bringing the course into being should not be undervalued. Ward's working relationship with Haldane further demonstrates the collegiate nature in which the Secretary of State operated. See Grant, pp. 101–9.

¹⁰⁸ *Army. Report of the Advisory Board, London School of Economics, on the First Course at the London School of Economics, January to July, 1907, for the Training of Officers for the Higher Appointments on the Administrative Staff of the Army and for the Charge of Departmental Services, Cd. 3696, (hereafter Mackinder Report 1907), 1907, XLIX.691, p. 12.*

To achieve this, Mackinder would establish a special course of instruction for officers at the LSE,¹⁰⁹ designed to teach a new generation of officers the skills required to operate ‘a vast business organization – a huge factory’.¹¹⁰ Those who passed through the course would become, it was hoped, officers proficient in the ‘business’ of soldiering.¹¹¹

Focus upon the quality of military education in the years before the First World War has predominantly rested upon the graduates of the Staff College at Camberley, responsible for turning out the officers expected to become future leaders of the British Army.¹¹² This is understandable, as Camberley was the establishment at which the BEF’s senior commanders acquired their military education. The ‘Course for the training of officers for the Higher Appointments in the Administrative Staff of the Army’ at the LSE had an equally important aim; to create a pool of officers for the administrative branches of the army with a thorough, modern understanding of the principles required to run what Mackinder termed the ‘greatest single business concern in the country’.¹¹³ In time, as the graduates of the course obtained promotions to senior positions within the supply and logistics departments of the army, Mackinder hoped that the course would develop a ‘tradition’ of its own, placing its graduates on a similar footing to those of Camberley.¹¹⁴

The importance attached to the establishment of such a training course is evident in the speed with which it was created. The first cohort of thirty-one students was enrolled in January 1907, just a year after Haldane took office.¹¹⁵ The course they studied aimed to disseminate the lessons learned in the ‘practical experience of recent campaigns, which had demonstrated the

¹⁰⁹ As Sloan has highlighted, although often referred to as ‘Haldane’s Mackindergarten’, it was Mackinder who oversaw the creation of the course. See G. Sloan, ‘Haldane’s Mackindergarten: A Radical Experiment in British Military Education?’, *War in History*, 19:3 (2012), 322–52 (p. 325).

¹¹⁰ H.A. Young, p. 1282.

¹¹¹ *Mackinder Report 1907*, p. 11.

¹¹² B. Bond, *The Victorian Army and the Staff College, 1854-1914* (London: Eyre Methuen, 1972); T. Travers, ‘The Hidden Army: Structural Problems in the British Officer Corps, 1900-1918’, *Journal of Contemporary History*, 17:3 (1982), 523–44.

¹¹³ *Mackinder Report 1907*, p. 11; S. Pelizza, ‘Geopolitics, Education, and Empire: The Political Life of Sir Halford Mackinder, 1895-1925’ (unpublished Doctoral Thesis, University of Leeds, 2013), pp. 117–18.

¹¹⁴ *Mackinder Report 1907*, p. 14. In order to facilitate this, the age limit for entrants was set at thirty-seven to ensure the army accrued the maximum benefit from the graduates’ ongoing careers. See C.W. Gwynn, ‘The Administrative Course at the London School of Economics’, *Royal Engineers Journal*, 6:4 (1907), 229–35 (p. 229).

¹¹⁵ Sloan, p. 328.

need for specialized administrative officers whose training should include financial, commercial and legal qualifications'.¹¹⁶ The experimental nature of the programme was acknowledged in the first advisory report issued by Mackinder, with an understanding that modifications would take place in future years based on feedback from the students who were referred to as 'collaborators in what... appeared to be a very difficult problem' (that being the adequate coverage of a wide range of subjects within the confines of military requirements).¹¹⁷ The syllabus provided instruction in topics such as accounting and business methods, economic theory and geography, statistics, and 'carriage by sea and land', each taught by prominent academics or men with significant practical experience.

Staff who contributed to the delivery of modules prior to the war included: the statistician Arthur Bowley; the University of Birmingham's former Professor of Accounting, Lawrence Dicksee (who provided a colossal sixty lectures in the first year of the course);¹¹⁸ Douglas Owen, of the Alliance Marine Assurance Company; and the railway expert Wilfred Tetley-Stephenson, former employee of the NER.¹¹⁹ However, despite the lack of military figures on the teaching staff, the course was by no means removed from army supervision. Nor was it subject to the supposed prejudices of military 'insularity'. In fact, an advisory board consisting of both civilian and military figures oversaw the first year's teaching and concluded that:¹²⁰

We desire to say that we are convinced that the results which have been achieved by this first class fully warrant the continuance of this experiment. The experience which has now been gained does not make it necessary to reorganize the scheme in any

¹¹⁶ Funnell, 'National Efficiency', p. 734.

¹¹⁷ *Mackinder Report 1907*, pp. 3-4; Gwynn, p. 230.

¹¹⁸ Gwynn, p. 231. Aside from teaching soldiers the applicability of business ideas to the conduct of war, Dicksee would in 1915 advocate the study of 'present conditions' by British business men, such was his belief that the conflict presented numerous lessons for the civilian. See L.R. Dicksee, *Business Methods and the War* (Cambridge: Cambridge University Press, 1915).

¹¹⁹ *Mackinder Report 1907*, p. 5.

¹²⁰ In 1907 the advisory board consisted of Mackinder and the following: Edward Ward, Permanent Undersecretary of State for War; Sir Hugh Bell, director of the NER; Brigadier-General Frederick Clayton, Director of Supplies; Sir Frederick Harrison, General Manager of the LNWR; Lieutenant-General H.D. Hutchinson, Director of Staff Duties; Major-General Herbert Miles, QMG; Brigadier-General R.M. Ruck, Director of Fortifications and Works; Sir Felix Schuster, chairman of the Council of the Institute of Bankers; Colonel G.R. Townshend, Commandant of the Ordnance College, Woolwich; and Sidney Webb, in his position as chairman of the Governors of the LSE.

essential respects, but some minor changes and modifications in the original syllabus will be made.¹²¹

These modifications included the replacement of portions on banking statistics, public administration and Geography, perceived as being of ‘less immediate practical bearing’, with lectures on ‘business organization’.¹²² The regular syllabus was also enhanced with lectures from specially-invited business leaders, referred to as ‘practical men’. Emphasizing the interaction of civil and military prior to the war, and demolishing the idea of an insular army, distrustful of outside influence, the students also participated in ‘observation visits’ to railway workshops and dockyards, and were actively encouraged to discuss matters with the academic staff and other officers to ensure that the course taught material would continue to be of ‘direct utility’ to the forces.¹²³ By 1909 this symbiotic process had created a syllabus adjudged by the advisory board to be of such value to the army that they would ‘strongly recommend that the course be made a permanent annual institution, in order gradually to create a body of officers well fitted to undertake the varied administrative duties that may fall upon them’.¹²⁴ The only significant change to the syllabus after 1909 was to increase the importance of business organization, a module which ‘emphasized the importance of process and the elimination of waste’ and, following its publication in 1911, included the study of Frederick Winslow Taylor’s *Principles of Scientific Management*.¹²⁵

The ‘Mackindergarten’ created a forum for the exchange of business knowledge which would otherwise have been absent in the professional training offered to soldiers destined for the administrative branches of the army. This was particularly important due to the character of

¹²¹ *Mackinder Report 1907*, p. 6.

¹²² *Army. Report of the Advisory Board, London School of Economics, on the Fourth Course at the London School of Economics, October 1909, to March 1910, for the Training of Officers for the Higher Appointments on the Administrative Staff of the Army and for the Charge of Departmental Services* (hereafter *Mackinder Report 1910*), Cd. 5213, 1910, IX.227, p. 3.

¹²³ Grant, p. 105; Sloan, pp. 334–5.

¹²⁴ *Report of the Advisory Board, London School of Economics, on the Third Course at the London School of Economics, October, 1908, to March, 1909, for the Training of Officers for the Higher Appointments on the Administrative Staff of the Army and for the Charge of Departmental Services*, Cd. 4610, 1909, X.355, p. 3. Haig, as Director of Staff Duties at the War Office, was among the soldiers on the advisory board in 1908 and 1909.

¹²⁵ Grant, p. 106; F.W. Taylor, *The Principles of Scientific Management* (New York: Harper & Brothers, 1911).

Course	Dates run	No. of officers
1	January – June 1907	31
2	October 1907 – March 1908	30
3	October 1908 – March 1909	31
4	October 1909 – March 1910	29
5	October 1910 – March 1911	31
6	October 1911 – March 1912	30
7	October 1912 – March 1913	29
8	October 1913 – March 1914	32
Total		243*

* Number of officers from each rank upon completion of the course: 12 lieutenants; 162 captains; 64 majors; 4 lieutenant-colonels; 1 colonel.

Table 1.1 Number of officers to successfully pass the administrative training course at the LSE, 1907-1914

Source: *Mackinder Reports 1907-1914*.

the British officer corps. Without compulsion, the British Army was entirely reliant upon voluntary enlistment to provide suitable men for the scientifically organized force Haldane wished to establish. The LSE course was an attempt to infuse largely junior officers with business methods and mentalities mostly absent from the typical upbringings of such men, as a result of the army's continuing reliance for officer material upon the landed classes 'for whom the bourgeois ethic of business was anathema'.¹²⁶ It is important, however, not to overstate the effect that the 'Mackindergarten' would have on the efficiency of the BEF's supply organization during the First World War.

Over the period 1907-1914, only 243 officers would successfully pass the course (see Table 1.1), entitling them to the suffix 'e' in the Army List and a certificate from the LSE.¹²⁷ In light of the vast quantity of men who would occupy administrative posts during the conflict, such a tiny number having passed the course necessarily meant that only a minute proportion of the BEF's supply needs were handled by men with an 'e' after their names. Furthermore, such officers were destined for roles which demanded proficiency in the execution of largely routine,

¹²⁶ Funnell, 'National Efficiency', p. 727.

¹²⁷ Sloan, p. 324.

‘everyday’ tasks, rather than the planning of the complex network of inter-connected systems which would maintain the army. The graduates of the LSE maintained the blood flow around the body of the BEF, in ‘junior management’ positions such as that of Major C.D.R. Watts, who crossed to France as commander of No. 1 Company, Army Ordnance Depot; by 1914 none were in a position of adequate seniority to ensure that the force possessed adequate arteries to direct that blood to the BEF’s vital organs. The promotion of Colonel E.E. Carter to the role of Director of Supplies at GHQ in 1915 represented the only instance of an LSE ‘graduate’ attaining a position of relative seniority in the BEF’s administrative hierarchy.¹²⁸

Although cut short by the outbreak of war in August 1914, the establishment of the administrative class at the LSE illustrated the blossoming professional relationship between army and industry in pre-war Britain. Taught entirely by specialists from outside the military, the ‘Mackindergarten’ inculcated a new group of army officers with the theoretical grounding required to operate a modern, industrial army. It was a process overseen and approved by some of the most senior military authorities in the country, and a useful supplement to the professional education provided at Camberley. The development of the LSE course between 1907 and 1914, much like the wider Haldane reforms, demonstrates that the British Army was not resistant to the influence of external agents on the organizational structure of the force, provided those actors operated in a spirit of collegiality rather than imposition.¹²⁹ Beyond the classroom, this same attitude would exist throughout the pre-war period. As a result, technical experts were also to have a significant impact over the army’s practical preparations. Whilst the mixture of politicians and military figures has been widely acknowledged as providing the catalyst for the reorganization of that army prior to the First World War, the process under which it would be brought into action has received far less balanced coverage.

¹²⁸ Grant, p. 107. Major A. Forbes, who later would write the history of the Army Ordnance Service during the war, rose to the position of Director of Supplies in Mesopotamia by March 1918, whilst the only colonel to successfully complete the course, T.D. Foster, would ultimately reach the position of Inspector of the Army Service Corps.

¹²⁹ Haldane frequently stressed in the Commons that his reforms were in reality a ‘soldiers’ scheme’. See Seely, p. 126.

1.2: Readyng the rapier: Producing the mobilization scheme of the British Expeditionary Force

In 1912 a contributor to the staff magazine of the NER, reflecting the ‘invasion literature’ of the time, mused upon the potential trauma that would result on the railway in the event of a German incursion on the Yorkshire coast:

What an enormous strain would be thrown upon the NER and its officials! All ordinary traffic within the effected (sic) area would, for the time being, be suspended, and all resources taxed to the utmost... Supplies and all the necessary accoutrements, inseparable from an army on active service, would be rushed through in the wake of the troops. The railway line would have to be guarded throughout, together with all the bridges and tunnels – a most essential thing in time of war!¹³⁰

In order to meet such a challenge, the author acknowledged, it would be necessary to plan in advance the myriad details and orders required to ensure that the fluidity of the network was not compromised by the sudden onslaught of impromptu traffic. ‘It is probably safe to assume’, he concluded, ‘that the NER management have in their possession a secret timetable which could be put into operation at short notice in the event of mobilization’.¹³¹ This assumption, as would be proven two years later, was not substantially inaccurate.

Aside from a laudatory statement from Kitchener following the deployment of the BEF,¹³² the contribution of ‘civilians’ to the mobilization process was largely glossed over by contemporaneous military figures. Lord Roberts, Henry Wilson’s friend and mentor, recognized the latter’s importance as early as 7 August 1914, writing of Britain’s ‘indebtedness to you for all you have done as the head of the Military Operations section at the War Office’.¹³³ Percy Radcliffe, speaking shortly after the war, would claim that ‘it was only the ardent spirit of Sir Henry Wilson, his tireless energy, wide vision and dauntless perseverance’ that turned hypothetical projections into the practical arrangements of August 1914.¹³⁴ Lloyd George’s memoirs, perhaps as a result of his own ignorance of many of the highly confidential plans, made little reference to the mobilization arrangements of the BEF in 1914. Consequently, the preparations for the movement of the BEF have been treated as almost being Wilson’s personal

¹³⁰ ‘Our Railways in Time of War’, *North-Eastern Railway Magazine*, 2 (1912), p. 67.

¹³¹ ‘Our Railways’, p. 67.

¹³² Hansard, Lords Sitting of Tuesday, 25 August 1914, 5th series, vol. 17, col. 503.

¹³³ Wilson Papers, HHW 2/73/45 Roberts to Wilson, 7 August 1914.

¹³⁴ TNA: PRO WO 106/49A/1 Address by Major-General Sir Percy de B. Radcliffe, n.d., p. 3.

possession. John Bourne, exemplifying the historical approach to the ‘With France’ scheme, referred to it as Wilson’s ‘administrative Rolls-Royce’.¹³⁵

Such one-sided accounts of the creation of Britain’s mobilization scheme insinuate that Britain’s actions on the outbreak of war were a military-led response to the ‘unaccountable disbelief of the authorities’ which had retarded a nationwide system of preparation for war.¹³⁶ However, the successful development and implementation of the ‘W.F.’ scheme was not the result of one man’s efforts, nor was it a spontaneous reaction to French and Belgian requests for aid; it was a thoroughly prepared example of civil-military cooperation, and absolutely dependent upon the input of Britain’s transport industries. The NER, along with the other major railway companies in Britain, played a critical role in the mobilization of the BEF. These companies were part of a longstanding, tripartite working relationship with the state and the military during the late nineteenth and early twentieth centuries. It was this relationship, further ignored by Lloyd George in his post-war criticisms of Britain’s readiness for war,¹³⁷ which ensured that the ‘passage of the Expeditionary Force to France went remarkably smoothly’.¹³⁸

A close relationship – the pre-war British Army and the railways

A link between the military, the government and the railways in Britain was established as early as 15 September 1830 at the opening of the Liverpool and Manchester Railway. Among the dignitaries in attendance were the hero of Waterloo, the Duke of Wellington, and the Member of Parliament for Liverpool, William Huskisson. It was an inauspicious start. Huskisson was fatally injured by a locomotive whilst the duke was pelted with vegetables by a hostile crowd. However, the link was established, and with the spread of the railways over the next decade it was solidified by the Railway Regulation Act of 1840. Incorporated within the act, which was further enhanced in 1844, was the establishment of a Railway Inspectorate to

¹³⁵ Bourne, *Britain and the Great War*, p. 17.

¹³⁶ Wilson Papers, HHW 2/73/45 Roberts to Wilson, 7 August 1914.

¹³⁷ Lloyd George, I, pp. 48–9.

¹³⁸ C. Messenger, *Call-to-Arms: The British Army, 1914-18* (London: Weidenfeld & Nicolson, 2005), p. 55.

approve new lines and certify passenger transport on behalf of the government.¹³⁹ To combat accusations of conflicted interests, employees of the railway companies were initially banned from holding positions as inspectors, therefore appointments were made from the technical branch of the British Army; the Royal Engineers.¹⁴⁰ Between 1840 and the outbreak of the First World War, every Chief Inspector of Railways in Britain would be drawn from its ranks.

Although relations between the inspectors and ‘practical men’ were not always smooth,¹⁴¹ by 1860 the relationship between the army and the railways was sufficiently robust to allow for a proposal to further increase working contact between the two. Against a backdrop of deteriorating Anglo-French relations the Honorary Secretary of the Institute of Civil Engineers [ICE], Charles Manby, suggested the formation of a voluntary body of engineers and railway officials to discuss the necessary arrangements for the transport of troops and stores in the event of a French invasion.¹⁴² Alongside civil engineers, Manby proposed that ‘the general managers of leading lines of railway and the principal railway contractors’ should also contribute their expertise to the War Office to ensure the efficient operation of the railways to meet a foreign threat.¹⁴³ In a reversal of the ‘Lloyd-Georgian’ narrative, the War Office welcomed Manby’s proposal only for the idea to be shelved as ‘the railway companies could not be brought to understand the necessity for, or the advantages of, the proposed system and several members of the Council of the Institution [of Civil Engineers] offered tacit opposition or gave unwilling consent to join’.¹⁴⁴

Through Manby’s persistence, however, on 4 January 1865 the Engineer and Railway Staff Corps [ERSC] was brought into being, comprising of twelve civil engineers and nine

¹³⁹ On the early years of the Railway Inspectorate, see H. Parris, *Government and the Railways in Nineteenth-Century Britain*. (London: Routledge & Kegan Paul, 1965), pp. 28–60.

¹⁴⁰ R.A. Buchanan, ‘Engineers and Government in Nineteenth-Century Britain’, in *Government and Expertise: Specialists, Administrators and Professionals, 1860-1919*, ed. by R. MacLeod (Cambridge: Cambridge University Press, 1988), pp. 41–58 (p. 49).

¹⁴¹ Parris, p. 30.

¹⁴² C.E.C. Townsend, *All Rank and No File: A History of the Engineer and Railway Staff Corps RE, 1865-1965* (London: The Engineer and Railway Staff Corps RE TAVR, 1969), p. 3; G. Williams, *Citizen Soldiers of the Royal Engineers Transportation and Movements and the Royal Army Service Corps, 1859 to 1965* (Aldershot: Institution of the Royal Corps of Transport, 1969), p. 6.

¹⁴³ E.A. Pratt, *British Railways and the Great War; Organisation, Efforts, Difficulties and Achievements*, 2 vols. (London: Selwyn & Blount, 1921), I, pp. 4–11.

¹⁴⁴ Manby, quoted in Townsend, p. 4.

general managers.¹⁴⁵ All members provided technical expertise to the military on an ad hoc basis and received no salary (as continues to be the case today).¹⁴⁶ The new corps was pressed into action almost immediately, being presented with a detailed exercise involving the production of railway movements for 280,000 men from locations all over Britain to concentration points in southern England. Demonstrating the already thoroughly developed recognition of the critical importance of the railway network in industrializing mid-Victorian Britain, the timetables were to be arranged ‘with the utmost rapidity and certainty and special consideration was to be given to maintaining the supply of food for the population of London and other large towns which were wholly dependent on the railways for their daily supply’.¹⁴⁷ Such were the complexities of railway operation involved in this novel exercise that the work was delegated to nine geographically demarcated sub-committees consisting of the general managers of the principal lines in each area alongside their contemporaries from smaller firms.

Within a year, the ERSC provided an answer to the exercise which comprised a schedule for the movement of 962 trains over a period of just eighty hours, the printing of which took up 311 octavo pages.¹⁴⁸ It would be followed over the next twenty years by a further four exercises, each requiring the transportation of varying numbers of troops to different locations, but retaining the basic theme that the ERSC was to consider preparations for a hostile invasion of Britain, rather than the concentration of troops for offensive action overseas. The periods of gestation between the setting of exercises and the submission of answers increased over the course of the years, a consequence of the continuing growth and evolving intricacy of the railways. Meanwhile the number of men with commissions in the ERSC also ballooned. By November 1907, the official establishment of the corps had swollen to 110, and had expanded to include railway engineers, civil contractors and the managers of Britain’s commercial docks in addition to the holders of the originally attached occupations. In practice, however, rarely more

¹⁴⁵ Townsend, p. 6.

¹⁴⁶ Ministry of Defence, ‘Engineer and Logistics Staff Corps: A Network of Advisers to Defence’, *Army*, p. 5 <http://www.army.mod.uk/documents/general/network_of_advisors.pdf> [accessed 17 October 2013].

¹⁴⁷ Townsend, p. 7.

¹⁴⁸ Townsend, pp. 9–10, 18.

than half the available commissions were occupied, and the ERSC was reduced to an establishment of sixty as part of the Territorial and Reserve Forces Act introduced by Haldane in August 1907.¹⁴⁹

By this point, the ERSC had largely diminished in importance, and by the 1910s the corps existed on paper rather than as a vibrant civil-military exchange. The reduced threat of invasion, officially acknowledged by the CID under Balfour in 1903, ultimately tempered the primary reason for the corps' existence. As the General Manager of the Great Central, Sam Fay (commissioned to the ERSC in 1902) would remark, by the time war was declared in August 1914 the only function for which the ERSC met was an annual dinner at the War Office.¹⁵⁰ Yet the guest list at the dinner of 1913 emphasizes both the perceived importance of the ERSC within the military, and the desire to retain the social link between the civilian experts and the army despite the reduced practical contribution of the corps in the preceding years. The military guests at the dinner included: Sir John French, the first commander of the BEF; Sir Charles Douglas, the CIGS in August 1914; Sir John Cowans, QMG at the War Office; Sir Horatio Yorke, the Chief Inspector of Railways; and Herbert Mance, a staff captain in the War Office who acted as a liaison between the army and the railway companies prior to August 1914, and would later go to France as military advisor to Geddes' transportation mission in the summer of 1916.¹⁵¹ However, despite the latent expertise of its members, the ERSC would not be mobilized during the war. Instead, a significant number of them would make contributions to the war effort (in both civilian and military capacities) as a result of the establishment of another civil-military exchange, the Railway Executive Committee [REC].¹⁵²

If the ERSC had been established in anticipation of invasion during the 1860s, the REC owed its formation in large part to the 'war clouds' descending over Europe in the summer of

¹⁴⁹ TNA: PRO WO 114/114 Territorial Force: establishment and strengths, 1908-1914; Townsend, pp. 40-1.

¹⁵⁰ S. Fay, *The War Office at War* (London: Hutchinson & Co., 1937), p. 39.

¹⁵¹ Townsend, p. 42; K. Grieves, 'The Transportation Mission to GHQ, 1916', in *Look to Your Front!*, ed. by Bond et al, pp. 63-78 (pp. 65-6).

¹⁵² Appendix 1 demonstrates the significant impact which the railway companies had upon the composition of the ERSC in 1914.

1911.¹⁵³ The Agadir crisis, which took place against a backdrop of internal labour disputes which culminated in a railway strike in Britain, illustrated two things: firstly, the precarious nature of peace in Europe and the necessity for Britain to ensure that a cohesive strategy was in place should negotiations between France and Germany fail; and secondly, the vital role of the railway network in making the rapid concentration of British troops a possibility. There was not, however, any coordinating system in place to facilitate the harmonious operations of Britain's hundred-plus railway companies under war conditions. Furthermore, the railways would not simply be called upon to transport men from their peace stations upon mobilization. In fact, they could theoretically be required to take on extra freight duties in addition to their daily workload, alongside ensuring that the navy was provided with coal at short notice,¹⁵⁴ particularly if the naval situation brought about the closure of certain ports in Britain. For example, the quantity of coal brought into Greater London by rail in 1908 was around 8.1 million tons.¹⁵⁵ The quantity arriving by water was just over eight million tons. Therefore, should the Thames estuary be closed to traffic during a war, Britain's railways would be required to double the capacity available for the transport of coal, or London's factories and homes would soon face the prospect of an energy crisis.

The ship owner and former chairman of Lloyd's, Sir Frederick Bolton, who had spent eighteen months examining the most suitable means by which Britain could safeguard the distribution of food and raw materials in wartime, doubted the ability of the railways to cope with the extra traffic should such a situation arise.¹⁵⁶ As a result, a sub-committee of the CID was formed to ascertain, given the scenario that all ports from Hull in the north, past the Thames

¹⁵³ Pratt, I, p. 31.

¹⁵⁴ S. Gray, 'Black Diamonds: Coal, the Royal Navy, and British Imperial Coaling Stations, circa 1870–1914' (unpublished Doctoral Thesis, University of Warwick, 2014), pp. 197–8. As Gray illustrates, the Agadir crisis also prompted the Royal Navy to review both its transport arrangements and the relationship between the Admiralty and the major Welsh collieries.

¹⁵⁵ Oxford, Nuffield College Library, Papers of John Edward Bernard Seely, Lord Mottistone, Mottistone 11/71 Interim Report of the Sub-Committee (Committee of Imperial Defence) on the Local Transportation and Distribution of Supplies in time of War, 24 January 1911, p. 6.

¹⁵⁶ Mottistone Papers, Mottistone 11/4 Ottley to Seely, 20 June 1910; 11/6 Sub-committee to consider the desirability of an enquiry into the question of local transportation and distribution of food supplies in time of war, 28 February 1910, p. 3. The participation of Sir Frederick Bolton demonstrates the range of experts consulted by the British Army and government in relation to ensuring the nation's preparedness for war.

and as far west along the south coast as Portsmouth, were closed to goods traffic, whether the railways of Britain would be able to ensure London received adequate supplies of food and raw materials.¹⁵⁷ The question was handed over to the managers of some of Britain's largest railway companies, those intrinsically linked with transport in and around the capital, or to and from the docks in question. Fay was part of the committee, and discussed the challenges involved in addressing the problem:

We had to take into consideration the fact that the closing of ports on the eastern coast would greatly increase the demands on the Liverpool and Manchester Docks in dealing with foodstuffs normally supplied through Hull and Grimsby to the populous districts of the North-East of England. We calculated that the situation could be met by the terminal facilities of Southampton, Bristol, Liverpool, Birkenhead and Manchester, but pointed out that if large movements of troops and material took place concurrently with the demand for the conveyance of increased provisions to London [as would inevitably be the case were the BEF to be despatched to the continent], congestion would occur.¹⁵⁸

Although the fear of invasion had receded in the opening years of the twentieth century, the findings of the sub-committee demonstrated that the need for a coordinating organization to handle the specific technical requirements of a national railway network in times of war was stronger than ever. The final report stated unequivocally that 'we have been impressed by the desirability of having some central body at which matters from time to time referred to railway companies by various government departments may be considered as a whole... We are accordingly of opinion that some permanent consultative body should be formed', consisting of the managers involved in the creation of the report, and those of the other major railway companies in Britain.¹⁵⁹ The result, which the British public would not be made aware of until the First World War was under way, was constituted in November 1912 as the REC. Its most significant contribution would be the production of the 'secret timetable' which guided the BEF's mobilization in August 1914.

¹⁵⁷ Mottistone Papers, Mottistone 11/175 Report from the General Managers of the Great Central, Great Northern, Great Western, London and North-Western, London and South-Western and Midland Railway Companies to the Right Hon. Lieutenant-Colonel J. Seely, on the Provisioning of London in the event of War, 1 August 1911.

¹⁵⁸ Fay, p. 18.

¹⁵⁹ Mottistone 11/175 Report from the General Managers, p. 3.

Henry Wilson and the development of the 'With France' scheme, 1910-1914

In August 1910, Henry Wilson became head of the DMO at the War Office. This small and isolated directorate was responsible for planning the mobilization scheme to be employed by the BEF in the event of war. Over the previous six years, following the conclusion of the *Entente Cordiale* between France and Britain, successive directors had developed mobilization schemes within the narrow confines of the military; however, the creation of such proposals could not remain a solely military concern if a practicable plan was to be produced. Although Wilson's predecessors, Sir James Grierson and Spencer Ewart, had gained government permission to establish and foster contact with the French General Staff, Wilson would later report that 'they had not had time' to investigate the challenge of *how* the BEF would be transported to France.¹⁶⁰ This remark was inaccurate. In fact, Wilson's predecessors had been explicitly forbidden from discussing mobilization plans outside of the War Office.¹⁶¹ This meant that, as Wilson acknowledged, 'the old scheme' in place upon his appointment as director 'had not been worked out in sufficient detail to admit of its being carried out'.¹⁶²

Although understandable on grounds of diplomacy and national secrecy, the decision to detach the railway companies from the planning process severely restricted both the quantity and quality of work the DMO could achieve in relation to the mobilization scheme.¹⁶³ Despite the critical importance of the efficient use of railways for facilitating the swift mobilization of the BEF, the army did not possess officers with the technical expertise required to ensure that the railways would be operated in the most effective manner on the outbreak of war. This lack of specialist knowledge fed into a perception within the railway industry that the army underestimated the capacity of the railways to handle the exceptional burden expected to be placed upon them at the outbreak of war.¹⁶⁴ Such fears were not alleviated by the production of CID reports which expressed doubts as to the 'ability of the railway companies to cope with the

¹⁶⁰ Wilson Papers, HHW 3/7/2 Minute to CIGS reporting progress on scheme of EF, April 1913, p. 1.

¹⁶¹ Callwell, I, pp. 91–2.

¹⁶² Wilson Papers, HHW 3/5/5 Wilson to Nicholson, 24 April 1911.

¹⁶³ N.W. Summerton, 'The Development of British Military Planning for a War Against Germany, 1904-1914' (unpublished Doctoral Thesis, King's College London, 1970), pp. 200–1.

¹⁶⁴ 'Railways and Military Operations', *Railway Gazette*, 7 August 1914, p. 174.

extra strain that would be thrown upon them in time of war'.¹⁶⁵ Such judgments were made in spite of the fact that the railways and the military enjoyed a close working relationship during peacetime. As Wilson's papers from 1909 illustrate, he had discussed the hypothetical situation of mobilizing a division with traffic managers of the Great Eastern and South-Eastern and Chatham [SECR] railway companies in connection with a Staff Tour being planned at Camberley,¹⁶⁶ whilst the annual army manoeuvres demanded the movement of large bodies of troops by rail each summer. In many cases these exercises were handled under 'war conditions', in which orders were not communicated until the last minute to simulate the stresses to be expected at the outset of an actual campaign. In 1910, the London and South-Western Railway [LSWR] was responsible for the movement of: 26,000 officers and men; 8,000 horses; 70 guns; and 1,200 transport vehicles, a task which necessitated the running of 137 special trains in the manoeuvre area.¹⁶⁷

Furthermore, due to the rising social status of railway managers in the early years of the twentieth century,¹⁶⁸ amicable relations between the British Army's officer class and the senior executives of British railways were not uncommon prior to the First World War. Deeper still was the professional bond between the railways and the political elite. With the interests of railway companies stretching for hundreds of miles along the entire length of their lines, men selected for directorships were frequently those possessing 'positions of local power and authority through business, landownership or politics, sometimes all three'.¹⁶⁹ The railways were the most highly regulated industrial sector in Britain, therefore the cultivation of 'close and enduring links' with local and nationally influential political figures was an understandable and

¹⁶⁵ Mottistone Papers, Mottistone 11/6 Sub-committee, p. 3.

¹⁶⁶ Wilson Papers, HHW 3/3/11 Appendix D – Movement of Troops by Rail, October 1909. The level of technical detail contained within this paper illustrates that Wilson was thoroughly conversant with the complexities of railway mobilization prior to his appointment as Director of Military Operations the following summer.

¹⁶⁷ 'Railways and Military Operations', p. 174. The LNWR, Britain's largest pre-war railway company, also recorded its work in relation to the army manoeuvres within the pages of the company magazine. See, for example, 'Manoeuvres in East Anglia', *London and North-Western Railway Gazette*, January 1912, pp. 6-9.

¹⁶⁸ T.R. Gourvish, 'A British Business Elite: The Chief Executive Managers of the Railway Industry, 1850-1922', *The Business History Review*, 47:3 (1973), 289–316.

¹⁶⁹ G. Channon, *Railways in Britain and the United States, 1830-1940: Studies in Economic and Business History* (Aldershot: Ashgate, 2001), p. 167.

logical approach for the railways to take in order to maintain influence with the legislature. Between 1896 and 1915, the Commons and the Lords contributed over forty-four per cent of the Great Western Railway's [GWR] directors, with a further twenty-two percent engaged in local politics.¹⁷⁰ The Foreign Secretary, Sir Edward Grey, had been elected as a director of the NER in 1898 and acted as chairman of the board in 1905 until his return to government following the election of Campbell-Bannerman.¹⁷¹ In his memoirs Grey would recall the 'exceedingly pleasant and congenial' atmosphere in which the board discussed matters, professing that 'the work was interesting' and that his year spent as chairman had been 'one of the happiest' of his life.¹⁷² Despite his personal interest, however, Grey would act alongside Haldane to limit contact between the railway companies and the DMO until 23 January 1911. On this date Wilson successfully lobbied the Secretary of State for War to have the restrictive decree overturned,¹⁷³ having elaborated his reasoning in a letter to the CIGS a fortnight previously:

As far as I am a judge no tables drawn up in this office are of practical value until they have been submitted to and worked out in detail by the Railway Companies concerned, and I submit that we have ample material on which to approach the railway companies as a preliminary to a detailed timetable being drawn up... I am of course ready to discuss this question at any time, and to give any further information and assistance which it is in my power to give, but I hope no unnecessary delay may occur in having detailed timetables worked out by the W[ar] O[ffice] in conjunction with the railway companies, as until this has been done it is impossible to claim that our Expeditionary Force is ready to take the field.¹⁷⁴

Wilson was not the only figure making overtures to senior politicians at this time. Colonel Seely, in conjunction with the sub-committee formed as a result of Sir Frederick Bolton's gloomy prognoses on the railways' ability to cope with the stresses of war, wrote to the Prime Minister highlighting that the 'specially valuable information' only available from the principal railway companies would significantly increase 'the number of persons cognizant of the objects of [the]

¹⁷⁰ Channon, pp. 172–5. The NER was similarly well-furnished with politically and militarily active directors in 1914, members of the board including: Sir Hugh Bell; Viscount Helmsley; Lord Knaresborough; and Viscount Ridley. See W.W. Tomlinson, *The North Eastern Railway. Its Rise and Development* (Newcastle-upon-Tyne: A. Reid & Co., 1915), pp. 768–70. Overall in 1914, the House of Lords contained forty-five members with directorships in one or more railways, whilst the Commons possessed a further thirty-five. See TNA: PRO ZPER 46/17 *The Railway Year Book*, 1914, pp. 52–3.

¹⁷¹ K. Robbins, *Sir Edward Grey: A Biography of Lord Grey of Fallodon* (London: Cassell, 1971), pp. 102–4.

¹⁷² Grey, I, pp. 58–9.

¹⁷³ Jeffery, pp. 91–2.

¹⁷⁴ Wilson Papers, HHW 3/5/4 Wilson to Nicholson, 9 January 1911.

enquiry'.¹⁷⁵ In accord with his Secretary of State for War, Asquith raised no objection to the involvement of the 'General Managers of the principle (sic) railways', but emphasized 'that the conditions of secrecy which have hitherto prevailed should, so far as possible, be preserved'.¹⁷⁶

With permission to conduct conversations with the railway companies secured, Wilson set about the task of producing timetables for the despatch of the BEF, and the necessary accoutrements, to the ports earmarked for the embarkation of the force. The preparation of timetables was handled through a system of consultation between either the QMG's department or the individual Home Commands and a selected railway company, depending on the nature of the intended move.¹⁷⁷ The railways would receive from the military authorities a programme containing the details of each and every unit to be moved, such details including: what the unit would consist of in terms of men and equipment; from which station it would commence mobilization; the day after general mobilization on which the move was to begin; and the time at which it should arrive at the destination port. The railway companies then arranged all the technical aspects of the move: the provision of rolling stock; the times for passing stations and junctions *en route*; the working up of a complete timetable; and the necessary steps to ensure that locomotives and crews would be available and run to time whenever the need for them may arise.¹⁷⁸ Wherever potential clashes arose, the matter would be referred back to the DMO, who would decide on priority.¹⁷⁹

As the port of Southampton, earmarked for the despatch of the main body of troops, was operated by the LSWR, that company would become intimately connected to the development of the 'W.F.' scheme over the next three years.¹⁸⁰ Throughout the development of

¹⁷⁵ Mottistone Papers, Mottistone 11/40 Seely to Asquith, 24 January 1911.

¹⁷⁶ Mottistone Papers, Mottistone 11/42 Asquith to Seely, 26 January 1911.

¹⁷⁷ TNA: PRO WO 106/50 Memorandum by Captain H.O. Mance (Staff Captain, QMG 2) on the Questions Raised by the Executive Committee in their Memorandum of 10 December 1912, 23 December 1912, pp. 2-3.

¹⁷⁸ Pratt, I, pp. 27-8.

¹⁷⁹ WO 106/50 Memorandum by Captain Mance, p. 3.

¹⁸⁰ WO 106/49A/2 Outline of the Scheme and Details Regarding Mobilization and Staff Arrangements, n.d., p. 12. Southampton had fulfilled the same role in 1899 at the outbreak of the South African War, and had a long history of military service. See I.F.W. Beckett, 'Going to War. Southampton and Military Embarkation', in *Southampton: Gateway to the British Empire*, ed. by M. Taylor (London: I.B. Tauris, 2007), pp. 133-46.

the plan, the LSWR acted as the ‘secretary railway’, a designated point of contact for all correspondence regarding the scheme both for the War Office and the other railway companies involved.¹⁸¹ The desired time of arrival for each train at Southampton was delivered to a specialist staff working exclusively on the mobilization timetable for the LSWR, and from this projection the route for each individual train could be traced back to the point at which it would be required to enter the LSWR’s system. The company over whose lines the train would pass immediately prior to entering the LSWR network would then be notified of the time they were expected to hand the train over. From this information that company then plotted the journey further back, either to the station of departure or to the next ‘handover’ location on its route.¹⁸²

Once each journey had been traced back to the station of departure, the time of entrainment was entered into the unit’s individual mobilization scheme.¹⁸³ However, as the war establishments of certain units were amended each year by the Army Council, the timetables demanded constant revision to take into account the possibility of extra rolling stock or specialist equipment being required. Such changes could also raise the prospect of the unit being sent to a different port of embarkation, or adjustment being made to the priority of its departure. Given the numerous factors involved, amending the timetable became a time-consuming process, both for the DMO and the larger railway companies.¹⁸⁴ In December 1913, despite those involved in the process having obtained over two years’ experience by that point, it was found that amendments handed down from the Army Council took four months to be synthesized into the existing timetables.¹⁸⁵ Adding to the difficulties, Wilson found that a lack of communication within the War Office itself frequently led to information which impacted upon the mobilization of the BEF not being relayed to the DMO.¹⁸⁶

¹⁸¹ WO 106/49A/1 Address by Radcliffe, p. 7.

¹⁸² Pratt, I, pp. 112–14.

¹⁸³ WO 106/49A/1 Address by Radcliffe, p. 7.

¹⁸⁴ In the winter of 1912-1913, the LNWR received such drastic alterations to their share of the mobilization programme that the company created a special department to work exclusively on ensuring the railway would be ready to meet its obligations. See E.A. Pratt, *War Record of the London and North-Western Railway* (London: Selwyn & Blount, 1922), pp. 6–7.

¹⁸⁵ WO 106/49A/2 Revision of programme, unsigned letter, 4 December 1913.

¹⁸⁶ Wilson Papers, HHW 3/5/15 Wilson to Nicholson, 16 August 1911.

Yet the period which followed the Wilson-Haldane conversation of January 1911 was not simply characterized by hard work at the DMO and among the prominent railway companies. It was a time of increasing interdepartmental cooperation between those which existed ‘solely for the purpose of war’, and those whose primary responsibilities lay in the governance and administration of peacetime Britain.¹⁸⁷ This cooperation was manifest in the creation of the War Book,¹⁸⁸ a series of instructions to be followed by the appropriate government departments and industrial concerns upon the declaration of a precautionary period and subsequent order to mobilize. Created in 1912, and updated in 1913 and 1914, the book acted as a step-by-step guide for officials in areas as wide-ranging as the provision of policemen for the protection of vital railway junctions and the despatch of mobilization telegrams to soldiers. From 1913 onwards, the book was arranged in chapters by department, so that each could obtain the instructions relevant to their actions without having to concern themselves with orders only applicable to others.

The Foreign Office, responsible for giving notice of the possibility of war to the other departments concerned, appeared first in the book. Next came the War Office and Admiralty, whose chief duties were the security of the nation and the mobilization of the army and navy respectively, followed by the Colonial and Indian Offices, in charge of Britain’s overseas territories. The Privy Council and Treasury, responsible for issuing the proclamation of war and the authorization of war measures followed, along with the Home Office and Local Government Board who were to oversee internal order and the relief of distress. The final chapters of the book dealt with the Board of Trade, through which the railway companies received their instructions; the Customs and Excise Board, with their duties in relation to supply and blockade; and the Post Office, responsible for the gargantuan task of delivering mobilization telegrams and disseminating official information.¹⁸⁹ By crystallizing the commands in print, the War Book effectively acted as a standard operating procedure for the British Empire, ensuring that

¹⁸⁷ TNA: CAB 15/2 Minutes, Papers and War Books, Note by the Secretary, 4 November 1910.

¹⁸⁸ M. Hankey, *The Supreme Command, 1914-1918*, 2 vols. (London: George Allen & Unwin, 1961), I, pp. 118–23; S. Sokolov Grant, ‘The Origins of the War Book’, *The RUSI Journal*, 117:667 (1972), 65–69.

¹⁸⁹ Sokolov Grant, p. 66.

regardless of turnover in personnel between the creation and the implementation of the instructions contained within, Britain's response to the outbreak of war would be systematic, coherent and organized.¹⁹⁰ In short, the War Book was the embodiment of Frederick Winslow Taylor's maxim: 'In the past, the man has been first; in the future the system must be first'.¹⁹¹ Employees at the Board of Trade or the general managers of railway companies, people whose daily focus was upon their peacetime occupations rather than preparing for war, could simply consult the book in order to establish 'best practice' upon receiving the signal to mobilize.¹⁹²

Concurrent with the production of the War Book and the railway timetables, action also took place to address the challenge of transporting the BEF across the sea. On the British side of the Channel, the LSWR undertook significant railway construction to bring the total length of track within Southampton docks up to thirty-seven miles,¹⁹³ whilst bespoke diagram boards charting the special facilities required by individual units were also set up to allow port authorities to keep visual track of the BEF's complex demands.¹⁹⁴ On the French side, four shipping experts were invited by Colonel Seely to investigate the problems to be tackled in landing the BEF upon the European mainland.¹⁹⁵ Sir Thomas Royden and Sir Lionel Fletcher, together with officers from the naval and military staffs of both Britain and France, made a thorough reconnaissance of the Channel ports earmarked for the disembarkation of the BEF and devoted six months to the production of a comprehensive report on the BEF's shipping requirements.¹⁹⁶ The recommendations of the Royden-Fletcher report, handed over to the Admiralty in February 1913, were adopted as the foundation for the disembarkation instructions

¹⁹⁰ On the increasing use of standard operating procedures in business during this period, see Yates, pp. 30–1.

¹⁹¹ F.W. Taylor, *Principles of Scientific Management*, p. 7.

¹⁹² Copies of all three War Books, charting the evolution of British war planning, are available at CAB 15/3-5 War Book: Summary of action taken by Departments, 27 February 1912 to 30 June 1914.

¹⁹³ E.A. Pratt, *British Railways and the Great War; Organisation, Efforts, Difficulties and Achievements*, 2 vols. (London: Selwyn & Blount, 1921), II, pp. 1008–9. As Stevenson notes, public funds were 'covertly committed' to this construction, alleviating the only significant bottleneck in Britain. See Stevenson, 'War by Timetable?', p. 174.

¹⁹⁴ Beckett, 'Going to War', p. 142.

¹⁹⁵ The four men were: Sir Thomas Royden of the Cunard Company; Sir Lionel Fletcher, White Star Line; Sir Richard Holt, Blue Funnel; and Sir Owen Philipps of the Royal Mail. 'In order to fully discharge [the task, Royden and Fletcher]... gave up all their private work for many months'. See F.E. Smith, *Contemporary Personalities* (London: Cassell & Co., 1924), pp. 291–2.

¹⁹⁶ Seely, pp. 140–1.

issued to the troops the following year, and were built into the mobilization timetables created by the DMO.¹⁹⁷

Royden and Fletcher identified that the crane facilities at each of the ports earmarked to receive the BEF (Le Havre, Rouen, and Boulogne) were inadequate for the task of handling the volume of supplies required to make the BEF an effective fighting force. In order to prevent backlogs occurring, therefore, it was decided that the mechanical transport accompanying the force should be divided and sent to all three ports rather than, as in the case of Avonmouth in Britain, being concentrated on one facility.¹⁹⁸ Such recommendations inevitably led to further revisions to the mobilization timetable in Britain. In light of the vast quantities of data being received, processed, and acted upon by the DMO in conjunction with the scheme, the number of officers dedicated purely to ‘W.F.’ duties rose during Wilson’s tenure as director.¹⁹⁹ In order to keep track of the various activities and discussions taking place across the numerous departments involved, and with an eye to satisfying himself that existing deficiencies were in the process of being rectified, Wilson demanded regular service updates on the condition of the scheme.²⁰⁰

The procurement of horses for the use of the BEF offers an example of the practice. The peacetime establishment of the BEF was approximately 19,000 horses. Upon mobilization, the BEF required 55,000 horses, the Territorial Force a further 86,000.²⁰¹ Nine months after becoming Director of Military Operations, Wilson viewed the army to be ‘lamentably short of horses’.²⁰² Four months later, in the middle of the Agadir crisis with the potential deployment of

¹⁹⁷ WO 106/49A/1 Address by Radcliffe, p. 4; WO 106/49A/2 V. Sea Transport. A hand-written note on this file states that the timetables for 1913 had been amended in light of the conclusions of the Royden-Fletcher report.

¹⁹⁸ WO 106/49A/2 Outline of scheme, i. Factors affecting plan of movement and Staff work.

¹⁹⁹ Wilson Papers, HHW 3/7/2 Minute to CIGS, pp. 5-6 notes that the quantity of officers working in partnership with the French Army on questions requiring joint consideration had risen from one in 1910 to five by April 1913.

²⁰⁰ An example of this process is WO 106/50 A list of some outstanding questions to be settled, 29 October 1911.

²⁰¹ T.R.F. Bate, ‘Horse Mobilisation’, *RUSI. Journal*, 67:465 (1922), 16–25 (p. 19); D. Chapman-Huston and O. Rutter, *General Sir John Cowans, G.C.B., G.C.M.G.: The Quartermaster-General of the Great War*, 2 vols. (London: Hutchinson & Co., 1924), I, pp. 250–1.

²⁰² TNA: PRO WO 106/47 Proposed Assistance by Great Britain to France (E2/21), Wilson to Nicholson, 24 April 1911.

the BEF perilously close to becoming a reality, Wilson would again bemoan the fact that, although he had asked for the information the previous October, the QMG's department still had not furnished the DMO with the information as to 'exactly when and where the horses required on mobilization will be handed over to the units'.²⁰³ Clearly, a system for the recruitment of animals was desperately required. Over the following two years an organization for the impressments of horses was developed, with regular updates on its progress being fed back to Wilson's office. Once again, the level of civil-military cooperation involved undermines both Lloyd George's post-war claims, and the image of a nation living in splendid isolation from the state evoked by A.J.P. Taylor.²⁰⁴

Beginning in 1912 with the 'Memorandum on Impressment', a census of horses was compiled in each of the Home Commands, based on previously compiled police records which confirmed that enough suitable horses existed.²⁰⁵ The list was handed over to the War Office, where 'purchaser's lists' for the entire country were drawn up.²⁰⁶ Upon the call for mobilization the lists would be handed over to 'prominent local gentlemen of suitable knowledge and status' for collection.²⁰⁷ Having received the animals, these civilian volunteers were to take the purchased horses to pre-determined collecting stations where the rolling stock to transport them to their concentration areas would be made available.²⁰⁸ Following initial misgivings and the need to train personnel in the duties required of them, by April 1914 the timetables had been printed for the movement of horses, and by August there were some fourteen hundred civilian purchasers on the War Office's rolls.²⁰⁹ Furthermore, as a report submitted to Wilson on the

²⁰³ Wilson Papers, HHW 3/5/15 Wilson to Nicholson, 16 August 1911.

²⁰⁴ A.J.P. Taylor, *English History, 1914-1945* (Oxford: Clarendon Press, 1965), p. 1.

²⁰⁵ Chapman-Huston and Rutter, I, pp. 252–5.

²⁰⁶ G.F. MacMunn, 'The Horse Mobilisation of the Forces', *Army Review*, 5:2 (1913) (reprinted in TNA: PRO WO 138/52 Personal Files: General Sir John Cowans).

²⁰⁷ Chapman-Huston and Rutter, I, p. 254.

²⁰⁸ Bate, pp. 17–19. As Wilson reflected early in his tenure, 'there will be a difficulty about moving some 15,000 horses from the north of England to Aldershot'. See Wilson Papers, HHW 3/6/4 Note from a Meeting in Major-General Heath's room, 27 July 1911.

²⁰⁹ Chapman-Huston and Rutter, I, p. 255.

progress of the scheme in April 1913 confirmed, the ‘various horsebrows, slings and stores required by the home ports’ for the embarkation of the animals had been purchased.²¹⁰

These ‘board meetings’ represented Wilson’s ‘search for order and integration’ within the DMO,²¹¹ and afforded Wilson’s subordinates the opportunity to reflect on the progress of particular tasks with their director. They also provided the evidence which Wilson would use in regular letters to the CIGS on the development of the scheme, the tone of which doubtless added to contemporary attitudes regarding Wilson’s personal contribution to Britain’s mobilization. Between 1911 and 1914 Wilson relentlessly emphasized how ‘anxious’ he was to keep his superiors apprised of the condition of the BEF, this anxiety frequently being combined with a list of the existing deficiencies which rendered the BEF ‘unprepared for war’. At the end of 1911, as European defence spending began to accelerate, particularly in Germany,²¹² Wilson wrote that:

All the great powers and many of the smaller ones are straining every nerve to increase the numbers and the efficiency of their armies: we alone are doing nothing to increase our numbers and but little, and that slowly, to increase our efficiency.²¹³

And upon the appointment of a new CIGS in March 1912, Wilson would not miss the opportunity to place on record that ‘as we stand today, we cannot claim that the E[xpeditionary] F[orce] is either ready to take the field, or capable of keeping the field as a thoroughly efficient fighting machine’.²¹⁴

Yet through careful liaison with suitably qualified civilian experts and the cooperation of British industry, wedded to Wilson’s determination to complete the project and be capable of rendering support to the French upon the outbreak of war, by the summer of 1914 Seely was able to assert in Parliament that the BEF ‘was ready to go on expedition’, and that wherever it

²¹⁰ Wilson Papers, HHW 3/7/3A Note containing ‘48 points’ concerning the Expeditionary Force scheme prepared for the DMO, 3 April 1913, p. 2.

²¹¹ Yates, p. 29.

²¹² D. Stevenson, *Armaments and the Coming of War: Europe, 1904-1914* (Oxford: Clarendon Press, 1996), pp. 1–9; D.G. Herrmann, *The Arming of Europe and the Making of the First World War* (Princeton, NJ: Princeton University Press, 1996), pp. 147–72.

²¹³ Wilson Papers, HHW 3/5/21 Wilson to Nicholson, 26 December 1911.

²¹⁴ Wilson Papers, HHW 3/5/22 Wilson to French, 3 April 1912.

went it would fight well.²¹⁵ A complete set of timetables had been printed and issued to the relevant units detailing their peace station, place of mobilization and the location of their equipment, and a series of tables had been delivered to each Command indicating the day after general mobilization on which the units had to be ready to move.²¹⁶ Each unit, or part thereof, was assigned to a train, whose projected time of arrival was recorded alongside their departure time from the mobilization camp. At the embarkation ports, troops or supplies were allocated to a cross-Channel transport and the serial number of the ship telegraphed to the destination port, ensuring that the French authorities were aware of the contents of each ship and could direct it to the most suitable berth for disembarkation.²¹⁷ Finally, following an enforced rest period at base camps outside the French ports, the units would be arranged into trainloads on the French pattern and transported to the area of concentration.²¹⁸

As a French artillery officer noted in an article translated for the *RUSI Journal*, ‘the intervention on the Continent of the British Army is a diplomatic and military act too serious for its execution to be left to an eleventh hour inspiration’.²¹⁹ The character of modern warfare among European powers demanded that the effective contribution of a British force would require detailed planning and thorough preparation. Thanks in large part to the efforts of the DMO, concealed from Parliament and even from a significant proportion of the army during the years prior to the First World War,²²⁰ Britain would enter that conflict on the basis of a coherent, comprehensively mapped out schedule. ‘W.F.’ was a scheme founded upon Britain’s status as

²¹⁵ S.R. Williamson, Jr., *The Politics of Grand Strategy: Britain and France Prepare for War, 1904-1914* (Cambridge, MA: Harvard University Press, 1969), p. 303.

²¹⁶ WO 106/49A/8 Expeditionary Force Tables and details of the War Establishments of Units, January 1914; Mobilisation dates by Commands, April 1914. The complete set of timetables is available at TNA: PRO WO 106/49B/3 Wilson-Foch Scheme – Expeditionary Force to France, Railway Timetables, Expeditionary Force Time Tables, 1914.

²¹⁷ WO 106/49B/3 Serial Railway Tables Southampton, 1914.

²¹⁸ Differences between French railway transport policy and the British method meant that the DMO was required to allot units to trains by different methods on both sides of the Channel to ensure the most efficient use of the available rolling stock. See WO 106/49A/2 i. Factors affecting plan of movement; WO 106/49B/7 Wilson-Foch Scheme – Expeditionary Force to France, Disembarkation Tables, 1914.

²¹⁹ A. de Tarlé, ‘The British Army and a Continental War’, trans. by H. Wylly, *RUSI. Journal*, 57:421 (1913), 384–401 (p. 400).

²²⁰ The majority of Parliament only became aware of the ‘W.F.’ scheme when Sir Edward Grey addressed the Commons on 3 August 1914, whilst Sir Douglas Haig, commander of I Corps in August 1914, had scant knowledge of the planning process prior to August 1914. See S.B. Fay, *The Origins of the World War*, 2nd ed. rev, 2 vols. (New York: Macmillan, 1930), II, p. 542; Sheffield, *The Chief*, p. 68.

one of the world's foremost industrial powers, possessing an abundance of technical specialists in myriad fields of business and commerce alongside a dense and robust logistics network. The mobilization of the BEF may have been a military manoeuvre more complex than anything previously attempted by a British force, but unlike the German Army's 'Schlieffen Plan' it would not contain elements which were logistically 'a gamble'.²²¹

Although one unnamed contributor to the sub-committee investigating the supply of food and raw materials to London would complain that it was a 'damn nonsense wasting time over something that will never happen',²²² the existence of the 'W.F.' scheme in August 1914 is ample evidence that the majority of Britain's transport experts did not share this opinion. In fact, in the case of Sir Guy Granet, General Manager of the Midland Railway, the developing links between the army and the railways created an almost militaristic suspicion of German intentions. Upon receipt of a request from the Saxony State Railways to send a surveyor and their goods manager to study the systems of train despatch and goods conveyance on the Midland in July 1912, Granet immediately forwarded the request to Seely, adamant that 'they are merely coming to spy'.²²³ Although the advice given to Granet is not recorded (he was asked to call upon Seely to discuss matters in person a week later),²²⁴ the fact that Seely thought enough of Granet's letter to show it to the Foreign Secretary demonstrates the high regard in which the senior executives of the railway companies were held in both the government and the army.²²⁵

Keith Jeffery has suggested that Wilson's 'larger than life' persona may have made him appear more of a driving force behind the scheme than he actually was.²²⁶ Yet the scale of the work undertaken by the DMO under Wilson's leadership in the four years from August 1910 is evidence enough to support the position that Wilson's personal drive and energy in the role of 'project manager' was a significant contributor to the completion of the BEF's mobilization scheme. But this conclusion should not understate the significant investment of time and

²²¹ 'Schlieffen does not appear to have devoted much attention to logistics when he evolved his great plan'. See Van Creveld, p. 138.

²²² Fay, p. 19.

²²³ Mottistone Papers, Mottistone 19/166 Granet to Seely, 26 July 1912.

²²⁴ Mottistone Papers, Mottistone 19/172 Walker to Nicholson, 1 August 1912.

²²⁵ Mottistone Papers, Mottistone 19/168 Seely to Grey, 29 July 1912.

²²⁶ Jeffery, p. 99.

resources provided to the army by the managers and employees of Britain's largest transport concerns. For more than three years the general managers of Britain's most prominent railway companies provided labour, 'greatly in excess of what had previously been necessary', to fulfil the requirements of the army.²²⁷ For Sir Lionel Fletcher, such was his desire to ensure the scheme met the high standards of efficiency that he demanded of the White Star Line, that he would continue to immerse himself in questions regarding the machinery of coordination between the Admiralty and War Office from the comfortable surroundings of the Junior Carlton Club long after the submission of the Royden-Fletcher report.²²⁸ For those at the 'sharp end', however, the sacrifice could be far more tragic. With the preservation of secrecy entailing that as few employees as possible within the railway companies were cognizant of the scheme, for one timetabling expert the 'strenuous and exhausting toil' involved in working out the details of the mobilization programme was directly linked to their early death.²²⁹

Lloyd George's rejoinder to 'those who taunt the Liberal Government with being quite unprepared' in August 1914 completely ignores this combination of civil and military agencies working in harmonious and productive cooperation over the final four years of peace.²³⁰ Instead, the *War Memoirs* focus upon the work of various political figures: Balfour; Asquith; Haldane; and Churchill chief among them, in readying the nation for war. Between this politically motivated oversight, and the military-driven concentration on the role of Wilson, the truly collaborative nature of Britain's pre-war planning has been undervalued. William Philpott has even gone so far as to suggest that 'the importance of Wilson's timetables has been overemphasized'.²³¹ This conclusion is based on a political rather than logistical reading of the situation Britain found herself in during the first week of August 1914, and ignores the transport implications linked to the movement of an industrial army, however 'contemptible' in size, without incident or delay. It was thanks to the technical expertise of a highly skilled industrial

²²⁷ Pratt, I, p. 16.

²²⁸ Mottistone Papers, Mottistone 22/101 Memorandum by Sir Lionel Fletcher, 17 February 1914.

²²⁹ Pratt, I, p. 16.

²³⁰ Lloyd George, I, pp. 48–9.

²³¹ W. Philpott, 'The General Staff and the Paradoxes of Continental War', in *The British General Staff: Reform and Innovation, c.1890-1939*, ed. by D. French and B. Holden Reid (London: Frank Cass, 2002), pp. 95–111 (p. 99).

society, working in conjunction with an efficiently administered professional army, that the BEF's mobilization scheme was created. This civil-military collaboration would ensure that when the time came the BEF would be ready to mobilize quickly and efficiently. In August 1914, however, under the pressures of coalition politics, the limits of civil-military strategic harmony constructed over the previous decade would come to the fore. At the centre of it all, yet again, was Henry Wilson.

1.3: From paper to practice: The deployment of the British Expeditionary Force

On 2 August 1914, France's former military attaché to Britain wrote to Wilson to advise him that French mobilization had been ordered, and that 'great hopes are entertained in France concerning British assistance. Should you not join us, it would be a great disappointment here'.²³² A committed Francophile from his youth,²³³ Wilson would have wished for nothing more than to see the BEF immediately mobilized and sent to the aid of the French. Indeed, since his appointment as Director of Military Operations Wilson had on a number of occasions stressed the importance of Britain's swift mobilization in the event of war, claiming that 'the early intervention of our six divisions would be more effective than the tardy presence of double their numbers'. Therefore, he concluded, 'we must mobilize the same day as the French'.²³⁴ As Wilson was all too painfully aware, Britain's commitment to entering a war on the continent would be governed by Cabinet decision rather than by the entreaties of her military chiefs. The character that Britain's commitment would assume following that decision, however, was one in which the armies of both France and Britain, and the DMO in particular, would play a prominent role in shaping. In this too, logistical considerations loomed large.

The Directorate of Military Operations and the development of the continental commitment

The DMO's investigation of Britain's potential role in a European war began within months of the conclusion of the entente, and was instigated by the department's first director, Major-General James Grierson. If any officer in the British Army possessed the 'expert knowledge' to pilot the directorate concerned with the study of foreign armies and the development of a British military response to war – something to which Esher's 'triumvirate' attached 'extreme importance' – it was Grierson.²³⁵ A Glaswegian by birth, Grierson entered the Directorate of Military Intelligence having already 'established a reputation... as a sound and

²³² Wilson Papers, HHW 2/73/38 Huguet to Wilson, 2 August 1914.

²³³ Jeffery, p. 4.

²³⁴ WO 106/47 Conditions of a War between France and Germany (E2/25), 12 August 1911.

²³⁵ *Esher Committee* (Part II), p. 6.

brilliant staff officer with a wide range of knowledge on military affairs'.²³⁶ Grierson had accompanied the Austrian armies during the occupation of Bosnia-Herzegovina, observed the Russian manoeuvres, served in Egypt and Sudan, and passed the Staff College at Camberley with honours in French and Russian. He had also published numerous articles in military journals alongside highly detailed analyses of the organizations of the Russian, Japanese and German armies.²³⁷ His knowledge of foreign armies was, according to Robertson, 'unrivalled', and doubtless enhanced by his good relations with officers on the German General Staff, fostered during his early military career.²³⁸

These connections had made Grierson the obvious candidate to become military attaché in Berlin in 1896. However, the four years spent in Germany were to engender a complete reversal in Grierson's feelings towards his hosts. Friendship turned to suspicion, fuelled by the 'atmosphere of intrigue, falsehood and malice' prevalent in Berlin, and stoked by a German press perceived as being 'violently anti-English' in London.²³⁹ Reflecting upon the Kaiser's expansionist policies, in 1898 Grierson would write, 'we must go for the Germans... right soon or they will go for us later'.²⁴⁰ This sea change in attitude was confirmed in 1900-1901 when Grierson, acting as British liaison on the staff of Count von Waldersee during the Boxer uprising, sent home letters containing numerous remarks displaying contempt towards the German officers and their 'jealousy' of Great Britain.²⁴¹ Along with carrying the news of Nicholson's removal from the post of Director of Military Intelligence in February 1904, Grierson entered the War Office with 'little doubt that Germany would one day embroil Europe

²³⁶ D.S. MacDiarmid, *The Life of Lieutenant General Sir James Moncrieff Grierson* (London: Constable & Co., 1923), p. 82.

²³⁷ R.W.A. Onslow, 'Grierson, Sir James Moncrieff (1859–1914)', rev. by M.G.M. Jones, *ODNB* <<http://www.oxforddnb.com/view/article/33574>> [accessed 14 September 2014].

²³⁸ W.R. Robertson, *From Private*, p. 140; MacDiarmid, p. 84.

²³⁹ MacDiarmid, pp. 116–22; M. Macmillan, *The War That Ended Peace: How Europe Abandoned Peace for the First World War* (London: Profile, 2013), pp. 102–3; M.S. Seligmann, 'A View From Berlin: Colonel Frederick Trench and the Development of British Perceptions of German Aggressive Intent, 1906–1910', *Journal of Strategic Studies*, 23:2 (2000), 114–47.

²⁴⁰ A. Vagts, *The Military Attaché* (Princeton, NJ: Princeton University Press, 1967), p. 152.

²⁴¹ Onslow; MacDiarmid, pp. 172–82.

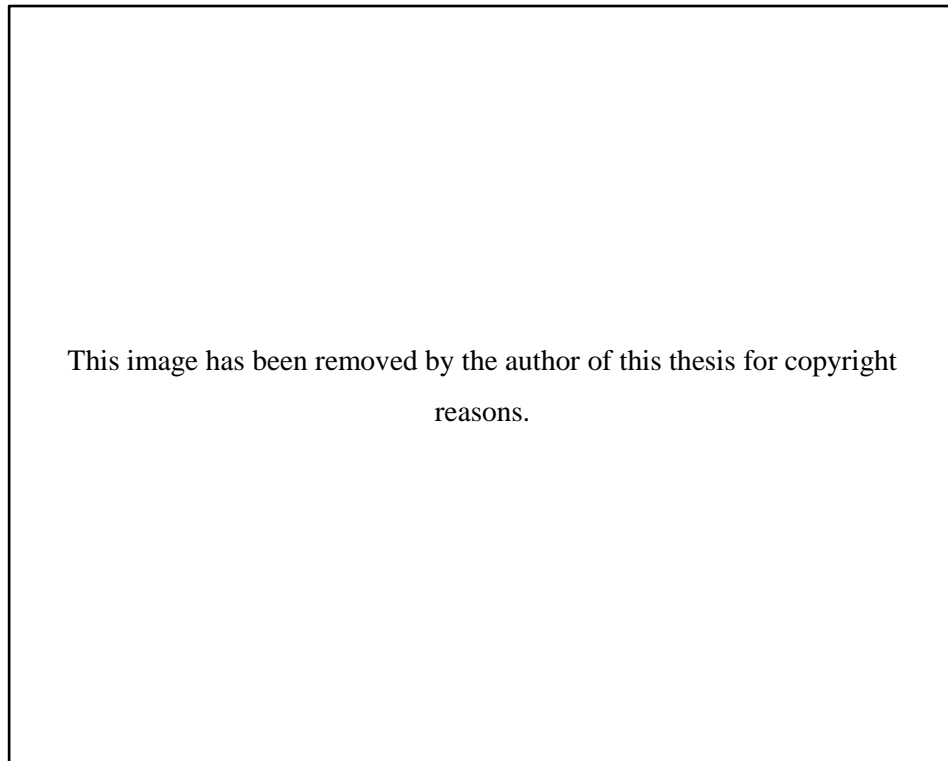


Figure 1.1 Map of the Belgian railway network, 1914

Source: M. Laffut, 'Belgium', in *Railways and the Economic Development of Western Europe, 1830-1914*, ed. by P. O'Brien (London: Macmillan in association with St Antony's College, 1983), pp. 203–26, (p. 208).

in war'.²⁴² The signature of the *Entente Cordiale*, although primarily founded upon the 'demarcation' of colonial interests in North Africa rather than upon the construction of a Franco-British power bloc in Europe,²⁴³ created the environment in which Grierson could develop plans to confront the German menace. Yet the changed diplomatic situation brought about by the signing of the entente did not immediately alter the strategic preparations of the General Staff. In late 1904, well after the Anglo-French agreement had been signed, 'amphibious operations against French colonies were still being perfected by the War Office'.²⁴⁴

²⁴² MacDiarmid, p. 212.

²⁴³ As Strachan highlights, in 1904 the entente was, despite the ambitions of French Foreign Minister Théophile Delcassé, a global agreement regarding colonial spheres of influence rather than one with explicit European connotations. However, as Philpott has demonstrated, the French Army understood and acted upon the military implications of the entente to forge closer links which went far beyond the strategic planning encapsulated within the 'W.F.' scheme. See H. Strachan, 'War and Empire', *The RUSI Journal*, 149:2 (2004), 40–44 (pp. 40–1); Philpott, 'Making of the Military Entente'.

²⁴⁴ Williamson, Jr., pp. 20–1.

Early in 1905, however, the entente did provide the context for a war game played out within the DMO, predicated on the assumption that Germany had violated Belgian neutrality whilst engaged in a war with France.²⁴⁵ Despite Prussia being a guarantor of Belgian independence since the 1867 Treaty of London, the line of the Oise Valley, Meuse Valley and Cologne was the easiest route from Berlin to Paris, and would avoid a series of fortifications on the Franco-German frontier.²⁴⁶ Furthermore, since gaining independence in the 1830s, the Belgian railway network had been constructed with a firm eye on the maintenance of cross-European trade (see Figure 1.1). The ‘cardinal points’ of the Belgian network were pointed towards the industrial powerhouses of Europe: Germany; France; and Britain.²⁴⁷ By 1906, nine trunk routes were in operation, linking Germany and France across Belgian territory as part of a wider rail, road, and waterborne communications network widely acknowledged to be among the best in Europe.²⁴⁸ The implications of such abundant cross-border integration for the rapid deployment of armed forces across frontiers and into neutral territory were obvious, and would prove a preoccupation for French, British, and Belgian defence experts throughout the pre-war period.²⁴⁹

Despite the quality of the Belgian transport system, however, Grierson’s report suggested that the tactical advantages to be accrued by the Germans in an outflanking manoeuvre would be significantly offset by the difficulties likely to be experienced on Belgian soil. Even were the Belgian government to acquiesce in German requests to use the railway network, ‘careful calculations’ demonstrated that only 138 trains per day could be run through Belgium, as opposed to the 400-plus which could be operated on the German side of the border. The German Army would therefore be forced to dissipate its strength; both facing the French

²⁴⁵ TNA: PRO WO 33/364 Records of a Strategic War Game, 24 May 1905, pp. 16-17.

²⁴⁶ Summerton, p. 60. The game also postulated that the Germans’ inability to advance beyond these forts was the motivation behind the violation of Belgian territory. See WO 33/364 Records, p. 16.

²⁴⁷ Laffut, ‘Belgium’, pp. 203–6.

²⁴⁸ London, Liddell Hart Centre for Military Archives [LHCMA], Papers of Field-Marshal Sir William Robertson, 1/3/2 Text of a lecture on the military geography of Western Europe, 1908, pp. 14-16; D. Stevenson, ‘Battlefield or Barrier? Rearmament and Military Planning in Belgium, 1902-1914’, *International History Review*, 29:3 (2007), 473–507 (p. 476); D.W. Johnson, *Topography and Strategy in the War* (New York: Henry Holt & Co., 1917), p. 17; WO 33/364 Records, p. 9.

²⁴⁹ Stevenson, ‘Battlefield or Barrier?’, pp. 483–4.

across the common Franco-German border and in terms of the number of troops able to cross the Belgian frontier with adequate supplies. Any possibility of the Germans attempting to invade Belgium via a sea route was, as the Royal Navy would be involved, dismissed as being ‘obviously impossible’.²⁵⁰ Following a detailed examination of the logistical challenges to be overcome, Grierson was ‘forced to the conclusion that a violation of Belgian territory is by no means a sound policy on the part of the Germans’.²⁵¹

Yet if there were logistical problems to be overcome by an invading army, then equally significant challenges arose in the path of any British force to be despatched to the continent. On the North Sea coast, Belgium was found to be ‘singularly wanting in harbours or places where the disembarkation of troops could be carried out’, with only the port of Ostend possessing adequate accommodation and facilities for the discharge of supplies into railway trucks alongside the quays.²⁵² To reach Antwerp, the proposed concentration area for British troops, a long railway journey across northern Belgium would be necessary, with significant quantities of rolling stock required at Ostend to facilitate the movement. Any interruption to the operation of the line, either accidental or otherwise, would cause delays which might prove fatal.²⁵³ Furthermore, despite the highly-developed state of the Belgian railway network as a whole, the system was unsuited to the type of large-scale moves being projected. As the Belgian Army had no demand for long railway journeys upon mobilization, no machinery existed for the feeding of troops *en route*. Therefore any British soldiers would be compelled to carry a large number of days’ rations with them from Britain.²⁵⁴

Logistically therefore, a concentration at Antwerp would best be achieved by despatching troops directly to the port of Antwerp. However, such a manoeuvre would unavoidably involve the traversal of a considerable stretch of the River Scheldt which belonged to the Netherlands. The Dutch government had ‘always displayed the greatest reserve’ on the

²⁵⁰ WO 33/364 Records, p. 15.

²⁵¹ WO 33/364 Records, p. 15.

²⁵² WO 33/364 Records, p. 5.

²⁵³ WO 33/364 Records, p. 15.

²⁵⁴ *British Documents on the Origins of the War, 1898-1914*, ed. by G.P. Gooch and H.W.V. Temperley, 11 vols. (London: HMSO, 1927), III, p. 195.

question of permitting foreign vessels to navigate the waterway on behalf of the Belgian Army.²⁵⁵ Although Wilson would later remark that ‘the waters of the Scheldt can be closed by a schoolboy’, when dismissing the value of Antwerp as a possible base of operations for the BEF,²⁵⁶ Grierson’s belief was that: ‘All things considered, if it is decided to send a considerable military force to the assistance of the Belgians, it would appear the best course to send it to Antwerp, *via* the Scheldt, and run any infinitesimal risk there may be of Dutch opposition’.²⁵⁷ Logistical concerns, on this hypothetical occasion, outweighed the possible diplomatic repercussions of disregarding territorial neutrality in a way unmatched by the realities of the situation in August 1914.

Political considerations did, however, inform Grierson’s observations on the utility of the British force disembarking in northern France. Although the ports of Calais, Boulogne, Dieppe and Havre were all made available to ‘facilitate disembarkation’, Grierson argued that this course of action would

simply prolong the French front. Politically, such an indirect method of protecting Belgian territory might embarrass the British government. Belgium, therefore, appears to be the most advantageous theatre strategically, and the most expedient politically. Antwerp, once reached, is the best port of disembarkation, and base of operations.²⁵⁸

Among those who read the report, that final remark would have a significant and long-lasting impact upon the man who would lead the BEF into battle, Sir John French.²⁵⁹

Taking 2 March as the first day of mobilization, the war game concluded that it would take at least five days for troops to mobilize and begin embarkation. Assuming that the Royal Navy retained control of the seas and that the required transports were ready, it would be either 8 or 9 March before any British soldiers reached Antwerp. The arrangement of units into formations, the provision of staffs and the ‘settlement of other multitudinous details’ led Grierson to conclude that it would be 12 March at the earliest before a British Army could take

²⁵⁵ WO 33/364 Records, p. 16.

²⁵⁶ Wilson Papers, HHW 3/5/16A Wilson to Churchill, 29 August 1911.

²⁵⁷ WO 33/364 Records, p. 16.

²⁵⁸ WO 33/364 Records, p. 47.

²⁵⁹ W. Philpott, ‘The Strategic Ideas of Sir John French’, *Journal of Strategic Studies*, 12:4 (1989), 458–78 (p. 460). The significance of this will be elaborated upon below.

to the field. Based on the relative strengths of the Belgian and German armies, the war game offered a dismal prognosis; the operations undertaken left the German Army in a 'favourable position' to continue its westward movement through Belgium, one which could not have been 'materially interfered with' until a greater number of British troops arrived.²⁶⁰

Such assumptions were also based on the most optimistic scenario. 'In reality', Grierson noted, 'an Army Corps cannot be concentrated before 20 March, so... it will be three weeks before the Belgians can prudently calculate on British support'.²⁶¹ That assistance would, in the first instance, consist of just 30,000 men. Admiralty plans, drawn up under the assumption that thirteen transports per day could be used to deliver men and up to 2,000 tons of supplies, predicted that 50,000 men could be available in the first month after mobilization. For a further 50,000 troops to arrive, a further six weeks would be required.²⁶² Compared to the colossal forces France and Germany were likely to put into the field at the outbreak of war, Britain's contribution would be largely negligible until a significant force was available.

If the South African War had illustrated weaknesses in the organization of the British Army, the war game highlighted the scale and complexity of the preparations required to mobilize a British force for war in Europe. The problems of the direction and size of the German offensive, the location and employment of the British force, the speed with which mobilization could be effected, and the question of Belgium's capacity (and inclination) to defend itself; all would require prolonged study by the DMO in the development of a practicable solution to the mobilization challenge.²⁶³ The first Moroccan crisis, and the fall of the Balfour government, would combine to take these outstanding questions away from the confined environment of Grierson's small directorate and its 'theoretical musings', and out into the wider discussions surrounding the military dimensions of the *Entente Cordiale*.²⁶⁴

²⁶⁰ WO 33/364 Records, p. 156.

²⁶¹ WO 33/364 Records, p. 48.

²⁶² WO 33/364 Records, pp. 141, 144.

²⁶³ Williamson, Jr., p. 47.

²⁶⁴ Summerton, p. 91.

The Moroccan crisis not only consolidated Grierson's suspicions as to the most likely arena for future British intervention in a European war; it also drew attention to the type of army Britain would require in order to make a telling contribution to that war. The prevalent view in the War Office was that swift mobilization was fundamental to the successful deployment of an expeditionary force,²⁶⁵ to ensure that troops were available to fight immediately rather than being part of a larger force which might potentially arrive after the decisive engagement had taken place. In both France and Germany, the railway networks had been developed with military needs in mind (and indeed, with military voices prominent in expressing those needs) in order to increase the rapidity with which their forces could be concentrated upon the outbreak of war.²⁶⁶ If Britain were to be of assistance in the event of German aggression, it would be required to provide a fighting force far more quickly than the war game suggested was possible. Furthermore, as Haldane noted upon arrival at the War Office, there existed

not... a single division that was a reality. Moreover, the brigades, such as they were, wholly lacked accessories without which they could not sustain the strains of war. Their transport was deficient and so were their medical organizations... Only forty-two batteries could be put into the field, a number which a proper General Staff would have pronounced to be ludicrously inadequate for the Expeditionary Force required.²⁶⁷

Events in North Africa (as they would do again in 1911 with regard to the mobilization timetable) exacerbated the need to rectify the army's state of preparation, with the lack of precautions in place should the Algeiras conference break down the subject of bitter complaint within the CID.²⁶⁸

Determined to rectify matters, and to improve coordination between the army and navy, on 19 December 1905 an informal conference was held to discuss the options available to Britain in the event of a Franco-German war. Yet despite being the officer responsible for military planning, Grierson was not present. Nor were the conclusions of the war game raised despite Sir John's attendance and awareness of the logistical difficulties uncovered by the game. As a result, the conference consisted of little more than the raising of various possibilities for

²⁶⁵ J. Gooch, 'Haldane and the "National Army"', in *Politicians and Defence*, ed. by Beckett and Gooch, pp. 69–86 (pp. 75–6).

²⁶⁶ Stevenson, 'War by Timetable?', pp. 172–3.

²⁶⁷ Haldane, *An Autobiography*, p. 188.

²⁶⁸ Williamson, Jr., p. 66.

British action, and a conclusion that further detailed assessment of the practicalities was required. In addition to discussing inter-service arrangements for the embarkation of a 'striking force' for action overseas, the committee also recommended that:

If our naval and military attachés could obtain any information as to the measures contemplated by the French in the event of an emergency, it would be a great advantage. Information as to the mobilization scheme of Belgium and the means available for the defence of the Meuse positions would also be favourable.²⁶⁹

Unbeknown to those gathered at Whitehall Gardens, Grierson was already engaging in a process which would begin the evolution of the entente into the quasi-military alliance it would become by August 1914.

Grierson met with the French military attaché, Colonel Huguet, before Christmas, and shortly after instructed Britain's military attaché in Brussels, Lieutenant-Colonel Nathaniel Barnardiston, to ascertain 'the manner in which, in case of need, British assistance could be most effectually afforded to Belgium for the defence of her neutrality'.²⁷⁰ The Chief of the Belgian General Staff, Major-General Ducarne, preferred the British to sail directly to Antwerp, allowing the force to join the Belgian Army at Brussels in a combined attack on the German flank. However, this option was discounted by Barnardiston as a result of the war game and, crucially, by the Admiralty's insistence that it would not guarantee the safety of naval transports north of the Dover Straits until the German fleet had been destroyed.²⁷¹ This meant that British troops would be required to disembark at the Channel ports in northern France before being railed to the Belgian frontier and concentrated within Belgium.²⁷²

Between January and April 1906 both Grierson and Barnardiston worked on mobilization schemes with French and Belgian representatives, Grierson visiting the continent on several occasions to visit the likely ports of disembarkation for British troops.²⁷³ Yet their efforts to develop a workable scheme were hindered both by the reluctance of the Admiralty to

²⁶⁹ TNA: PRO CAB 18/24 Notes of a conference held at Whitehall Gardens, 19 December 1905, p. 4.

²⁷⁰ Williamson, Jr., p. 76.

²⁷¹ P. Guinn, *British Strategy and Politics, 1914 to 1918* (Oxford: Clarendon Press, 1965), pp. 13–14.

²⁷² Differences in the French and Belgian rail networks would necessitate a change of engine crews at the Franco-Belgian border. See Gooch and Temperley, III, p. 191.

²⁷³ Fergusson, p. 208; Philpott, 'Making of the Military Entente', pp. 1163–4.

supply timetables for the transport of the BEF to France,²⁷⁴ and by the level of secrecy attached to the discussions. As Barnardiston noted, it was impossible for Ducarne to collate the necessary technical information without consulting relevant government departments, such as those responsible for operating the railways. However, such was the Belgian concern for preserving confidentiality, that only five people in Belgium had been made aware of the nature of the conversations taking place between the two General Staffs.²⁷⁵ Despite these difficulties, by the end of March 1906 Ducarne was able to produce a timetable for the transport of a British force from the French ports to detraining stations in the region of Brussels-Aerschot-Louvain.²⁷⁶ On the basis that each army corps would require 175 trains in order to be transported in full to the concentration zone, it was calculated that the entire force could not be in place near Louvain before the sixteenth day of mobilization.²⁷⁷ By the tenth day, adjudged by Grierson to be critical in terms of obstructing the German advance, the British Army in the field would consist of just two divisions and a cavalry brigade.²⁷⁸ As Grierson believed wholeheartedly in the importance of the entire force being available ‘at once’ in the event of war, two divisions was deemed to be totally inadequate. Such a force was liable to be simply ‘rounded up and defeated’ by superior German numbers.²⁷⁹

The predicted failure of the Belgian scheme, allied to the possibility that Germany would not violate Belgian neutrality in the event of a war with France, led Grierson to a conclusion which would characterize the philosophy of the DMO until 1914. This ethos was accentuated by his successor, Major-General Spencer Ewart, in a 1908 memorandum:

Direct support to the French Army offers a better prospect of a useful result. Our army is small, but its presence in the field side by side with the French troops would, it is

²⁷⁴ Gooch and Temperley, III, p. 196 illustrates Grierson’s exasperation on 19 March 1906 at the Admiralty’s reluctance to assist the DMO, even though Ottley had undertaken to ‘look into the naval transport question’ at a CID meeting over two months before. See CAB 18/24 Notes of a Conference Held at 2, Whitehall Gardens, 6 January 1906, p. 4.

²⁷⁵ Gooch and Temperley, III, pp. 186, 195. On Belgium’s delicate position with regarding to preserving her neutrality whilst at the same time fostering links with potential allies in the event of war upon her soil, see J.E. Helmreich, ‘Belgian Concern over Neutrality and British Intentions, 1906-14’, *The Journal of Modern History*, 36:4 (1964), 416–27.

²⁷⁶ Gooch and Temperley, III, p. 197.

²⁷⁷ Gooch and Temperley, III, p. 191.

²⁷⁸ Gooch and Temperley, III, p. 199.

²⁷⁹ TNA: PRO WO 106/44 Memorandum upon the military forces required for overseas warfare, 4 January 1906, p. 7; Guinn, p. 14.

believed, infuse into the latter that moral confidence which they so suddenly and completely lost in 1870. For the same reason it is necessary that our aid should be forthcoming in the earliest stage of the war, for it is most important that the issue of the first serious engagements should be favourable to France. Prompt and direct assistance by the British Army may then mean all the difference between defeat and victory.²⁸⁰

Ewart's memorandum illustrates that by the end of November 1908, the idea of transporting the BEF directly to Belgium had been entirely discounted by the DMO, with the Belgians likely to be a 'beaten or dispirited force' following their initial encounters with the German Army.²⁸¹

However, as Philpott has demonstrated, the decision by the British General Staff to concentrate upon Franco-British arrangements in the period before the First World War was not merely based upon the logistical and diplomatic difficulties attached to a landing in Antwerp. Instead, 'before 1914 a close and mutually beneficial relationship developed between the [French and British] armies, which was intended to prepare them for the war they might soon have to fight'.²⁸² The DMO exemplified this relationship under Ewart's tenure, frustrating all efforts from the Admiralty to propose alternative uses for the BEF in the event of a European war. Upon receiving requests to investigate the feasibility of operations outside the northern European theatre, Ewart assured the Directorate of Naval Intelligence of cooperation and responded to enquiries, whilst simultaneously emphasizing the dangers of following such strategies.²⁸³ Ewart was recalcitrant when it came to the creation of a naval operational strategy which threatened the concentration of military force in France, with each proposal received from the Admiralty being unequivocally rejected as imprudent, as in the case of support for Denmark: 'the conclusion is that a British military expedition to Zealand... would be exposed to serious risk on the journey to Zealand, could accomplish nothing when it got there, and might not improbably end in total disaster'.²⁸⁴ Like Grierson before him, and Wilson after, Ewart followed the principle that 'soldiers charged with the duty of preparation for war' should aim

²⁸⁰ WO 106/47 Memorandum by the General Staff (E2/17), November 1908.

²⁸¹ WO 106/47 Memorandum (E2/17).

²⁸² Philpott, 'Making of the Military Entente', p. 1157.

²⁸³ WO 106/47 Defence of Cape Colony in the event of an attack from German South-West Africa (E2/6), Ewart to Slade, 9 March 1909.

²⁸⁴ WO 106/47 Proposed military expedition to Zealand in support of Denmark against German invasion (E2/16), July 1908, p. 11.

primarily at ‘making ready for the greatest and most probable war in which their army may become engaged’.²⁸⁵ This meant concentration on the ‘W.F.’ scheme.

Over the winter of 1907 Ewart and Huguet worked to construct a modified timetable for the BEF’s transportation once on French soil. The scheme was submitted to the Foreign Office for approval on 26 July 1907, and continued to be adjusted throughout Ewart’s tenure as Director of Military Operations.²⁸⁶ Despite this effort, however, the preparations remained incomplete due to an ongoing disagreement between the War Office and the Admiralty as to the best method by which the army could be employed in a future war. The naval staffs continued to investigate amphibious operations to which the army had no intention of contributing,²⁸⁷ whilst the DMO persisted with the ‘W.F.’ scheme despite receiving no indication that the navy would be willing to transport the troops across the Channel. Meanwhile the civilian body responsible for coordinating British strategy, the CID, was rendered impotent as it was wholly ignored by both sides.²⁸⁸

The net result of the failure of the CID to coordinate naval and military planning was a divergence in strategy between the War Office and the Admiralty. Haldane’s refusal to allow discussions between the DMO and the railway companies, allied to the ineffectiveness in enforcing cooperation displayed by the CID, both under Campbell-Bannerman and during the first part of Asquith’s term as Prime Minister, denied Ewart the opportunity to complement the existing timetables for rail movements in France with schedules for movement within Britain and across the sea. As an example of the Admiralty’s consistent failure to comply with CID requests, in December 1908 the First Lord of the Admiralty, Reginald McKenna, promised to compose timetables for the movement of the BEF to France. However, a full year later the plans

²⁸⁵ W.R. Robertson, *From Private*, p. 132.

²⁸⁶ MacKintosh, p. 497; Gooch and Temperley, III, p. 187. The scheme was further elaborated before being submitted to the CID on 3 December 1908. See WO 106/49A/1 Action taken by the General Staff since 1906 in preparing a plan for rendering military assistance to France in the event of an unprovoked attack on that power by Germany, 6 November 1911, pp. 2-3.

²⁸⁷ The Admiralty persisted with such investigations even after the CID meeting of 23 August 1911. See Wilson Papers, HHW 2/70/10 Nicholson to Wilson, 30 August 1911 (and Admiral Wilson to Nicholson, 29 August 1911).

²⁸⁸ N. d’Ombrain, *War Machinery and High Policy. Defence Administration in Peacetime Britain, 1902-1914* (Oxford: Oxford University Press, 1973), p. 92.

had yet to be received in the DMO's office.²⁸⁹ Ewart's inability to make further progress disappointed Huguet to such an extent that he would minimize Ewart's role in preparing the BEF for war.²⁹⁰ At Camberley however, Henry Wilson was actively promoting the concept of close Franco-British cooperation to the next generation of army leaders.

Henry Wilson and Franco-British cooperation, 1907-1914

Wilson became Commandant of the Staff College eager to establish 'a coherent system of higher education and training for the army'.²⁹¹ Of vital importance to this ambition was the development of professional skills in the officers who would go on to command the British Army. Wilson's vision sought the creation of a corps of officers 'imbued with uniform methods of work and a common approach of staff problems'; a managerial class instilled with a shared ethos and attitude to the challenges of running a vast business organization.²⁹² As Wilson himself summed up in an address given to students at the conclusion of the two-year course: 'As far as can humanly be done, we think alike, work alike, and teach alike'.²⁹³ However, whilst Keith Jeffery has emphasized the separation in Wilson's writings between the promotion of a 'school of thought' and his advocacy of a closer union with France against Germany,²⁹⁴ and Hew Strachan has demonstrated that 'the application of common methods' did not filter down from Camberley to individual units,²⁹⁵ Wilson's unique position as head of the Staff College afforded him ample opportunity to promote specific policy preferences at the expense of a holistic approach to strategic considerations. At times, those policy preferences, and the guidance espoused by Wilson, were explicit:

I would like to give you one final piece of advice. Take Germany as being a possible, not to say a probable enemy. Thus devote much of your time to that language, or if you are not a linguist, to that people and army. Add to this a most careful study of Belgium... and add to that an intimate knowledge... of the French Army and people.²⁹⁶

²⁸⁹ TNA: PRO WO 106/45 Questions requiring joint Naval and Military consideration (E1/5), Naval and military cooperation, 13 December 1909, pp. 1-2.

²⁹⁰ V.J.M. Huguet, *Britain and the War: A French Indictment* (London: Cassell, 1928), pp. 7-10.

²⁹¹ Jeffery, p. 68.

²⁹² Bond, *Victorian Army*, p. 259.

²⁹³ Wilson Papers, HHW 3/3/19 Notes on final address to seniors, 16 December 1908.

²⁹⁴ Jeffery, p. 72.

²⁹⁵ Strachan, 'The British Army', p. 90.

²⁹⁶ Wilson Papers, HHW 3/3/7 Intelligence in Peace and War: Knowledge in Power, 13 November 1907, p. 13.

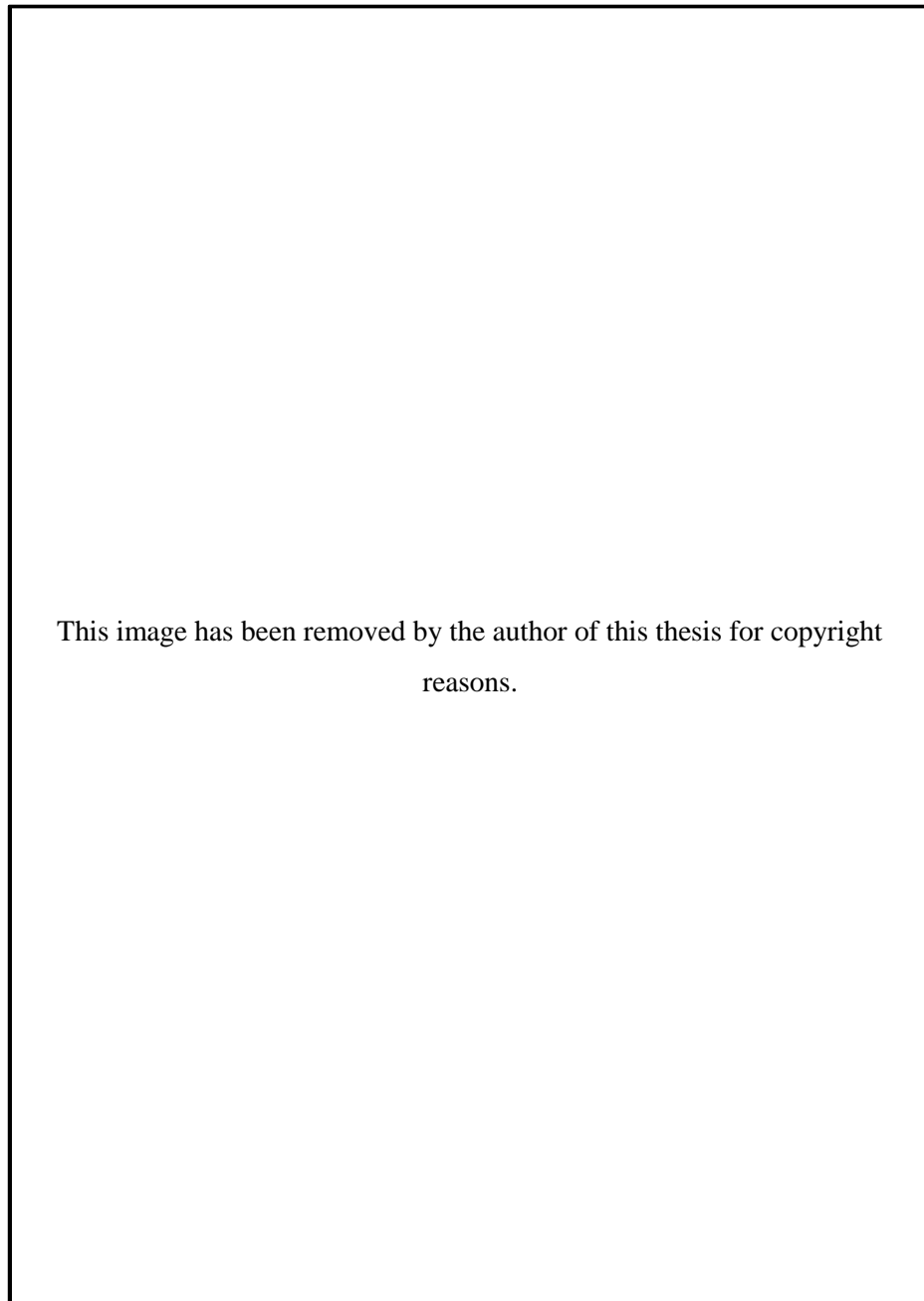


Figure 1.2 Map of Henry Wilson's tours of the Franco-German-Belgian borderlands, 1908-1911

Source: Jeffery, p. 106.

Over four years Wilson would augment his beliefs through the adoption of French teaching methods within the Camberley curriculum, and would measure students' performance through continual assessment of practical tasks rather than through a multitude of examinations.²⁹⁷

²⁹⁷ Jeffery, p. 68; Philpott, 'Making of the Military Entente', p. 1161.

One of these tasks demonstrated Wilson's 'pro-French' position unequivocally. A group assignment set for senior students in November 1908, entitled 'The Belgian Scheme', took as its backdrop the idea that relations between France and Germany had 'suddenly become strained', that Germany 'was the aggressor and her object was to break up the understanding between France and England'.²⁹⁸ The students were asked to produce a memorandum, illustrating the views of the General Staff as to the most effective means of employing the BEF in the event of such an occurrence.²⁹⁹ Although the extent of military planning between the French and British staffs prior to the outbreak of war was 'not general knowledge in political circles',³⁰⁰ the specificity of the exercise was criticized in Parliament. As a result, the 1909 edition of the assignment removed the reference to Belgian neutrality but, illustrating the importance attached by Wilson to the consideration of Franco-British cooperation, the basic premise of a projected Franco-German conflict was retained.³⁰¹

Aside from inculcating his students with thoughts of a possible European war, Wilson also took the opportunity whenever possible to visit the Franco-German-Belgian borderland, territory which would conceivably be the theatre of operations for the BEF in the event of a European war (Figure 1.2 demonstrates the accuracy of Wilson's predictions).³⁰² In the summer of 1909 he travelled by train and bicycle from Mons into France, and along the French frontier to the Swiss border. The following summer Wilson made a note of significant new railway construction in Germany, out of all proportion to peace-time traffic, near the border with Luxembourg.³⁰³ As Stevenson has noted, through the construction of 'more lines, and by double- and quadruple-tracking existing ones', the European powers attempted to use railways

²⁹⁸ Wilson Papers, HHW 3/3/17 Belgian Scheme, 23 November 1908, p.1.

²⁹⁹ Wilson Papers, HHW 3/3/17 Belgian Scheme, p. 2.

³⁰⁰ Philpott, 'Making of the Military Entente', p. 1159. For a summary of the degrees by which political figures became aware of the existence of the military 'conversations', see J.W. Coogan and P.F. Coogan, 'The British Cabinet and the Anglo-French Staff Talks, 1905-1914: Who Knew What and When Did He Know It?', *Journal of British Studies*, 24:1 (1985), 110-31.

³⁰¹ Jeffery, pp. 72-3.

³⁰² Callwell, I, pp. 72-3.

³⁰³ Jeffery, pp. 74-5. On German strategic railway construction prior to the First World War, see Stevenson, 'War by Timetable?', pp. 184-6; E.F. Carter, *Railways in Wartime* (London: Frederick Muller, 1964), pp. 77-8.

to ‘tilt the balance’ in their favour should war be declared.³⁰⁴ The building projects Wilson noted on the frontier were a sure indicator to him that German military preparations were ongoing, and would form an integral part of the preparatory phase preceding the ‘race to the offensive’ on German’s western frontier.

This knowledge, coupled with his appreciation of the technical implications of large-scale movements noted above, demonstrates that Wilson entered the DMO both familiar with the challenges of mobilizing for war and convinced of the location in which the clash of arms would take place. Furthermore, thanks to a combination of: the findings of Grierson’s war game in 1905; the genesis of Franco-British staff talks in the wake of the Moroccan crisis; Belgian hesitancy in terms of participating in joint military planning with the British; and the Admiralty’s refusal to guarantee the safety of the BEF on naval transports north of the Dover Straits, Wilson became Director of Military Operations at a time when the character of Britain’s military intervention, were it to be ordered by the government of the day, was already inextricably linked to the support of the French Army.³⁰⁵ The hanging of an immense map of the borderlands upon the wall of his office was a graphic demonstration of the geographical location Wilson would focus on for the next four years, much to the delight of the French Army.³⁰⁶ It would also play a prominent role in the infamous CID meeting on 23 August 1911.

In the two years prior to that meeting, British defence planning had taken place within a political vacuum. A substantial number (Coogan and Coogan place it at thirteen out of eighteen) of Asquith’s Cabinet were unaware that military conversations between French and British generals were ongoing,³⁰⁷ and were equally ignorant of the divergence in strategic recommendations between the army and the navy. Unwilling to jeopardize the stability of the government by revealing these hypothetical discussions to a potentially hostile group of ministers; faced by service chiefs disinclined to cooperate with one another or to reflect upon

³⁰⁴ Stevenson, *Armaments*, p. 15.

³⁰⁵ Strachan, ‘The British Army’, pp. 75–9; Philpott, ‘Making of the Military Entente’.

³⁰⁶ Callwell, I, p. 92; Jeffery, p. 87. As Philpott notes, ‘large maps of the Franco-Belgian frontier [also] appeared on classroom walls in regimental establishments’ during Wilson’s time as Commandant of the Staff College. See Philpott, ‘Making of the Military Entente’, p. 1162.

³⁰⁷ Coogan and Coogan, p. 119.

alternatives to their favoured strategies; and existing within an international situation of relative 'peace' in northern Europe in comparison to the Franco-German tension of early 1906, the CID under Asquith's leadership had stated that 'in the event of an attack on France by Germany, the expediency of sending a military force abroad, or of relying on naval means only, is a matter of policy which can only be determined when the occasion arises by the government of the day'.³⁰⁸ This meant that, when a second Moroccan crisis in 1911 once again raised the possibility of that German attack on France, the overall strategic direction of the British government remained undecided.

On 23 August 1911, Wilson set about making the army's case for intervention alongside France. Utilizing the giant map from his office,³⁰⁹ Wilson lectured for nearly two hours on the predicted movements of the German force through Belgium, the relative sizes of the French and German armies expected to be involved in the initial encounters, and the critical importance of the swift arrival of the BEF. Speaking with a confidence engendered by his personal knowledge of the territory involved, Wilson postulated that geographic considerations and the existence of French fortifications would severely restrict the number of troops the Germans could place in the field in the early stages of the conflict:

In the 110 miles of open frontier there are not more than seventeen or eighteen through roads and four or five of these are separated from the remaining twelve or thirteen by sixty miles of fortresses. If we allow an advance of three divisions on each road and a radius of operations of sixty miles in front of railhead, we find that the Germans cannot employ more than fifty-one to fifty-four divisions... in the opening phase of the war.³¹⁰

The Germans 'could not concentrate their superior force against any one point' of the French line. Provided the BEF was in the field by the seventeenth day after mobilization, Wilson argued, the early intervention of the BEF 'would therefore be a material factor in the decision'.³¹¹

³⁰⁸ TNA: PRO CAB 4/3 Report of the Sub-committee of the Committee of Imperial Defence on the Military Needs of the Empire, 24 July 1909, p. 4.

³⁰⁹ CAB 2/2 Action to be taken, p. 4.

³¹⁰ WO 106/47 Conditions of a War (E2/25).

³¹¹ CAB 2/2 Action to be taken, p. 5.

Whilst the army's strategy was lucidly explained and built upon a foundation of logistical and geographical awareness, the Admiralty's response was confused and contradictory; Admiral Wilson contemplating coastal raids upon Wangeroog and Schillinghörn alongside troop landings at Büsum in which the BEF would be used – in Fisher's words – as a 'projectile to be fired by the Navy'.³¹² Yet the Admiralty's plans for using the BEF in such a manner failed to take into account the need for retaining the naval transports used to 'project' the army close to the German coast. Admiral Wilson, as pointed out by the CIGS Sir William Nicholson,³¹³ had himself published a note on the subject in response to the 'invasion scares' of the period. Although Wilson's remarks in that instance had focused upon the possibility of a German invasion of Britain, the roles – and outcome – could easily be reversed. Firstly, Wilson had written, the fleet would have to be 'extraordinarily lucky' to reach the coast without detection; secondly, once there the transports would be attacked by submarines and destroyers stationed along the coast; and thirdly, it would be quite impossible to guard the transports against enemy action during the disembarkation process.³¹⁴

Despite the military Wilson's clarity and 'grip', which made 'a real impression on the attendees' in comparison to his naval namesake,³¹⁵ the CID meeting did not secure political backing for the 'W.F.' scheme. Instead, the encounter demonstrated the degree of separation between British diplomatic and strategic planning,³¹⁶ and precipitated the sequence of events which led to the full disclosure of the military conversations within the Cabinet in November 1911.³¹⁷ Yet even these revelations did not impair ongoing relations between the British and French staffs. In fact, as Philpott notes, after the Agadir crisis contact between the two militaries accelerated and intensified.³¹⁸ The catalytic effect of the perceived German aggression of that

³¹² CAB 2/2 Action to be taken, pp. 11-12.

³¹³ CAB 2/2 Action to be taken, p. 12.

³¹⁴ I.S.M. Hamilton, *Compulsory Service: A Study of the Question in the Light of Experience*, 2nd edn (London: John Murray, 1911), pp. 209–12.

³¹⁵ Callwell, I, p. 100; Hankey, I, p. 81.

³¹⁶ As Haig would ask rhetorically of Wilson at the time: 'Is it not a sound principle that diplomatic negotiations must go hand in hand with military preparations? But how can this be brought about if they are not working in the closest touch with the General Staff?' See Wilson Papers, HHW 2/70/7 Haig to Wilson, 2 August 1911.

³¹⁷ Coogan and Coogan, pp. 124–9.

³¹⁸ Philpott, 'Making of the Military Entente', p. 1168.

summer upon Franco-British military (and naval) arrangements was not, however, matched by a correspondingly deepened political interest in the nature of the understandings being made between Wilson and his French counterparts. Asquith, who left the 23 August CID meeting undecided over the strategy to be implemented in the event of war,³¹⁹ would continue to resist pressure from Wilson to cement the details of the ‘conversations’ into a formal military commitment right through to the outbreak of war.³²⁰ Winston Churchill, who would shortly afterwards be installed as First Lord of the Admiralty, retained doubts about the viability of linking with the French Army altogether. Comments made during the discussion, fearing that the BEF would simply be ‘merged’ with the larger French Army, were followed in the aftermath by letters to Wilson seeking to put the use of Antwerp as a base of operations back on the agenda.³²¹

Churchill was not alone in pursuing this line of inquiry. Sir John French, nominal commander of the BEF from 1906, and actual CIGS from March 1912, also retained an interest in the possibility of using Antwerp, a residue of the 1905 war game. Demonstrating that the General Staff was by no means unified in its attitude towards the ‘W.F.’ scheme during the pre-war years (Badsey likens the behavioural patterns within the army to those of a political party),³²² Sir John was unconvinced of the virtues of deploying the BEF alongside the French Army. As Philpott notes, Sir John took a keen interest in the challenges of defence strategy throughout the pre-war period, and frequently returned to the prospect of establishing a base of operations at Antwerp in order to reduce the risk of his command being subordinated to that of a French general.³²³ As a result, Sir John’s reluctance to unequivocally back the Director of Military Operations led to a further attempt to establish combined defensive plans with the Belgian authorities in 1912. The reduced international tension by this point, in contrast to the

³¹⁹ As Coogan and Coogan demonstrate, the Prime Minister was not alone in his doubts over the scheme. See Coogan and Coogan, p. 123 f.n. 42.

³²⁰ Philpott, ‘The General Staff’, pp. 99–100.

³²¹ CAB 2/2 Action to be taken, pp. 8-9; Wilson Papers, HHW 3/5/16 Correspondence with Winston Churchill, August 1911.

³²² S. Badsey, ‘Sir John French and Command of the BEF’, in *Stemming the Tide: Officers and Leadership in the British Expeditionary Force 1914*, ed. by S. Jones (Solihull: Helion, 2013), pp. 27–50 (p. 38).

³²³ Philpott, ‘Strategic Ideas’, pp. 461–6 covers Sir John’s strategic thought prior to 23 August 1911.

strained relations within the Cabinet brought about by the revelation of joint staff talks in November, diminished Asquith's desire to confront the matter, however. Consequently, although Sir John upon becoming CIGS could instruct the military attaché at Brussels to 'get all possible information as to the feasibility and assistance available for British landings at Ostend, Zeebrugge, and Antwerp', these instructions were not backed up diplomatically.³²⁴ Belgian distrust of British intentions, comparable to that which retarded the 1906 discussions,³²⁵ combined with a 'mishandling' of the job by the military attaché,³²⁶ effectively nullified any chance of a 'Belgian scheme' receiving the same comprehensive preparations as Wilson's preferred option.

By contrast, the French continued to encourage closer collaboration with the British Army. Sir John himself was among senior British officers to attend the French Army's manoeuvres, whilst Wilson's notes from his excursions to the Franco-German frontier were gratefully received in Paris. In exchange, the French Army provided Douglas Haig with their cavalry tactics manual, and France also supplied the inspiration for the establishment of the Royal Flying Corps.³²⁷ This process of reciprocal knowledge sharing continued until the final days of peace, and was not restricted merely to the discussion of tactics among representatives of the 'teeth' arms. In July 1914 Wilson despatched three officers from the DMO to France to accompany Sir John, Haig, Grierson and Allenby on a trip to view the manoeuvres of the French 11th Division. Among them was Major Marr Johnson, whose previous responsibility had been the voluminous task of copying and proof reading all of the BEF's mobilization timetables prior to their being printed at the secret War Office press.³²⁸ The object of Johnson's visit was to familiarize himself with the military working of the French railways, and the lavishness of Huguet's praise is noteworthy:

³²⁴ Philpott, 'Strategic Ideas', p. 469.

³²⁵ Helmreich, p. 420.

³²⁶ Philpott quite rightly places this down to the contradictory instructions passed on by Sir John on the one hand, and Wilson on the other. See Philpott, 'Strategic Ideas', p. 469; M.E. Thomas, 'Anglo-Belgian Military Relations and the Congo Question, 1911-1913', *The Journal of Modern History*, 25:2 (1953), 157-65 (pp. 161-2).

³²⁷ Philpott, 'Making of the Military Entente', pp. 1165-71.

³²⁸ WO 106/49A/1 Address by Radcliffe, pp. 3, 7.

I also met at the same time [as Sir John, Haig et al] three of your officers, Radcliffe, Johnston (sic) and _____, and very glad to say they made a *very, very good impression*, first by themselves, their intelligence, their cleverness, their way of working, their seriousness... and also, I am glad to say, by the very good work which they had brought with them – our people were very gratified to see how well they work in the DMO department, how the thing has been seriously taken and carefully studied. In all this, I recognize the hand of my friend General Wilson, but all the same, it is really a pleasure to work with officers like those three whom you sent out.³²⁹

‘The hand’ of General Wilson has been a recurrent theme in this chapter. It is important, however, not to overstate the contribution of the final Director of Military Operations and to effectively ‘personalize’ Britain’s mobilization planning before the First World War. Such was Wilson’s personal attachment to “‘his” plan’, exemplified in the caustic diary entries of late July and early August 1914 when it appeared the government might ‘run away’ from the continental commitment Wilson himself had made, that the collaborative nature of the ‘W.F.’ scheme has been marginalized.³³⁰ Wilson was undoubtedly a ‘bright star’, with a larger than life persona which has outshone the contributions of those around him to the ‘W.F.’ scheme.³³¹ Major Johnson is just one such figure, his work largely forgotten. But Wilson’s appreciation of his efforts was longstanding, as highlighted by his attempts to secure Johnson a position within the newly established Ministry of Transport after the war.³³²

Furthermore, Wilson’s frequently reiterated belief, that the BEF ‘must mobilize [on] the same day as the French and Germans’,³³³ was ignored by a British government which had paid scant attention to the work of the DMO over the previous decade. For Campbell-Bannerman and Asquith the realities of domestic politics, and the short-term challenge of harmonizing a divided Cabinet, overshadowed the hypothetical entanglements of the military ‘conversations’ and the multitude of strategic options available to the British Empire in the event of war on the continent. By the time the French and German armies began to mobilize, British and French

³²⁹ Wilson Papers, HHW 2/73/27 Huguet to Wilson, 16 July 1914. Emphasis in original. Unfortunately, the contents of ‘the very good work which they had brought with them’ is not elaborated upon.

³³⁰ Wilson Papers, HHW 1/23 diary entries, 31 July to 7 August 1914; Jeffery, pp. 128–32.

³³¹ Jeffery, p. 99.

³³² ‘It is not too much to say that a great deal of the success of the initial moves of the troops from England to France was due to Colonel Marr Johnson’. See Wilson Papers, HHW 2/26/4 Wilson to Geddes, 3 April 1919.

³³³ Wilson Papers, HHW 3/5/13 Appendix A, 12 August 1911.

officers had been engaged in a decade-long exchange of personnel, information and expertise.³³⁴ It was thanks to this process that Britain had a thoroughly researched and comprehensively mapped out mobilization scheme in August 1914. It was a plan which, in addition to the work of the DMO, had received the advice and attention of some of Britain's foremost transportation experts, and yet throughout the pre-war period Britain's political leaders failed to provide civilian control or guidance.³³⁵ This failure, combined with a mixture of Belgian reticence and French encouragement, and taking place within a political atmosphere in which successive prime ministers demurred from the potentially disastrous consequences of revealing such matters either in Cabinet or to Parliament as a whole, ensured that when Belgium's neutrality was violated by German troops the 'W.F.' scheme was also the *only* mobilization scheme in the possession of the British government.

At the expiration of the British ultimatum to Berlin at 23:00 on 4 August 1914, the abdication of responsibility for hypothetical decisions could continue no longer. Britain's entry into the First World War was not governed by the timetables created by Henry Wilson and his staff over the previous four years, nor would their existence tie the British government to a single course of action once war between France and Germany erupted.³³⁶ As the philosopher A.D. Lindsay reflected to his wife on 3 August, the violation of Belgian neutrality and Britain's guarantee to that country mattered.³³⁷ British public opinion would not be swayed towards war by the impossibility or otherwise of modifying railway timetables.³³⁸ They would, however, ultimately form the bedrock upon which Britain's initial response to war in Europe would be built. The railways awaited the signal.

³³⁴ Philpott, 'Making of the Military Entente', p. 1185.

³³⁵ Coogan and Coogan, p. 130.

³³⁶ As Strachan notes, on 2 August the majority of Asquith's Cabinet 'still believed that Britain was embarking on a naval war'. See Strachan, *To Arms*, p. 198.

³³⁷ Keele, Keele University Special Collections and Archives, Papers of A.D. Lindsay, LIN 149 Lindsay to his wife, 3 August 1914.

³³⁸ As Catriona Pennell's study has illustrated, the violation of Belgian neutrality played a key role in turning British public opinion towards the acceptance of British intervention in the war, in direct contrast to the 'Lloyd Georgian' depiction of baying crowds and war fever in early August 1914. See C. Pennell, *A Kingdom United: Popular Responses to the Outbreak of the First World War in Britain and Ireland* (Oxford: Oxford University Press, 2012).

From planning to performance: British mobilization in August 1914

The historical approach to the mobilization of the BEF illustrates perfectly the subordinate position of logistical factors in discussions of the war. Where the mobilization of the force is not altogether ignored, references to it are invariably brief, and limited to reaffirmations that the entire process ‘proceeded remarkably well’.³³⁹ Indeed, the available literature on Britain’s mobilization for war in 1914 tends to reinforce the perception that logistics only predominate over the more ‘glamorous’ and controversial topics of tactics and strategy when the logistics fail.³⁴⁰ The presence of British troops at Mons on 23 August emphatically demonstrates that the logistical preparations of the BEF did not fail in August 1914, but the minimal references to them in the history of the conflict underplay the massive civil-military commitment that took place to ensure the multitude of movements connected to the outbreak of the war were successfully completed. Yet on 5 August 1914, when the War Council met for the first time, it was unclear whether the moves in Britain would be conducted immediately, or whether the timetables for embarkation at the French Channel ports would be used at all.

For all Wilson’s statements about the importance of mobilizing in line with the French and German armies, Britain’s decision to enter the war did not take place automatically. As a result, the three day gap between French and British mobilizations caused Sir John French to advocate that the ‘W.F.’ scheme be rendered void. In its place, the newly appointed C-in-C of the BEF once again, safe in the knowledge that Belgian support was secure, returned to the idea of transporting British troops direct to Antwerp in order to operate in concert with the Belgian Army. Aside from the implications for Dutch neutrality, the journey to Antwerp had already been discounted as unfeasible both by the war game of 1905 and the aborted Barnardiston-Ducarne talks of the following year. Furthermore, as Sir John’s replacement as CIGS, Sir Charles Douglas pointed out, the arrangements which had been made for the despatch of the BEF from Southampton, Newhaven and Bristol had been made with the journey time to France

³³⁹ I.M. Brown, *British Logistics*, p. 43. For other brief references, see Strachan, *To Arms*, p. 206; Carter, pp. 80–1; J.N. Westwood, *Railways at War* (London: Osprey, 1980), p. 138.

³⁴⁰ J. Thompson, *Lifeblood of War*, p. 3.

in mind. The extra distance to Antwerp would require either an increased number of transports to be sourced almost spontaneously or the existing railway timetables would be dislocated.³⁴¹ That the BEF's senior commander could raise such a logistically impracticable suggestion at the council augured ill for his appreciation of the role of transportation in the coming conflict.

His eventual successor on the Western Front, Sir Douglas Haig, questioned the validity of despatching the BEF at all. Instead, Haig argued that the BEF should remain in Britain for 'two or three months, during which the immense resources of the Empire' could be developed.³⁴² Yet the lack of any machinery with which to develop those resources, coupled with the nature of the understanding between the French and British governments as symbolized in the 'exchange of letters' in 1912,³⁴³ made Haig's proposal largely untenable. Consequently, the only remaining, practicable scheme for the mobilization of the BEF was 'With France'. It boasted the benefits of thorough logistical preparation, interdepartmental cooperation, the input of suitably qualified transport experts and, critically, it could be brought into action almost immediately. The work of almost a decade, uncontrolled by the CID and unknown to Parliament until 3 August, was now only being held back by a governmental decision over how much of the BEF to send to France. On 6 August, the newly instated Secretary of State for War, Lord Kitchener, decreed that only four divisions could leave the country immediately.³⁴⁴ By that point, however, thanks to the 'standard operating procedure' laid down in the War Book, the mobilization of the British Army for war was already underway.

For those working in the War Office, 'it had been frequently said that the worst day in the year for us to mobilize would be the August Bank Holiday'.³⁴⁵ Not only were the railways traditionally busy with the demands of holidaymakers, but the period was also used as an opportunity for the Territorials to undertake summer manoeuvres which, as noted above,

³⁴¹ CAB 22/1 Secretary's Notes, 5 August 1914, pp. 1-2.

³⁴² CAB 22/1 Secretary's Notes, 5 August 1914, p. 2.

³⁴³ The significance of the exchange of letters between Sir Edward Grey and Paul Cambon, the French ambassador to London, is discussed in S.B. Fay, *The Origins of the World War*, 2nd ed. rev, 2 vols. (New York: Macmillan, 1930), I, pp. 320-3.

³⁴⁴ CAB 22/1 Secretary's Notes, 6 August 1914, p. 1.

³⁴⁵ TNA: PRO PRO 30/66/9 Brigadier-General Sir Henry Osborne Mance: Papers, Recollections of the first few days of mobilization, n.d., p. 2.

themselves represented a significant logistical challenge. The precautionary period had in fact caught Captain Mance in the act of preparing for manoeuvres in Worcestershire alongside representatives of the GWR, a further example of the close working relationship developed between the railway companies and the military prior to the outbreak of hostilities.³⁴⁶ Further south, the Aldershot Command had commenced training with Territorial Forces drawn from London, East Hampshire, Sussex, Surrey and Kent on 27 July. Over the previous few days, the LSWR had been required to provide movement for advanced troops prior to the ‘peak’ movement on Sunday 26 July. On that day alone, the LSWR transported: 455 officers; 10,672 men; 985 horses; 95 vehicles; 98 guns; 190 cycles; and 193 tons of baggage from locations across the south of England (including the reception of traffic from neighbouring networks) to the stations of Liphook and Bordon.³⁴⁷ As Pattenden’s series of articles highlights, the annual manoeuvres were planned and executed as peace-time test mobilizations, illustrating both the complexity of large-scale railway traffic provision for the military, and also the number of engine crews, drivers and station staff required to know their responsibilities in order for the movement to proceed efficiently.

On 31 July, Sir Sam Fay’s telephone rang. He received the notification that the precautionary period had begun and made his way to London to join the rest of the REC at the offices of the LNWR, which had been specially selected for the task of running the mobilization scheme. Telephones and telegraphs linking Fay to the chief offices of the Great Central, and lines linking the other managers to their own railways had already been installed and awaited the prodigious use which was about to be made of them.³⁴⁸ At midnight on 5 August, the railways were taken over by the government and ordered to ‘carry on under the orders of the REC’, and ‘the instructions to general managers’ compiled during peacetime were brought into effect.³⁴⁹ For the next three weeks the employees of Britain’s railway companies would be made aware of the ‘secret timetables’ prepared over the previous four years by a tiny minority of their

³⁴⁶ PRO 30/66/9 Mance recollections, p. 1.

³⁴⁷ N. Pattenden, ‘Armageddon? - No Just Practising, Part 1’, *The South Western Circular*, 12 (2001), 2–13 (p. 4). See also parts 2, 3, and 4 of the same article.

³⁴⁸ Fay, pp. 20–1.

³⁴⁹ PRO 30/66/9 Mance recollections, p. 5.

colleagues and the DMO at the War Office, and would be charged with responsibility for the movement of the BEF; the Territorials; the Reserves; the personnel of the navy; the supplies and equipment required by all of the above; and the maintenance as far as possible of Britain's colossal passenger and freight traffic.

On 8 August, owing to what Wilson referred to as the 'dithering' of the government over the previous week,³⁵⁰ the railway programme for the transport of the BEF to the Channel coast was finally commenced. A total of 350 trains, comprising an average of thirty vehicles each, were made up ready for despatch to Southampton. The schedule demanded that the LSWR be able to put those 350 trains into the port, disembark and unload their contents, and remove them from the platforms within sixty hours. The railways 'delivered the goods' within forty-eight. Practically every day over the first three weeks of the conflict, trains arrived into Southampton at intervals of just under one every quarter of an hour. Over a fourteen-hour period of operations each day, the docks received seventy-three trains loaded with men, guns, ammunition, horses, wagons, and myriad other supplies. Thanks to the flexibility and contingency built into the programme from its very inception, the majority of the trains arrived between twenty-five and thirty minutes ahead of schedule, with just one being recorded as having arrived late.³⁵¹ As the General Manager of the LSWR, Herbert Walker, would reflect later in the year:

Magnificent and unprecedented as this feat was, we can pay the British railways no higher compliment than to say that it was expected of them, and that every man in the service knew the railways were equal to every demand that could be made on them, without it being necessary to dislocate ordinary traffic to one-quarter of the extent which mobilization involves abroad.³⁵²

Over the first fortnight of the mobilization period, the British railways ran 1,408 specially timetabled trains for the carriage of over 334,500 troops.³⁵³ Between 10 and 31 August, the LSWR alone would deliver to Southampton: 4,653 officers; 113,801 men; 314 guns; 5,221

³⁵⁰ D'Ombraïn, p. 112.

³⁵¹ TNA: PRO ZPER 9/19 'Railway Administration in War', *Railway Gazette*, 20 November 1914, pp. 529-30; ZPER 7/103 'Mobilization and Movement of Troops', *Records of Railway Interests in the War*, 1915, p. 18; Beckett, 'Going to War', p. 143.

³⁵² ZPER 9/19 'Railway Administration', *Railway Gazette*, p. 530.

³⁵³ C. Hamilton Ellis, *British Railway History: An Outline from the Accession of William IV to the Nationalisation of Railways, 1877-1947*, 2 vols. (London: George Allen & Unwin, 1959), II, pp. 300-1.

vehicles; 1,807 cycles; 4,557 tons of stores; and 37,649 horses.³⁵⁴ Despite notices being published advising commuters of potential disruption,³⁵⁵ ‘the business trains to and from London ran very much as usual, and the normal service was maintained on nearly all parts of the system’.³⁵⁶

The military also played its part. Lyndall Urwick, a 2nd Lieutenant with the 3rd Battalion, the Worcestershire Regiment, was one of those on annual manoeuvres when the precautionary period began. He ‘thus had a grand seat from which to view the whole process of mobilization’.³⁵⁷ At Weymouth, where Urwick was despatched with a company to man the coastal defences, that process was described as ‘bedlam. But it was a planned and ordered bedlam’.³⁵⁸ Each unit had their trucks ‘standing by’, every man in uniform and their kit packed. As soon as the notification to move arrived, they were ‘piled... into the trucks’ and despatched.³⁵⁹ When one Mounted Brigade threatened to be late with its concentration, it ‘soon came into line when told what all the others were doing’.³⁶⁰ Indicative of the regimental pride engendered in the British Army during peace time were the final remarks issued to Urwick before he himself had entrained for Weymouth: ‘Don’t let the Battalion down’.³⁶¹ The detailed instructions printed and issued to each unit prior to their departure, and the peace time training in entraining and detraining which had helped configure the mobilization process, combined to create the impression that ‘everyone seemed to know the general mobilization plan’.³⁶² The troops themselves operated in synchronization with the railways to ensure that the programme was carried out within the specified time frame.

³⁵⁴ TNA: PRO ZPER 9/28 ‘Modern Armies and Modern Transport. The Work of the London and South-Western Railway during the War’, *Railway Gazette*, 31 January 1919, p. 160.

³⁵⁵ ZPER 9/19 ‘Railways and the War. Reduced Passenger Service’, *Railway Gazette*, 7 August 1914, p. 194. In conjunction with naval movements, similar notices were also posted by the Caledonian, Glasgow and South-Western, and North British railways.

³⁵⁶ ZPER 9/28 ‘Modern Armies’, *Railway Gazette*, p. 160.

³⁵⁷ Urwick Papers, 8/2/2 Notes on the Life and Work of Lyndall Urwick, 1959, p. 26.

³⁵⁸ Urwick Papers, 8/3/2 Management Pilgrimage, p. 1.

³⁵⁹ Urwick Papers, 8/3/2 Management Pilgrimage, p. 1.

³⁶⁰ PRO 30/66/9 Mance recollections, p. 6.

³⁶¹ Urwick Papers, 8/4 Apprenticeship to Management, p. 20.

³⁶² Urwick Papers, 8/4 Apprenticeship to Management, p. 21.

In fact, the very efficiency of the cooperation between the railways and the military created the only potentially serious problem experienced in Britain during the mobilization period. Owing to fog in the Channel, and what Mance described as ‘a too rigorous examination service at Southampton’, the boats scheduled to transport the BEF were not arriving quickly enough to clear the number of troops accumulating in the rest camps around the town.³⁶³ In direct contradiction of Taylor’s assertion that the mobilization timetables were ‘immutable to the last detail and that improvisation of any kind was impossible’,³⁶⁴ the backlog was concerning enough for the QMG to visit Southampton to evaluate whether the railway programme should be halted for a day to allow the build-up of troops to be reduced. A staff exercise undertaken before the war had highlighted the flexibility within the programme (which was further demonstrated by the ability of the railways to react to Kitchener’s decision to retain the 4th Division in Britain rather than despatch it with the rest of the BEF) and this, coupled with the lifting of the fog in the Channel, allowed the Directorate of Movements and the railway companies to – rather than postpone the despatch of troops – instead utilize the built in flexibility of the programme to keep the scheme on track.³⁶⁵

Once across the Channel, the detailed planning between Johnson and his French counterparts became clear. Officers working as advanced parties were given instructions detailing their duties and those which the French rail authorities would undertake,³⁶⁶ whilst each unit was issued with a manual containing the relevant procedures to be followed during their journey to the front.³⁶⁷ Despite the lack of standardization between the railway operations of the two countries, and the three-day gap between the mobilizations of the French and British forces, the BEF concentrated around Maubeuge as planned in the days leading up to what would become the Battle of Mons. This was a ‘beautifully conducted’ deployment that not even

³⁶³ PRO 30/66/9 Mance recollections, p. 6.

³⁶⁴ A.J.P. Taylor, *War by Time-Table*, p. 18.

³⁶⁵ PRO 30/66/9 Mance recollections, pp. 6-7.

³⁶⁶ WO 106/49A/7 Instructions for Officers of Advanced Parties and Officers of the Railway Transport Establishment employed in the area of concentration on billeting and detrainment duties, n.d., pp. 1-3.

³⁶⁷ WO 106/49B/1 Instructions for Entrainment and Embarkation (Short Voyage) for Units of the Expeditionary Force.

Kitchener had the power to modify at the last minute,³⁶⁸ although it would take three hours of ‘wrangling’ between the Secretary of State and Huguet (acting on behalf of Joffre) before consent for the French Army’s plan was finally granted.³⁶⁹ The character of that meeting offered salutary lessons as to the nature of inter-Allied relations on the battlefield that was about to be formed.

³⁶⁸ A.J.P. Taylor, *War by Time-Table*, p. 118.

³⁶⁹ Philpott, *Anglo-French Relations*, p. 10.

Conclusion

The fact that a British force was able to take to the field in August 1914 has been historically put down to a number of factors. To Lyndall Urwick, the single most important contribution to readying the British Army for war was the ‘superb job of organization Haldane had done during his six years at the War Office between 1906 and 1912’.³⁷⁰ As noted above, to Percy Radcliffe it was the result of the indefatigable efforts of Sir Henry Wilson. As the examination of the documents created by the CID and the DMO reveal, it was in fact the combined efforts of civilian and military figures which created the army of 1914. The organizational changes conceived and installed by Esher, inspired by the managerial structures and ‘boards’ of large companies; Haldane’s promotion of efficiency and economy in the pursuit of the most ‘powerful’ army available within the limits of the Liberal government’s budgetary constraints;³⁷¹ and the efforts of technicians and experts from Britain’s transport professions all played their part. The senior railway managers who made up the REC, Sir Thomas Royden and Sir Lionel Fletcher, and various, unnamed employees of their companies who toiled on the details of the mobilization programme in secret for three years;³⁷² without all of their contributions, the BEF of August 1914 would perhaps not have been subject to the flattering description given to it by the official historian.

However, it was the entente rather than the ‘W.F.’ scheme which took Britain to war. The existence of a mobilization plan with its interlocking transport schedules may have imposed ‘haste and urgency’ upon Asquith’s deliberations at the first two War Councils,³⁷³ but it was the evolution of the colonial understanding of 1904 into a quasi-military alliance between France and Britain which dominated political strategic thought in the early days of August 1914. Although Wilson and others may have feared that Asquith’s Cabinet would ‘leave France in the lurch’ prior to the German ultimatum to Belgium, the potential damage to Britain’s ‘honour’

³⁷⁰ Urwick Papers, 8/4 Apprenticeship to Management, p. 20.

³⁷¹ Edinburgh, National Library of Scotland, Papers of Field-Marshal Sir Douglas Haig, Acc.3155/32A Memorandum by the Secretary of State for War on Army Reorganization, 30 July 1906, p. 3.

³⁷² Colonel Seely’s account of the period repeatedly stresses the secrecy attached to the development of Britain’s strategic response, creating an impression that very few people knew of the existence of such discussions. Such nescience cannot be extended to the railway or shipping industries. See Seely, pp. 129–51.

³⁷³ Williamson, Jr., pp. 336–7.

became such that neutrality was from then on a political impossibility.³⁷⁴ Fearing the collapse of the government he had carefully managed since 1908, partly through the concealment of the potentially explosive joint military preparations, Asquith was forced to back a Franco-British plan in which he had little faith.

As the meeting between Hugué and Kitchener on 12 August illustrated, the French Army were no longer a partner in a mutually beneficial training and knowledge-exchanging relationship, but the senior figure in a coalition war which would be fought primarily upon their own territory. From 16 August onwards, the complex balance of civil-military, Franco-British cooperative structures which had planned, built, and propelled the BEF to France would be tilted. Pre-war hopes would create organizational arrangements which would prove inadequate to the scale and duration of the challenge placed before them. Over the next two years, the British and French armies – and the states they represented – would be forced to confront the realities of industrial war.

³⁷⁴ J.W. Young, 'Conservative Leaders, Coalition, and Britain's Decision for War in 1914', *Diplomacy & Statecraft*, 25:2 (2014), 214–39.

Part 2: Expanding Armageddon

*No matter how skilful the plans of the Commander-in-Chief might be, they would almost certainly fail in execution if the troops were not properly fed and quartered, and kept supplied with ammunition.*¹

Field-Marshal Sir William Robertson

*Transportation was the cause of our greater difficulties [early in the war] – not fighting power, leadership, or the more active side of military training.*²

Colonel M.G. Taylor

Between its landing in August 1914 and 1 July 1916, the BEF grew from four to fifty-eight infantry divisions. In order to supply, equip, and manage the movement, health, discipline and clerical requirements of such a force ‘there [was] a corresponding augmentation and expansion of the Staff’,³ the bases and the lines of communication located behind the trenches, along with the creation of entirely new branches and services. Prior to the Battle of Mons in 1914, the BEF as a whole consisted of some 160,000 troops. By July 1916, the number of people working on the lines of communication alone was some 50,000 higher.⁴ The creation and sustenance of a mass army to rival the conscripted forces of France and Germany presented the British military authorities with a series of colossal organizational challenges, the majority of which were faced in the first full year of the war. During 1915, the BEF more than trebled in size. Over 650,000 men were added to the ration strength between January and October alone.⁵ However, the literature which has focused upon Britain’s response to the expanding scale of the ‘European commitment’ has tended to overlook the administrative achievement which ensured that the growth of the BEF did not result in starvation and chaos.⁶

¹ W.R. Robertson, *From Private*, p. 205.

² M.G. Taylor, ‘Land Transportation’, p. 700.

³ J.E. Edmonds, *History of the Great War. Military Operations, France and Belgium, 1916*, 2 vols. (London: Macmillan, 1932), I, p. 57.

⁴ I.M. Brown, *British Logistics*, p. 43; Edmonds, *France and Belgium, 1916*, I, p. 95.

⁵ I.M. Brown, *British Logistics*, p. 103.

⁶ I.M. Brown, ‘Growing Pains: Supplying the British Expeditionary Force, 1914-1915’, in *Battles Near and Far: A Century of Operational Deployment*, ed. by P. Dennis and J. Grey (Canberra: Army History Unit: Department of Defence, 2004), pp. 33–47 (p. 33).

This historiographical gap adheres to a wider trend in the literature on the first half of the conflict. It has fostered debate upon the machinations of political and military authority,⁷ the genesis and conduct of campaigns in the ‘sideshow’ theatres (most notably Gallipoli), and the complexities of raising and training the armies which took to the battlefield on 1 July 1916.⁸ Consequently, the myriad issues surrounding how this mass of troops was fed into the expanding Allied ‘war machine’ on the Western Front has remained largely unexamined. Even Elizabeth Greenhalgh’s *Victory through Coalition*, which analyses the ‘dry institutional history’ of inter-Allied management apparatus in far more detail than previous texts,⁹ covers the logistical frictions of the period between August 1914 and July 1916 in little more than two pages.¹⁰ Despite a recognition that ‘issues of man management and logistics... were the primary concerns of senior commanders for the first three years of the war’, and that the BEF underwent a ‘conceptual change’ which involved the mobilization of businessmen ‘to bring their knowledge of forecasting and economies of scale to military logistical supply’,¹¹ there remains a tendency – doubtless a remnant of Lloyd George’s pervasive influence – to view this process almost exclusively through the prism of Sir Eric Geddes and the creation of the Directorate-General of Transportation [DGT] in late 1916. Yet, prior to Geddes’ transportation mission in 1916,¹² the BEF actively sought out and engaged with experts from Britain and the Dominions in order to provide solutions for the recognizably ‘civilian’ problems of transport and supply. Unlike Geddes’ comprehensive mission, however, the BEF’s early attempts to grapple with the implications of industrialized warfare were relatively small-scale and limited in scope. They were subject to restrictions set by a British army and state ill-equipped for the administrative

⁷ W. Philpott, ‘Squaring the Circle: The Higher Coordination of the Entente in the Winter of 1915-16’, *The English Historical Review*, 114:458 (1999), 875–98; D.J. Dutton, ‘The Calais Conference of December 1915’, *The Historical Journal*, 21:1 (1978), 143–56.

⁸ P. Simkins, *Kitchener’s Army: The Raising of Britain’s New Armies, 1914-1916* (Manchester: Manchester University Press, 1988); K. Grieves, *The Politics of Manpower, 1914-18* (Manchester: Manchester University Press, 1988).

⁹ W. Philpott, ‘France’s Forgotten Victory’, *Journal of Strategic Studies*, 34:6 (2011), 901–18 (pp. 907–8).

¹⁰ Greenhalgh, pp. 33–5.

¹¹ D. Todman and G. Sheffield, ‘Command and Control in the British Army on the Western Front’, in *Command and Control on the Western Front: The British Army’s Experience, 1914-18*, ed. by G. Sheffield and D. Todman (Staplehurst: Spellmount, 2004), pp. 1–11 (p. 6). All quotes in the above passage are taken from this source.

¹² Grieves, ‘The Transportation Mission’.

challenge and unwilling to give consideration to the time and resource commitments that the fighting of 1916 would ultimately deem necessary in order to bring about victory. Furthermore, they were confined by a French army and state reluctant to relinquish command and influence over the foreign forces engaged on their soil. The result of these twin constraints would be to restrict the impact of these early engagements with civilian expertise to what Ian M. Brown has termed 'ad hoc' attempts to solve the limiting factor governing success on the Western Front; the sufficient and reliable supply of goods and ammunition to the fighting units.¹³

¹³ I.M. Brown, *British Logistics*, p. 103; Van Creveld, p. 1.

2.1: The clash of arms and the British Expeditionary Force's logistical organization

The preparations of the War Office before August 1914 made no plans for the extraordinary increase in the size of the BEF which took place after the initial engagements have proven indecisive.¹⁴ The pre-war 'conversations' between the French and British General Staffs resulted in an agreement whereby the logistics of the BEF were to be 'manned and controlled by the French', who would undertake 'the work of construction, repair, maintenance, traffic management and protection' required to supply the British forces in France.¹⁵ Demonstrating the confidence of the French in the projected nature of hostilities, and of the assumption that the BEF would not significantly increase in size during the war, the French also undertook to provide logistical support beyond the Franco-Belgian border. As a result of this pre-war agreement, the duties assigned to a Director of Railway Transport within the British Army's manual on administrative principles were almost entirely assigned to the French,¹⁶ leading to the decision that the British director should remain at home upon mobilization. Consequently, only a small staff of liaison officers proceeded to France to act as intermediaries between the BEF and the French railway authorities.¹⁷

The pre-war agreement, let alone disintegrating upon contact with the enemy, was broken almost as soon as British troops arrived on French soil. Upon arriving in France, the Inspector-General of Communications [IGC], Sir Frederick Robb, was dismayed to find that

they have not kept their promises about the dock employees, they can only furnish 1000 stevedores out of the 3000 [and] they propose not to work at night. I have had to be very firm about this, they have now promised to try and get some more.¹⁸

This inauspicious start to the practical operation of the coalition would set a pattern that continued when the fighting began.

¹⁴ I.M. Brown, *British Logistics*, pp. 75–6.

¹⁵ Henniker, p. 13; TNA: PRO WO 33/686 Instructions for the Inspector-General of Communications, Part II, section 1.

¹⁶ *Field Service Regulations, Part II. Organization and Administration* (London: HMSO, 1913).

¹⁷ Henniker, pp. 16–17. The majority of those chosen for this work (twenty-six from a total of thirty-one) were not technical railway troops, but a combination of students from the Staff College and officers on the Reserve list in August 1914.

¹⁸ Wilson Papers, HHW 2/73/49 Robb to Wilson, 10 August 1914.

The retention of overall control of the transport network by the French through the *Commission Regulatrice*,¹⁹ allied with the relative sizes of the two armies, ensured that during the emergencies of the opening months of the war priority was consistently given to the requirements of the French troops. French corps consistently gained precedence in the provision of railheads, which forced the BEF to rely upon stations with inferior facilities and, when French trains blocked the lines heading back to the BEF's railheads, led to a lack of supplies reaching the British troops. On 23 October, as the First Battle of Ypres raged, the QMG, Sir William Robertson, observed with evident frustration that the troops were struggling to obtain ammunition:

Some of the ammunition trains yesterday were within a few miles of our railheads but we could not get them there. It seems ridiculous that it should take some eighteen hours from Boulogne [to] here but it does, and the greater part of that time is probably spent near where we are... *If anything* goes wrong with the ammunition train there may be a shortage, of which there can be no greater QMG's offence. Besides, it is exceedingly wearing and worrying for one every day to be wondering whether the ammunition required will be forthcoming.²⁰

As all orders for railway transport had to be made through the French railway authorities, the BEF was entirely reliant upon their hosts to ensure that deliveries were made.²¹ With the French Army engaged heavily throughout the period in a struggle of national survival, the requests of the tiny, untried, unreliable BEF were unsurprisingly subordinated to the demands of the host nation's troops.²²

Further complications arose due to the nature of the British administrative organization prescribed by *Field Service Regulations* [FSR].²³ The regulations used in August 1914 divided

¹⁹ The principles and organization governing the French use of railways at the outbreak of the war are given in Henniker, pp. 3–12; TNA: PRO WO 95/27 Quarter-Master General, Note on the subject of the Organization of the Communication of the British Army, 12 October 1914, p. 2.

²⁰ WO 95/27 Robertson to Maxwell, 23 October 1914. Emphasis in original.

²¹ TNA: PRO WO 95/3949 Inspector-General, Robertson to Maxwell, 24 October 1914.

²² The pernicious effects of the 'delay and indecision' of the British in entering the war and in carrying out the 'W.F.' scheme upon French opinion are detailed in Philpott, *Anglo-French Relations*, pp. 13–30. Edward Spears, who acted as liaison officer to the French Army during the conflict, also discussed the suspicion afforded to him as a result of England's 'hesitating attitude' in early August. See LHCMA, Papers of Major-General Sir Edward Spears, 2/3/MS2961 Spears to French, 16 May 1919. Although Spears only changed the spelling of his name from Spiers in 1918, the amended version will be used throughout this thesis.

²³ A conference at which this issue was discussed took place between 12 and 15 January 1914, further illustrating how the organization of the BEF was under constant review throughout the pre-war period. The debate is summarized in I.M. Brown, *British Logistics*, pp. 48–51.

the responsibility for transportation and supply between two officers. The IGC, Sir Ronald Maxwell,²⁴ maintained stocks at the bases and controlled traffic on the lines of communication, and was located at the advanced base along with his staff.²⁵ Robertson, based alongside Sir John French at GHQ, took charge of administrative arrangements between the Inspector-General and the fighting units. The General Staff would identify priorities for movement, Robertson issued instructions to the relevant units, and Maxwell then coordinated the move.²⁶ With the frequent re-location of GHQ during the early fighting (between 25 August and 1 September the location of GHQ changed five times) affording little opportunity to establish adequate communications at each site, contact between Maxwell and Robertson became almost impossible to sustain. As a result, messages and orders from GHQ frequently did not reach their intended destination, or were inapplicable to the circumstances of the moment when they did finally arrive.²⁷

With the entire army on the move in both retreat and advance, the administrative departments could not be certain where the BEF would be from day to day.²⁸ By the time rendezvous points had been selected by GHQ and communicated to Maxwell, there was no guarantee that British troops would be in position to receive the supplies being forwarded. Closer to the front, the quartermasters of individual fighting formations struggled to maintain contact with the troops they were employed to keep supplied as the road network became increasingly congested with troops, guns, supplies and refugees.²⁹ Robertson reserved particular ire for the mass of refugees,³⁰ criticizing them for having been ‘an awful nuisance, blocking our roads, and even our fire’ during the retreat, clogging up the streets with ‘bicycles, mattresses,

²⁴ Maxwell replaced Robb as IGC on 19 September 1914. The latter returned to Britain where he acted as Military Secretary until 1916.

²⁵ WO 33/686 Instructions, Part II, sections 5-6. Robertson equated the IGC’s role as ‘something like the managing directors of Harrods’ Stores and Carter Paterson rolled into one’. See W.R. Robertson, *From Private*, p. 199; I.M. Brown, ‘Growing Pains’.

²⁶ R.G. Miller, ‘The Logistics of the British Expeditionary Force: 4 August to 5 September 1914’, *Military Affairs*, 43:3 (1979), 133–38 (p. 133).

²⁷ Henniker, pp. 25–7; W.R. Robertson, *From Private*, p. 200.

²⁸ I.M. Brown, *British Logistics*, p. 61.

²⁹ A. Whitty, *A Quartermaster at the Front: The Diary of Lieutenant-Colonel Allen Whitty, Worcestershire Regiment, 1914-1919*, ed. by E. Astill (Eastbourne: Reveille Press, 2011), pp. 22–31.

³⁰ Roughly 1.4 million Belgians were displaced during the war, with over half a million finding their way to France or Britain. See D. Laqua, ‘Des Belges à L’épreuve de l’Exil: Les Réfugiés de La Première Guerre Mondiale; France, Grande-Bretagne, Pays-Bas, 1914-1918, by Michael Amara’, *The English Historical Review*, 127:525 (2012), 479–81 (pp. 479–80).

perambulators, boxes, cocks and hens, turkeys’ and, ‘in some cases’ flocks of up to one thousand sheep.³¹

Lyndall Urwick, serving with the Worcesters at the start of the war, recalled that ‘only once or twice during the retreat and the Battle of the Marne had our regimental transport caught up with us’.³² Consequently, the food received on the retreat ‘had been uncertain but monotonous, consisting, when we got any, almost entirely of bully beef and biscuit’, or whatever the enterprising soldier could scrounge.³³ It was Robertson’s role, as QMG, to ensure that the men were supplied with food and ammunition.³⁴ The supply arrangements in place were insufficient to guarantee that this would happen, and instead Robertson was reduced to arranging for food and ammunition to be ‘dumped’ at busy crossroads for the men to take as they passed.³⁵ Naturally such a system led to ‘excessive waste’ and significant quantities of supplies being left for the advancing Germans, ‘but when troops are fighting very hard’, Robertson stated, ‘one does not like to worry them too much about administrative matters. The chief thing is to beat the enemy’ rather than obsess over red-tape and ‘compliance with routine regulations’.³⁶

Unable to maintain contact between the base depots and the fluid situation at the front, Robertson adhered to the guidelines laid down in FSR Part I, which emphasized that ‘the man on the spot’ should use his initiative when circumstances required,³⁷ and temporarily abandoned the principles of dual control laid down in FSR Part II. As Robertson was situated at ‘the spot’ where the most up-to-date information on the disposition of troops and the military situation was to be found, GHQ,³⁸ he was better equipped to respond to urgent requests and identify

³¹ Robertson Papers, 7/1/1 Robertson to Wigram, 1 September 1914.

³² Urwick Papers, 8/4 Apprenticeship to Management, p. 47.

³³ Urwick Papers, 8/3/2 Management Pilgrimage, p. 3; 8/4 Apprenticeship to Management, p. 34; F. Richards, *Old Soldiers Never Die* (London: Faber & Faber, 1933), p. 27.

³⁴ J. Spencer, “‘The Big Brain in the Army’: Sir William Robertson as Quartermaster-General”, in *Stemming the Tide*, ed. by Jones, pp. 89–107 (p. 97).

³⁵ Spencer, p. 97. Urwick recalled the scene at one roadside dump where, had it not been for the posting of guards with fixed bayonets, the Royal Irish Rifles ‘would have looted the lot’. See Urwick Papers, 8/4 Apprenticeship to Management, p. 37.

³⁶ WO 95/27 Robertson to Maxwell, 23 October 1914; W.R. Robertson, *From Private*, pp. 208–10.

³⁷ *Field Service Regulations, Part I. Operations* (London: HMSO, 1912).

³⁸ Spencer, pp. 95–6.

priority moves to ensure that deliveries were directed to the most suitable railheads.³⁹ To assist in this coordination Major Marr Johnson, the man responsible for creating the railway timetables used in the 'W.F.' scheme, was summoned from Maxwell's office to GHQ. Having worked with the French railway authorities prior to the war to arrange the movement inland of the BEF, Johnson was fully cognizant of the technical aspects governing the French system and acted as a liaison between Robertson and the French throughout the period of movement.⁴⁰ Although initially viewed as a temporary measure designed to meet the immediate crisis rather than as a permanent solution, the volume of railway questions which demanded attention ensured that Johnson would remain at GHQ rather than return to his original duty arranging the technical details concerning British movements.⁴¹

The transfer of the BEF to Flanders during October emphasized the reality of the command relationship in France, most notably of the BEF's subordinate position to the host nation in terms of logistical priorities.⁴² As the front stabilized, Sir John planned to unite his forces and undertake a huge enveloping manoeuvre on the Germans concentrated on Lille. It would take 'a week or nine days... and if successful [would] put an end to their invasion of France'.⁴³ Sir John could request, forcefully,⁴⁴ that the British troops be moved north to put his ambitious plan into action, but as Joffre stated in response to the British appeal: 'the C-in-C has the honour to state that he will endeavour to satisfy this request, but... the movement of the British troops can only be carried out in succession'.⁴⁵ Joffre's letter went on to 'assure Marshal French' that 'the greatest efforts' would be made to concentrate the whole of the BEF in the

³⁹ TNA: PRO WO 95/3950 Inspector-General, French to Kitchener, 20 November 1914.

⁴⁰ WO 95/27 Robertson to Maxwell, 21 October 1914; Henniker, pp. 26–8.

⁴¹ Robertson Papers, 2/2/83 Robertson to Maxwell, 3 October 1914; Henniker, pp. 39–40 discusses the problems created at Maxwell's headquarters during this period as a result of Johnson's prolonged absence.

⁴² I.M. Brown, 'Growing Pains', pp. 36–7. The BEF's needs had to be considered alongside not only those of the French Army, but also the traffic requirements of the civilian population, as noted in W.J.K. Davies, *Light Railways of the First World War: A History of Tactical Rail Communications on the British Fronts, 1914-18* (Newton Abbot: David & Charles, 1967), p. 19.

⁴³ Badsey, p. 48.

⁴⁴ 'Both from strategical reasons and tactical reasons it is desirable that the British Army should regain its position on the left of the line. There remains the question of *when* this move should take place. I submit that *now* is the time'. See Wilson Papers, HHW 2/73/62 Note (signed by Sir John French), 29 September 1914. Emphasis in original.

⁴⁵ Robertson Papers, 2/2/85 Joffre to French, 5 October 1914. All quotes in this passage taken from this source.

northern sector of the front, but pointed out that to comply with Sir John's wishes would severely delay the intended operations of the French forces in the north. Consequently, the BEF moved not as a whole, but in small groups according to arrangements coordinated by the French railway authorities.⁴⁶ Although Sir John had the machinery with which to inform Joffre of his transport requirements, the BEF contained no 'voice' to ensure those requests were given prominence at *Grand Quartier Général* [GQG].⁴⁷ The result was a perception within the BEF that the French could not be relied upon to fulfil their logistical obligations, exemplified by Robertson's grumble at the end of September that 'I have always doubted the possibility of our obtaining much, if any, transport from French sources'.⁴⁸

As the French were already beginning to make demands on the British to abandon portions of the pre-war agreement and take over responsibility for repairs to the railways in the British zone when an advance took place,⁴⁹ it became clear that the shifting relationship between the Allies demanded reconsideration. With the BEF woefully under-resourced both in personnel and technical knowledge, it was equally clear that any investigation could not be completed by those employed on either Robertson or Maxwell's staffs at the time. Therefore the examination would need to be handled by an 'outsider'. The man chosen for the role was not a senior figure in the War Office, but a Canadian engineer.

Sir Percy Girouard's report

Édouard Percy Cranwill Girouard, the son of a French-Canadian lawyer and politician, was born in Montreal in 1867.⁵⁰ Fluent in both French and English, Girouard entered the Royal Military College at Kingston at the age of fifteen and graduated in 1886 with a diploma in

⁴⁶ WO 95/27 Railway transport for the British Army, 12 October 1914; Henniker, p. 73.

⁴⁷ Wilson Papers, HHW 2/73/69 Joffre to French, 4 October 1914 emphasizes Sir John's impotence in this matter.

⁴⁸ WO 95/3949 Robertson to Maxwell, 29 September 1914.

⁴⁹ TNA: PRO WO 32/5144 Report on rail transport arrangements for the British Army on the continent by General Sir É. Girouard, Girouard to Cowans, 24 October 1914; WO 95/27 Robertson to Laffon de Ladébat, 31 October 1914.

⁵⁰ Unless otherwise stated, the biographical information in this passage is taken from J. Flint, 'Girouard, Sir (Édouard) Percy Cranwill (1867–1932)', *ODNB* <<http://www.oxforddnb.com/view/article/33415>> [accessed 29 Aug 2014]; R.P.T. Davenport-Hines, 'Girouard, Sir Édouard Percy Cranwill', in *Dictionary of Business Biography: A Biographical Dictionary of Business Leaders Active in Britain in the Period 1860-1980* [DBB], ed. by D.J. Jeremy, 5 vols. (London: Butterworths, 1984), II, 570–74.

engineering. After two years on the engineering staff of the Canadian Pacific Railway, during which time he was involved in the construction of the International Railway of Maine, Girouard disappointed his father by accepting a commission in the Royal Engineers and departing for Woolwich. On 1 January 1891, Girouard would become the first officer to hold the position of Traffic Manager on the 824 acre site of the Royal Arsenal.⁵¹

Prior to Girouard's appointment, each of the various departments and factories that comprised the Arsenal had been responsible for acquiring and maintaining its own stock of engines and wagons for use on the Arsenal's narrow gauge railway system. Furthermore, no central administration had been established to oversee the traffic flow around the site, each factory arranging its own train schedules. Girouard's task was to take control of all the engines and rolling stock from the various departments, 'some thirty-six narrow-gauge engines and 1,000 carriages, vans and trucks', and centralize all requests for rail traffic within the Woolwich site.⁵² It was a responsibility upon which Girouard thrived, reorganizing the Royal Arsenal Railway into traffic sections and creating a system which gave 'universal satisfaction' to the departments.⁵³ The narrow-gauge network became an integral part of the Arsenal, forming 'a valuable link between office and shop, storehouse and magazine', and the general goods and passenger service for employees of the various factories.⁵⁴ The role gave Girouard experience of the pitfalls involved in giving separate departments within a single institution influence over the operation of a shared logistics system, particularly in terms of the 'confusion and waste' which were the corollary of interdepartmental rivalry encapsulated by the 'each for himself and the devil take the hindmost' policy pursued prior to his arrival.⁵⁵ However, it was in Africa that Girouard would come face to face with the challenges of railway construction and operation on foreign soil in both peace and war.

⁵¹ O.F.G. Hogg, *The Royal Arsenal: Its Background, Origin and Subsequent History*, 2 vols. (Oxford: Oxford University Press, 1963), II, pp. 878, 1292.

⁵² Hogg, II, p. 878.

⁵³ Hogg, II, p. 1310.

⁵⁴ Hogg, II, p. 1309.

⁵⁵ The existence of 'watertight' departments and the absence of a holistic approach to operations will resurface later as criticisms of the administration of the BEF. See below, part 3.

In 1896, Girouard was seconded to the Egyptian Army and joined Kitchener on an expedition southwards along the River Nile. Although the existing lines in the Nile Valley had been destroyed, Girouard assisted in the reconstruction of the railway and its extension to the Egyptian-Sudanese border.⁵⁶ Following Kitchener's decision to extend the railway across the Nubian Desert early in 1897, Girouard became Director of Sudan Railways, responsible for overseeing the 'cholera-decimated staff of Royal Engineers' working on the project.⁵⁷ Despite the inhospitable conditions, the railway was well built, permitting the passage of heavy trains carrying up to 200 tons at speeds of up to twenty-five miles per hour.⁵⁸ By July 1898 the railway had reached Atbara, and it played a vital role in sustaining the 22,000 strong force which would ultimately triumph at Omdurman. As Carter notes, 'the victory of the Anglo-Egyptian Army at Omdurman; the occupation of Khartoum; and the subsequent overthrow of the Mahdi and conquest of the Sudan, would never have taken place had it not been for the completion of this military railway to Atbara'.⁵⁹ The campaign offered a valuable practical lesson of the advantages to be gained from railway use, allowing for the concentration of superior British firepower, and Girouard's efforts in the Sudan were officially recognized with the award of the Distinguished Service Order and appointment as President of the Egyptian Railway and Telegraph Administration.⁶⁰

Within a year, Girouard would return to wartime railway management, as the outbreak of the South African War saw him appointed Director of Railways and given responsibility for 'making maximum use of the railways in waging war against the Boers'.⁶¹ With territory in South Africa divided between those areas loyal to the British, those under Boer control and those in areas nominally 'British' but comprising many with sympathetic attitudes towards the Boers (making them unreliable for railway-operating purposes), the South African War

⁵⁶ Westwood, p. 94.

⁵⁷ Carter, p. 56.

⁵⁸ Westwood, pp. 94–5.

⁵⁹ Carter, p. 56.

⁶⁰ Davenport-Hines, II, p. 571.

⁶¹ Flint, 'Girouard'.

presented a wide range of administrative challenges for Girouard and his staff to overcome.⁶² These lessons were compiled after the war by Girouard himself in a multi-volume work which, although titled as the *History of the Railways during the South African War*, was also viewed as a valuable educational resource for military officers on the importance of understanding the role of railways in modern warfare.⁶³ Only one volume, Girouard's general report of railway developments, would be published through official channels due to cost considerations in the post-war era of fiscal retrenchment. However, demonstrating an awareness both of the importance of such a 'valuable record of the largest operations undertaken by a British army in the field', and of Girouard's mastery of the relevant details, the Royal Engineers chose to publish the remaining three volumes themselves.⁶⁴ This meant that, although Girouard himself would leave the military in 1907 to take on a variety of governmental roles in Africa and a directorship at the munitions firm Armstrong's,⁶⁵ Girouard's position as a military railway expert remained thoroughly acknowledged within the army.

Girouard's pre-war experience ensured that, despite not being a serving officer, he could not be described as an 'outsider' in the sense that Eric Geddes would be in 1916.⁶⁶ Although Lloyd George would later assert that Girouard was 'an out-and-out Kitchener man',⁶⁷ with all the connected intimations of a perceived favouritism, Girouard was a logical choice to undertake a task which demanded the respect and cooperation of both allies in order to be a success. Arriving in France on 16 October, Girouard first met with Maxwell, to discuss the railway situation from the point of view of the IGC and his staff, before travelling to Paris for a meeting with the military commission responsible for the operations of the *Chemin de fer du Nord*, the system upon which the majority of the BEF's supplies were transported. Prior to his

⁶² On Girouard's contribution to the South African War, see C. Wolmar, *Engines of War: How Wars Were Won and Lost on the Railways* (London: Atlantic, 2010), pp. 97–110; É.P.C. Girouard, 'Railways in War', *Royal Engineers Journal*, 2:1 (1905), 16–27 (pp. 16–27).

⁶³ É.P.C. Girouard, *History of the Railways during the War in South Africa, 1899-1902* (London: HMSO, 1903); 'Detailed History of the Railways in the South African War, 1899-1902', *Royal Engineers Journal*, 1:3 (1905), 133–35.

⁶⁴ 'Detailed History', p. 133.

⁶⁵ Davenport-Hines, II, pp. 571–2; C. Andersen, 'Colonial Connections and Consulting Engineers, 1850–1914', *ICE Proceedings*, 164:4 (2011), 201–9 (pp. 206–7).

⁶⁶ However, as will be discussed below, chapter 3.1, Geddes was also a recognized name at the War Office prior to the war.

⁶⁷ Lloyd George, I, p. 151.

return to London, Girouard also consulted with Robertson and with the French Director of Railways before proceeding to Boulogne to examine the port's suitability as an army base.⁶⁸ His report analysed the French system of railway organization alongside both the British system as outlined in FSR and the methods in use at the time of his visit.

The French system came in for particular attention, Girouard recognizing that 'any organization of ours [was] bound to collaborate' with the extant system in the host nation.⁶⁹ It was a system which, quite apart from the efforts required to mobilize the French Army and to transport the BEF from the ports, had been called upon to deal with a huge influx of refugees streaming south from occupied Belgium and France; significant numbers of locomotives and rolling stock despatched from the Belgian railways; and the supply of the forces in the field in retreat and advance. Despite British complaints regarding the BEF's inferior status, it was a task which Girouard concluded had been undertaken with a remarkable degree of success.⁷⁰ There were two reasons for this accomplishment. The first was that the entire French railway organization was centred at GQG, from which point control of the whole railway system in France was coordinated. The ability to direct the transport network from the principal information centre of the French Army ensured that the railway authorities managed their resources with the most up-to-date information and could act on the latest intelligence. This compared favourably with the procedure laid down in FSR by which Maxwell had already found that inadequate communications had left him incapable of responding to the fluctuating demands of a mobile front line.⁷¹

The second reason lay in the composition of the French military railway authority itself, a vestige of France's last military clash with the Germans. Following the disastrous performance of the railway network during the Franco-Prussian War of 1870-1871, in which uncoordinated military command of the railways led to confusion, congestion and ultimately contributed to their defeat, French efforts had been directed towards the creation of a unified

⁶⁸ WO 32/5144 Girouard to Cowans, 24 October 1914.

⁶⁹ WO 32/5144 Report, p. 1.

⁷⁰ WO 32/5144 Report, p. 2.

⁷¹ WO 32/5144 Report, pp. 3-4.

civil-military command system to operate the rail network in wartime.⁷² Upon mobilization in 1914 therefore, the entire network came under the control of a single railway authority. Individual railways were placed under the orders of special commissions, containing both a senior military officer and a professional railwayman with a comprehensive knowledge of their collection of lines.⁷³ This combination of military and civilian experts ensured that the issuing of orders which were impossible to fulfil was eradicated, and that the railway officials responsible for movements received those orders from a single source with access to a breadth of information. The non-existence of a sole authority had ‘resulted in most serious failures in the working of our railways during the war of 1870’,⁷⁴ as ‘orders and counter-orders were given direct to the civil staff [of the railways] by the General Staff, the administrative staff, [individual] departments, and even the Minister of War’.⁷⁵ It was an experience the French were keen not to repeat.

The knowledge base of the railway officials particularly impressed Girouard.⁷⁶ Each of the commissions existed in peace time, and was able to take over their designated network upon mobilization.⁷⁷ The staff of each line therefore possessed an intimate working knowledge of the limitations of the system and the capacities of individual stations on the network. This enabled the selection of the most suitable railheads for the detrainment of troops to begin immediately, and ensured that trains were only directed to stations capable of handling the goods contained upon them.⁷⁸ By utilizing the civilian staff of the railways in roles familiar to them from peace time, the French Army were extracting the maximum efficiency from the system, a principle Girouard had strongly advocated in the aftermath of the South African War.⁷⁹

⁷² On the role of rail transport during the Franco-Prussian War, see A. Mitchell, *The Great Train Race: Railways and the Franco-German Rivalry, 1815-1914* (New York: Berghahn, 2000); Westwood, pp. 55–87; Carter, pp. 46–52.

⁷³ Henniker, pp. 3–5.

⁷⁴ The Directeur des Chemins de Fer to Maxwell, 19 September 1914, quoted in Henniker, p. 5.

⁷⁵ Girouard, 'Railways in War', pp. 17–18.

⁷⁶ WO 32/5144 Report, p. 2.

⁷⁷ Lloyd George Papers, LG/F/18/2/8 Geddes to Lloyd George, 8 August 1918.

⁷⁸ Henniker, p. 4.

⁷⁹ TNA: PRO CAB 17/11 Railway Organization in Theatres of War, Précis of the views of Lieutenant-Colonel Sir Percy Girouard, in an interview with Lord Esher, 26 November 1903.

The methodical structure of the French organization contrasted sharply with Girouard's assessment of the British arrangements. In concurrence with the guidelines laid down in FSR, the various directorates governing the supply and movement services were not controlled by a single authority, but instead reported to both Maxwell and Robertson.⁸⁰ In practice, this meant that officers such as the Director of Works were under the direct command of Robertson at GHQ, but had his office space at Maxwell's headquarters.⁸¹ Effective liaison between the two staffs, particularly in light of the broken communications which were a key feature of the war's opening months, was clearly impracticable. The transfer of Major Johnson symbolized the collapse of the FSR guidelines; Maxwell was no longer able to comply with the pre-war instructions which stated that all communications with French rail authorities were to be made through the IGC's office, as the officer responsible for the work had been moved to GHQ.⁸²

The solution proposed by Girouard consisted of abandoning the organizational structure laid down in FSR and replicating the French system. In doing so, he argued, the BEF would ensure coordination between the British railway staffs and the French commissions at all levels of authority, right up to the 'executive' level of the transport hierarchy at which the BEF had no representation.⁸³ Such a modification would give the BEF a say in the ongoing development of the Allied transport coalition. With the French already beginning to make requests that the British arrange to cover the repair of lines in the rear of the BEF in the event of an advance,⁸⁴ Girouard deemed it desirable that any organization established for the reconstruction and operation of the Belgian railways 'should have a considerable [British] voice'.⁸⁵ In France, both Robertson and Maxwell recognized the need for greater liaison between the French and British staffs with regard to transport, leading to the installation of a Director of Railway Transport at the end of October. This was a clear indication that the pre-war arrangements with the French had been rendered inadequate by the opening battles of the war. The director, Colonel Twiss,

⁸⁰ I.M. Brown, *British Logistics*, pp. 48–55.

⁸¹ I.M. Brown, *British Logistics*, p. 51; Edmonds, *France and Belgium, 1914*, I, pp. 415–16.

⁸² WO 32/5144 Report, pp. 6-8; WO 33/686 Instructions, Part II, section 6.

⁸³ WO 32/5144 Report, pp. 5-6, 12.

⁸⁴ WO 32/5144 Girouard to Cowans, 24 October 1914.

⁸⁵ WO 32/5144 Report, p. 12.

originally left at home when the BEF sailed, took up his post to act as a dedicated traffic officer and to improve coordination and liaison between French and British staffs.⁸⁶

The location of this director's office would also solve the issue over which officer, Robertson or Maxwell, was to take responsibility for traffic coordination on the Western Front. As we have seen, Maxwell, the authority under the pre-war arrangements, was unable to exercise effective control over the railways due both to his inability to receive the latest information in a timely fashion and to the location of numerous transport-related directorates at GHQ rather than at his own offices. It would be impossible for the IGC to retain responsibility for the coordination of traffic unless these directorates were placed under his direct control, which meant relocation away from GHQ and a reduction in their access to the latest intelligence reports and the established communication channels between the French and British headquarters.⁸⁷ As a result of these disadvantages, Maxwell and Robertson were in accord that the 'French system' of unified control should be adopted, the Director of Railway Transport should be located at GHQ, and that, as a corollary, Robertson would accept responsibility for the BEF's transport arrangements.⁸⁸

As Spencer notes, Robertson viewed regulation and procedure as 'hand-rails to guide decision-making rather than barriers to creativity' during the chaotic period that followed the initial engagements of the war.⁸⁹ Maxwell's belief that 'the French system is likely to give the best results' confirms that there was a working environment within the BEF's administrative echelons fostered by 'a combination of Staff College training... pragmatism, and [a] professional outlook'.⁹⁰ However, this attitude was not universally shared, as the responses to Girouard's report at the War Office demonstrate. The former IGC, Sir Frederick Robb, denounced Girouard's proposals as 'nothing new', and criticized the 'absurdity' of holding one

⁸⁶ WO 107/69 Work of the QMG's branch, pp. 14-15. The success with which Twiss himself believed he had achieved the second of these tasks was summed up in a letter to his French counterpart in June 1915, where Twiss celebrated the 'confidence and good feeling between your railway staff and mine... and may I also say my dear Colonel Le Henaff, between you and me, [which] is a matter of the greatest satisfaction to me'. See TNA: PRO WO 95/64 Director of Railway Transport, Twiss to Le Henaff, 19 June 1915.

⁸⁷ WO 32/5144 Maxwell to Robertson, 23 October 1914.

⁸⁸ WO 32/5144 Maxwell to Robertson, 23 October 1914; WO 95/3949 Robertson to Maxwell, 24 October 1914.

⁸⁹ Spencer, p. 106.

⁹⁰ WO 32/5144 Maxwell to Robertson, 23 October 1914; I.M. Brown, *British Logistics*, p. 61.

man responsible for all transport requirements in the theatre of war.⁹¹ Furthermore, whilst Robb noted correctly that the system Girouard had reviewed in his report was not that envisaged by the pre-war arrangements, the modifications which had taken place between August and October had not been the result of the ‘co-efficient of human nature’ (by which Robb implied a desire by Robertson at GHQ to centralize supply responsibility under himself).⁹² As we have seen, Robertson’s adjustments were a response to inadequate communications between GHQ and the administrative departments established on the lines of communication.

Yet the most condemnatory statements on Girouard’s report came from Robertson’s opposite number in London, the QMG at the War Office, Sir John Cowans. In a note written three days after the report, with the fighting around Ypres continuing to escalate, Cowans wrote that Girouard had

far exceeded his instructions. He was not told to produce a scheme for uprooting organizations deliberately laid down after deep deliberation... The Regulations have been issued and acted upon and it is no time in the middle of a campaign to tinker with them.⁹³

For Cowans, despite his personal misgivings as to the ‘anomalies’ within the existing arrangements, the short-term exigency of ensuring the troops engaged around Ypres remained fed and equipped superseded the rearrangement of rearward services decided upon prior to mobilization by the BEF’s supreme arbiter, Sir John French.⁹⁴

The contents of Cowans’ memorandum flatly contradicts the commentary on Girouard’s report in the hagiographic biography of Cowans published after his death, which stated that Girouard’s report had been ‘shelved’ by the BEF, ‘most probably because the authorities in France were not ready for any change and because they... resented anything that looked even faintly like interference or dictation from home’.⁹⁵ Such a statement could easily have been lifted directly from Lloyd George’s own writing on the BEF’s reticence to engage with innovative ideas. Yet after a month of operating under the new system, Sir John would write to

⁹¹ WO 32/5144 Note by Major-General Sir F.S. Robb on Sir Percy Girouard’s proposals, n.d., p. 1.

⁹² WO 32/5144 Note by Robb, pp. 1-3.

⁹³ WO 32/5144 Note on memo. by Sir P. Girouard, 27 October 1914.

⁹⁴ WO 32/5144 Note on memo., 27 October 1914.

⁹⁵ D. Chapman-Huston and O. Rutter, *General Sir John Cowans, G.C.B., G.C.M.G.: The Quartermaster-General of the Great War*, 2 vols. (London: Hutchinson & Co., 1924), II, p. 102.

Kitchener that Girouard's recommended centralization of responsibility under Robertson's authority was working 'to the satisfaction of all concerned',⁹⁶ whilst Robertson's own correspondence with Cowans further demonstrates that the BEF's senior commanders held no resentment towards Girouard. In fact, Robertson had asked his War Office counterpart whether Girouard would be returning to France to deal with the 'important questions' which needed to be settled with regard to the operation of the Belgian railways.⁹⁷ The French and Belgian headquarters had already undertaken bilateral discussions and Robertson, echoing Girouard's observations, emphasized the need for the British to have a 'voice' in any formal agreements to be signed between the Allies. The final decision regarding Girouard's contribution to those discussions was unequivocally left in the hands of the War Office. In the end, it was Colonel Henniker who acted as the British representative on what became known as the 'Calais commissions' on transport matters.⁹⁸

The reasons behind Henniker's selection from within, rather than the appointment of Girouard to this role, have not been established, yet it is clear that it was not due to any ingrained BEF obstinacy towards the outside expert. Nor was the decision to 'shelve' the majority of recommendations made by Girouard in October 1914. Instead, the reason why much of Girouard's report failed to be implemented lay in the fact that many of his recommendations envisaged a situation in which the war of movement would recommence in the spring. Girouard's conclusions reflected a widespread tendency to view the stalemate of the winter as a temporary anomaly, and were founded on the belief that the BEF would soon be operating once again on Belgian rather than French soil.⁹⁹

The 'retirement of the enemy', which Girouard predicted would 'be accompanied by very grave damage to the railway lines and structure' of the Belgian network and would necessitate a tri-national response to ensure its swift reconstruction,¹⁰⁰ did not take place in 1915. Indeed, despite Allied hopes, there would be no large-scale German withdrawal anywhere on

⁹⁶ WO 95/3950 French to Kitchener, 20 November 1914.

⁹⁷ Robertson Papers, 2/2/24 Robertson to Cowans, 28 November 1914.

⁹⁸ Henniker, pp. 94–101.

⁹⁹ The fact that the ports of Ostend and Zeebrugge were part of Girouard's considerations alongside the French Channel ports emphasizes this point. See WO 32/5144 Report, p. 13.

¹⁰⁰ WO 32/5144 Report, p. 10.

the Western Front until the spring of 1917. The result of lingering ‘short-term’ thinking and a belief in the power of the offensive fostered a desire not to jeopardize immediate possibilities by concentrating attentions and energy upon the creation of long-term structures which it was hoped would not be required. Furthermore, overseeing the expansion of the BEF was itself a colossal administrative challenge, one which the supply services themselves fully recognized.¹⁰¹ The prospect of more British troops on the continent brought with it the demand for a correspondingly increased quantity of goods to keep them fed and equipped. The use of the French transport network would intensify, compelling the BEF to utilize its share of the finite logistical resources with the minimum of inefficiency. Although Cowans’ biographers and Lloyd George would imply otherwise in their post-war recriminations about the BEF, the challenge of expansion was not one that the military authorities in France would face alone.

¹⁰¹ WO 95/27 Maxwell to Robertson, 1 November 1914.

2.2: Early experiments in civil-military cooperation: The South-Eastern and Chatham Railway at the port of Boulogne

In addition to eroding the duties of a Director of Railway Transport to such an extent that the BEF set sail without one, the pre-war arrangements between the French and British envisaged the host nation supplying all of the labour required by the BEF to unload ships at the Channel ports. The expansion of the BEF meant that transporting large numbers of troops to and from the continent would require an increasing amount of port space to be set aside for the disembarkation of soldiers and for the unloading of numerous shipments of foodstuffs, munitions, vehicles and the myriad other supplies required to preserve the fighting efficiency of the force. The creation of opposing trench lines for the winter months also gave rise to demands for ‘many kinds of tools and stores required in siege warfare’, with large quantities of sandbags, barbed wire and entrenching tools being requested by front line commanders to help secure the British positions.¹⁰² Furthermore, the BEF were not the only body reliant upon the Channel ports. Both the Belgian and French armies also drew supplies from the northern French coast, with demands for imports exacerbated by the loss of much of France’s industrial heartland to the Germans during the initial invasion.¹⁰³ The territory relinquished by the retreating Allied forces left the French increasingly dependent upon Britain for imports of coal,¹⁰⁴ enormous quantities of which were required for the heating of homes, the powering of factories, and the operation of the railways upon which the vast majority of supplies for the coalition were sent forward.¹⁰⁵ Such a resource was clearly vital to the wellbeing of the forces and a fundamental component of the French war effort, one of many items which ‘monopolized’ the limited capacity of the docks. In addition, significant quantities of wine were also found being kept in

¹⁰² WO 95/3950 Robertson to Maxwell, 29 November 1914.

¹⁰³ Strachan, *To Arms*, pp. 1049–50.

¹⁰⁴ On the eve of the war, the area directly affected by the German invasion accounted for approximately three-quarters of French coal and coke production. See J. Lawrence, ‘The Transition to War in 1914’, in *Capital Cities at War: Paris, London, Berlin, 1914-1919*, ed. by J. Winter and J. Robert (Cambridge: Cambridge University Press, 1997), pp. 135–63 (p. 152). In total, 4.5 million tons of coal were imported into France during the war. See I. Brown, ‘Logistics’, in *The Cambridge History*, ed. by Winter, II, 218–39 (p. 231).

¹⁰⁵ TNA: PRO WO 95/3951 Inspector-General, Cowper to Marrable, 27 November 1914.

dockside warehouses, ‘to the detriment of efficient working of disembarkation of troops and stores’.¹⁰⁶

Although land existed for the expansion of sidings and storage accommodation on the Channel coast, as well as for the construction of additional harbour space, such projects were time-consuming, expensive, and required significant quantities of both skilled and unskilled labour. With the French Army suffering almost one million casualties by the end of 1914, the coalition’s senior partner was unable to provide the manpower necessary to bring such large-scale engineering works into being. In addition, many previously reserved occupations, such as the stevedores provided to the BEF to help unload ships, were increasingly required to replace the fallen in the French ranks.¹⁰⁷ With so many competing demands placed upon them, it was clearly imperative that the available space on the Channel coast was worked with the utmost efficiency.

However, as part of his report into transport arrangements in October 1914, Sir Percy Girouard had examined Boulogne in order to ascertain its suitability as an army base. He concluded the port ‘to be in a somewhat disorganized condition’.¹⁰⁸ Prior to the conflict, a further result of the pre-war arrangements with the French, no provision had been made for operations at the ports to be controlled by British officers.¹⁰⁹ Yet in light of the inability of the French to supply the required manpower, it would be necessary for Britain to provide the ‘sheds, sidings and many other works’ deemed ‘requisite to get anything like the full capacity’ out of Boulogne and the other Channel ports.¹¹⁰ By December the situation at all the ports in use by the BEF was deteriorating, a problem deepened by a deficiency of cranes suited to the tasks of unloading military supplies and a lack of covered accommodation under which to shelter items

¹⁰⁶ WO 95/3951 Moore to Marrable, 25 November 1914. However, as pointed out to the plaintiff, wine, far from being the ‘matter of pure luxury’ it was considered in Britain, was in fact ‘the staple beverage of all classes in France’ and formed part of the military ration. Wine was, therefore, argued to be an integral part of the French war effort. See Cowper to Marrable, 27 November 1914.

¹⁰⁷ WO 95/3951 Shortland to Maxwell, 9 December 1914; Maxwell to Kitchener, 12 December 1914; Robertson to Huguet, 11 January 1915; R.B. Bruce, ‘To the Last Limits of Their Strength. The French Army and the Logistics of Attrition at the Battle of Verdun, 21 February-18 December 1916’, in *World War I*, ed. by M.S. Neiberg (Aldershot: Ashgate, 2005), pp. 287–99 (p. 288).

¹⁰⁸ WO 32/5144 Report, p. 13.

¹⁰⁹ M.G. Taylor, ‘Land Transportation’, pp. 700–1.

¹¹⁰ WO 32/5144 Report, p. 13.

such as hay and oats from the winter weather.¹¹¹ On the basis of Girouard's criticisms, a project for the extension of sidings and storage accommodation around the Bassin Loubet (one of the two docking basins at the port) was prepared, a job described as both 'vital' and 'urgent' were the BEF to develop Boulogne as a supply base.¹¹²

The accomplishment of this task, in addition to the other duties being thrown upon them in the opening months of the war, was beyond the capacity of the limited number of Royal Engineers in France.¹¹³ As a result, the civil engineering portion of the work was passed on to the War Office, and, further reinforcing the status of the major railway companies within official circles during the period, devolved upon the REC to delegate to a capable body. Percy Tempest, the Chief Engineer of the SECR and a major in the ERSC since 1902, accepted the responsibility.¹¹⁴ Between December 1914 and September 1916 the SECR provided the tools, materials, labour and supervisory staff for the construction of sidings, loading platforms, roads and railways, storehouses and workshops at Boulogne, alongside the laying of over two miles of drain pipes and the erection of a 700-foot-long sea wall.¹¹⁵ The contribution of the company to the BEF's exploitation of Boulogne would not, however, be restricted merely to the provision of engineers and resources. Tempest was joined at the Bassin Loubet by the SECR's General Manager, Francis Dent, who, along with forwarding Tempest's estimates for the cost and duration of the works to the Director of Supplies, also added his opinion that the cramped space and risk of exposure at Boulogne was likely to result in heavy losses to supplies such as forage and oats in the near future.¹¹⁶

Rather than being dismissed out of hand, as one would expect given Lloyd George's depiction of the BEF's attitude towards civilian 'interference', the suggestion Dent would make on 11 December led to the conduct of a civil-military experiment involving employees of the SECR working semi-independently at the port of Boulogne for the next twelve months.

¹¹¹ TNA: PRO WO 95/74 Director of Supplies, diary entries 9 and 13 December 1914.

¹¹² WO 95/3951 Maxwell to Robertson, 30 November 1914; TNA: PRO WO 158/2 Director of Supplies: British Armies in France and Flanders Pt I, p. 146.

¹¹³ WO 95/3951 Robertson to Kitchener, 28 November 1914.

¹¹⁴ Pratt, II, pp. 634–5.

¹¹⁵ 'Special War Services by the South-Eastern and Chatham Railway', *Railway Magazine*, May 1920, p. 347.

¹¹⁶ WO 95/74 diary entry, 11 December 1914.

However, in previous accounts the ‘Dent scheme’ has garnered precious little attention. Ian M. Brown dedicates just one page to the experiment, despite noting that it ‘had the potential to radically alter the way in which the BEF operated [the] port and test... a mix of civilians and military men’.¹¹⁷ The *Official History* offers an even briefer account, Henniker’s conclusion that ‘it was [considered] inadvisable to entrust the work... to civilian management and labour’ forming the bedrock of the few published assessments of what took place at Boulogne during 1915.¹¹⁸ Such was the perceived inconsequence of the experiment that even the Directorate of Supplies, Dent’s first point of contact within the BEF with regard to the scheme, omits all reference to the scheme in its post-war reports on wartime developments.¹¹⁹ Yet the experiment at Boulogne during 1915 highlights the role which civilians were able to play in attempting to improve the throughput of goods from ship to rail, and consequently enhance the BEF’s logistical efficiency. The abandonment of the project at the end of the year was less a case of ‘anti-civilian phobia’,¹²⁰ and more the result of an insufficiently comprehensive response to the developing conflict.

Sir Francis Dent and the Bassin Loubet

Francis Dent’s pre-war career made him a suitable candidate for the task of solving the problems identified at Boulogne. The son of a retired admiral who had found post-naval employment with the LNWR, Dent’s entire working life had been spent on the railways.¹²¹ He entered the General Manager’s office of the LNWR at the age of seventeen, and over the following two decades served the company in a variety of jobs and locations. Dent’s abilities and efficient work in each of these positions, particularly as goods manager in North Wales, led eventually to his taking the role of goods traffic superintendent for the LNWR’s Metropolitan district in 1901. The key factor in offering Dent this position lay in the increasing congestion

¹¹⁷ I.M. Brown, ‘Growing Pains’, p. 46; I.M. Brown, *British Logistics*, pp. 88–9.

¹¹⁸ Henniker, pp. 91–2; J. Starling and I. Lee, *No Labour, No Battle: Military Labour during the First World War* (Stroud: Spellmount, 2009), p. 80.

¹¹⁹ TNA: PRO WO 158/2-3 Director of Supplies: British Armies in France and Flanders Pts. I and II.

¹²⁰ I.M. Brown, *British Logistics*, p. 89.

¹²¹ Unless otherwise stated, the biographical information in this passage is taken from P.S. Bagwell, ‘Dent, Sir Francis Henry (1866-1955)’, in *DBB*, ed. by Jeremy, II, 66–68.

around London's Broad Street station, the capital's third busiest station at the turn of the century.¹²² Situated in the heart of the financial district, Broad Street was both the destination for thousands of commuters entering London each morning and a vital freight hub linking the Thames dockyards to industrial Birmingham.

With passenger numbers and the volume of goods passing through the station rising, it had been feared by the LNWR's board that the station would require significant expansion in order to cope, a hugely costly venture in the heart of the capital.¹²³ However, through a combination of 'personal tact and influence',¹²⁴ a reorganization of working methods, and the establishment of a bonus payment system for employees, Dent was able to accelerate the turnaround of goods within the station to such an extent that 'the scheme for the enlargement of the station which had been proposed [was] abandoned'.¹²⁵ The challenges involved in improving efficiencies within the restricted storage space available at the Bassin Loubet were, therefore, intelligible and recognizable to a man like Dent, whose career continued to blossom after the Broad Street reorganization. Dent's commitment to efficiency and economy were such that he was selected to visit the United States in 1903 to observe the latest railway operating methods in use across the Atlantic, and his skills as a freight transport organizer convinced the SECR to offer Dent the position of Chief Goods Manager in 1907. Four years later Dent became General Manager, a promotion which brought with it not only a salary commensurate with his status as a highly qualified senior executive (Dent's wage packet in 1912 was £4,000 per annum), but entry into the ERSC as well. With the prominent military sites of Woolwich and Chatham, plus the ports of Folkestone and Dover, located on the SECR's network (see Figure 2.1), it was no surprise that the SECR acted as 'secretary railway' to the army's Eastern Command, and that Dent would also be appointed to the REC prior to the outbreak of hostilities.

¹²² 'The New General Manager of the South-Eastern and Chatham Railway', *Railway Magazine*, April 1911, p. 304.

¹²³ 'Retirement of Sir Francis Dent, General Manager, South-Eastern and Chatham Railway', *Railway Magazine*, April 1920, p. 253.

¹²⁴ 'Retirement of Sir Francis Dent', p. 253.

¹²⁵ 'The New General Manager', p. 304.

In August 1914 therefore, Francis Dent was a highly experienced, professional railway manager with an established talent for promoting efficiency, and a man fully conversant with the intricacies of military demands. By the time he arrived at Boulogne in December, he had already made a number of contributions to the nascent British war effort. Following the completion of the SECR's share of the mobilization programme, Dent had acted as chair of a sub-committee of the REC charged with the duty of providing ambulance trains for the higher-than-expected number of casualties returning to Britain. In September, working in collaboration with representatives of the Royal Army Medical Corps and the War Office, Dent was issued the task of designing a new, standardized ambulance train for use in both France and Britain. By December, plans were already underway for British firms to construct bespoke ambulance trains consisting of staff-cars, kitchen-cars, pharmacy-cars and stores-cars alongside carriages designed to take stretchers and 'sitting-up' cases.¹²⁶

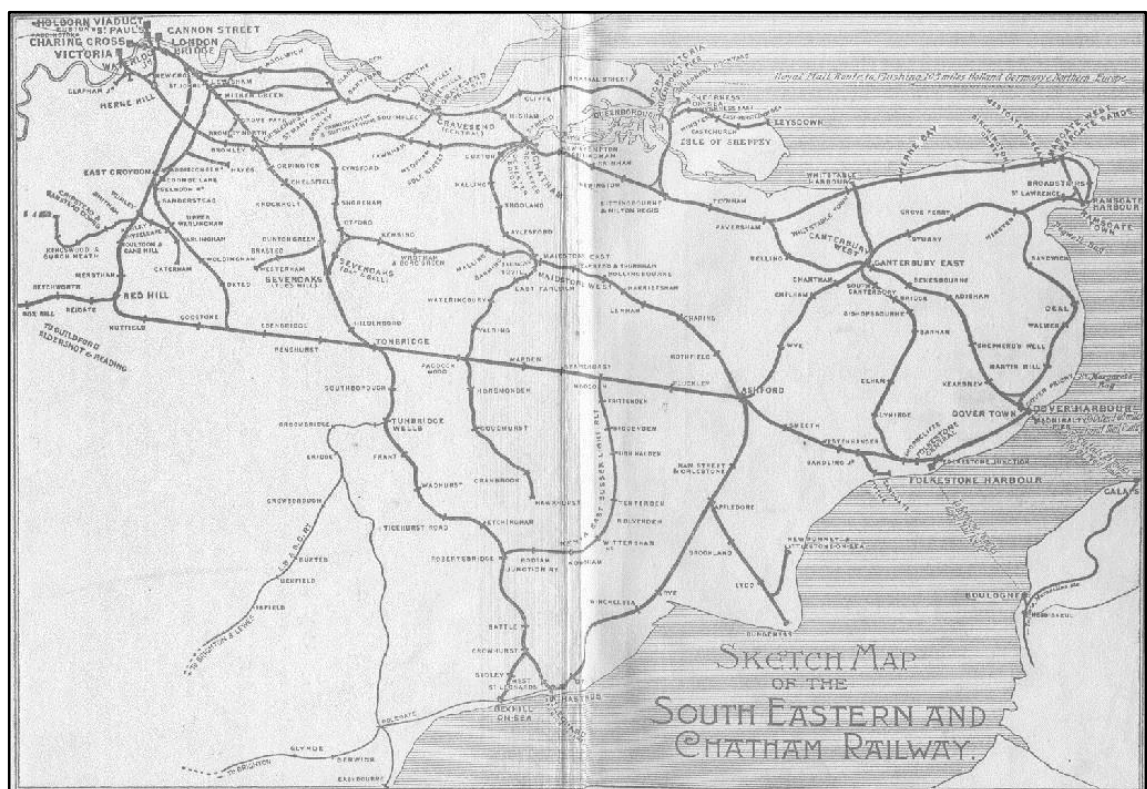


Figure 2.1 Map of the South-Eastern and Chatham Railway, 1912

Source: G.E. Mitton, *The South-Eastern and Chatham, and London, Brighton and South Coast Railways* (London: Adam & Charles Black, 1912).

¹²⁶ Pratt, I, pp. 195–227.

His next contribution, at Boulogne, would be of a different order altogether. Dent's varied experiences personified the uncoordinated nature of Britain's response to the multitude of challenges thrown up by her increasing involvement in the war. Although primarily a passenger rail line in peacetime, the SECR also controlled the two principal cross-Channel ferry services, running from Dover to Calais and Folkestone to Boulogne, providing the company with a working knowledge of the French ports and offices at both. Indeed, even prior to Tempest and Dent's arrival in France the staff of the SECR based at Boulogne had been placed at the army's disposal by the company. However, according to the Director of Railway Transport, 'full use' was not being made of the workers by the military authorities, leading to a suggestion that the SECR itself might take on supervisory responsibilities within the Bassin Loubet with an 'adjoint' from the army acting as liaison.¹²⁷ The BEF's receptivity to civilian input, coupled with his own prior experience, led to Dent offering to spend a fortnight at Boulogne, to study 'the situation on the spot', before putting forward detailed suggestions as to how efficiency at the port could be improved.¹²⁸

The military authorities in France acquiesced and, shortly after Christmas, Dent was in a position to observe that:

There is no doubt stores are suffering to a great extent through there being insufficient provision for stacking and storing under cover. Boulogne is a very good port for quick handling and, by using it properly, the transit of supplies to the front is much accelerated. In view of the increase in the army, it is desirable that we should get on as quickly as possible.¹²⁹

To ensure that 'proper' use was made of Boulogne, Dent proposed that the SECR, in addition to undertaking the building work at the Bassin Loubet, should be given responsibility for the operation of all areas of the port reserved for the use of the BEF. Dent's offer entailed the SECR taking over the 'work of discharging ships, stacking supplies and loading trains, [and] providing

¹²⁷ WO 95/64 Twiss to Murray, 12 November 1914.

¹²⁸ WO 95/74 diary entry, 11 December 1914.

¹²⁹ TNA: PRO WO 95/3952 Inspector-General, Dent to Cowans, 31 December 1914.

all the personnel' for these tasks rather than relying upon the dwindling supply of labour available from French sources.¹³⁰

Essentially, Dent was offering to supersede the suggestion made by the Director of Railway Transport the previous month. The SECR would replace the existing system whereby the naval staff were responsible for the discharge of ships onto the quayside, and the army for the forward transport and storage of goods.¹³¹ In a memorandum provided for the Director of Supplies, Dent outlined the rationale behind his recommendations. The object of the Bassin Loubet in peacetime 'was to ensure quick transit between steamer and train. The hangars were laid out with a view to easy checking and customs examination', and the boats supplying the port were, by and large, the same railway steamers as operated the routes in peace and for whom the basin had originally been constructed.¹³² The work of discharging ships, stacking supplies and loading trains was no different to the work undertaken at the railway ports controlled by the SECR. In fact, the military work would be 'simple' in comparison to ordinary trade practices, as the vast majority of supplies would arrive in bulk and would not require lengthy customs examinations upon arrival in France.¹³³ There was, Dent concluded, 'nothing in the way of checking or loading that would not be easy enough for a railway checker to perform'.¹³⁴

By managing the port using civilian working methods, Dent believed the dock to be capable of turning over 5,000 tons per day, provided that factors which operated against 'quick work' were eliminated.¹³⁵ The proposed solution to these factors, including the new sidings and accommodation then under construction, were designed to produce a system whereby the majority of supplies were transferred direct from ship to rail upon arrival in France. Items required urgently at the front could be sent forward immediately, whilst those not required

¹³⁰ WO 95/3952 Dent to Clayton, 28 December 1914; Clayton to Dent, 30 December 1914; diary entry, 13 January 1915.

¹³¹ TNA: PRO WO 95/3953 Inspector-General, Proceedings of second meeting of committee on Mr Dent's scheme held at Boulogne, 15 February 1915; I.M. Brown, *British Logistics*, p. 88.

¹³² WO 95/3952 Boulogne – Memorandum by F.H. Dent, 28 December 1914.

¹³³ WO 95/3952 Boulogne – Memorandum.

¹³⁴ WO 95/3952 Dent to Clayton, 28 December 1914.

¹³⁵ WO 95/3952 Boulogne – Memorandum. Dent believed the true capacity of the dock to be 7,000 tons per day. The lower estimate reflected the staff at the port during the war, which consisted in large parts of 'boys and men not of military age'.

straight away could be moved to storage sites away from the docks. This would ensure that the quayside would be kept free of obstructions to facilitate the discharge of arriving vessels. With the projected demands for food alone set to reach 4,400 tons per day once the Kitchener armies began to arrive,¹³⁶ Dent's estimates were understandably appealing to the officers charged with ensuring the BEF continued to receive sustenance. However, the Director of Supplies, Major-General Frederick Clayton, was sceptical that Dent's estimates were achievable at Boulogne, and had reservations over the practicality of the proposed 'quick transit' scheme.

A central tenet of Dent's plan to maximize efficiency at the Bassin Loubet involved the loading of cargo in Britain so that 'each ship should have approximately sufficient of everything to make the greater part of one or more supply trains'.¹³⁷ This would enable trains to be made up directly from the quayside, reducing the amount of 'double-handling' required in unloading ships, storing within the harbour and then transferring to rail. Any surplus stocks on each ship, or perishable items which had to be regularly 'turned over' to prevent spoilage, would be placed into systematized stores for later despatch. Although ideal in terms of efficiency, such a system was unfeasible as a solution to the requirements of an industrial army with a multitude of demands. For a start, the bulk of a soldier's ration was meat and bread. The meat was taken from cold storage ships berthed at Boulogne, the bread baked in open fields near the port and transported by lorry to the railway.¹³⁸ Neither of these integral commodities would therefore be on board the ships whose cargo was being transferred direct to rail. Furthermore, the rest of the soldier's diet was regularly changed.¹³⁹ Preserved meat would be substituted for fresh, whilst vegetables, bacon, and butter would be rotated to ensure that 'Tommy' received a diet that was not endless 'tea and dog biscuits'.¹⁴⁰ In addition, items such as petrol and lubricating oil which were also essential to the front line troops were not transported on the same ships as food, to prevent contamination. In short, Clayton summarized, 'you could not pack a train for any

¹³⁶ WO 95/3952 diary entry, 16 January 1915.

¹³⁷ WO 95/3952 Boulogne – Memorandum.

¹³⁸ As an example of the improvisation necessary in the opening weeks of the war, the bakery at Boulogne was originally established in the only place available for it, along the seafront itself. See WO 158/2 Pt. I, p. 154.

¹³⁹ WO 95/3952 Clayton to Dent, 30 December 1914.

¹⁴⁰ A. Weeks, *Tea, Rum and Fags: Sustaining Tommy, 1914-18* (Stroud: History Press, 2009), pp. 7–10.

formation straight from the ship except as regards hay and oats'.¹⁴¹ Yet despite these detailed criticisms Clayton was, at this point of the war at least,¹⁴² sufficiently amenable to civilian involvement to encourage further discussion of Dent's suggestions.

Clayton and Robertson both saw the potential benefits in affording the SECR increased responsibility in the operation of the port, and a committee was formed to consider and discuss amendments and improvements to Dent's scheme. The membership of the committee emphasizes the number of departments affected by changes in the supply procedures of the BEF, with officers attending from the staffs of: the Principal Naval Transport Officer; the Director of Railway Transport; the Director of Supplies (Clayton himself was the chair); the Director of Works; and the Director of Ordnance Services.¹⁴³ The complexity of the intended operations and Dent's ongoing commitments to the REC were such that a comprehensive statement of the projected arrangements was not submitted in time for consideration at the committee's first meeting in late January 1915.¹⁴⁴ Nevertheless, both the naval and military elements saw the 'advantage' in centralizing responsibility for the management of Boulogne, and were willing to accept Dent's offer subject to approval from GHQ, the War Office, and, as hosts, the French authorities.¹⁴⁵ In the two weeks following the committee's first meeting, Fred West (Goods Superintendent of the London district of the SECR) was asked to 'ascertain the system of work of the various departments and to discuss various points with the officers in charge'.¹⁴⁶ Upon the completion of his investigations the committee reconvened to evaluate West's report, a combination of observations regarding the existing situation at Boulogne and recommendations to help the BEF 'obtain the maximum amount of efficiency and economy' in future.¹⁴⁷

¹⁴¹ WO 95/3952 Clayton to Dent, 30 December 1914.

¹⁴² Clayton's attitude towards civilian involvement later in the war will be discussed further below, chapter 3.2.

¹⁴³ WO 95/3952 Robertson to Maxwell, 9 January 1915.

¹⁴⁴ WO 95/3953 Clayton to Twiss, 3 February 1915.

¹⁴⁵ WO 95/3952 diary entry, 29 January 1915; WO 95/64 French to Kitchener, 23 February 1915. The committee's approval was retained despite Dent's subsequent downward revision of the estimated capacity of the Bassin Loubet to 3,536 tons per day.

¹⁴⁶ WO 95/3952 Commandant, Boulogne Base to Clayton, 27 January 1915.

¹⁴⁷ WO 95/3953 Bassin Loubet – Boulogne. Mr West's Report, 13 February 1915.

The second meeting of the committee focused upon the importance of installing an appropriate ‘single authority’ to centralize control of the supply system within the port. Far from being treated as an ‘outsider’, Dent played a key role in the discussion, fielding questions from the military and naval officers and elaborating upon the projected role of the SECR in the new system.¹⁴⁸ The members unanimously agreed that the navy, due to their inexperience in handling the landside procedures required to shift supplies away from the quayside, should cede responsibility for the work of discharging ships to that ‘single authority’. Once a ship had successfully berthed at the port, therefore, the navy’s responsibilities at Boulogne would be complete until the ship was ready to depart.¹⁴⁹ The SECR’s experience in the operation of railway ports, their established commercial connections at Boulogne, the involvement of the company in the construction works being supervised by Percy Tempest, not to mention Dent’s evident willingness to take on the project; these factors resulted in the committee agreeing that the SECR represented ‘the most suitable’ entity to take on the responsibilities devolved upon the ‘single authority’.¹⁵⁰

Despite consensus being achieved in France, such a significant change in procedure required ratification from the War Office, which was inexorably slow to arrive. Permission was first requested on 4 February; confirmation finally arrived on 17 March after persistent appeals from Clayton,¹⁵¹ effectively putting the new system into stasis for six weeks. Further delays were then necessary in order for Dent to ‘collect his own staff’ for work in the port, for those men to observe the ‘routine working of a [military] port’ prior to taking over the Bassin Loubet, and for arrangements between the SECR and the French rail authorities to be finalized. Following discussions between Dent, the Director of Railway Transport and representatives of the *Commissions Regulatrice*, the SECR was eventually authorized to take over ‘all the work of

¹⁴⁸ WO 95/3953 Proceedings of second meeting of committee on Mr Dent’s scheme held at Boulogne, 15 February 1915.

¹⁴⁹ WO 95/3953 Clayton to Shortland, 16 February 1915.

¹⁵⁰ WO 95/3953 Clayton to Maxwell, 16 February 1915; TNA: PRO WO 95/75 Director of Supplies, diary entries, 24 and 26 February 1915.

¹⁵¹ WO 95/3953 diary entries 5 and 27 February 1915; TNA: PRO WO 95/3954 Inspector-General, diary entries, 8 and 17 March 1915. Clayton became IGC on 26 January, part of the administrative reshuffle which saw Robertson appointed Chief of the General Staff and Maxwell taking up the post of QMG in France.

shunting, marshalling and the making up of trains in the Bassin Loubet' from 25 April.¹⁵² The working of the other ports at which the BEF received shipments would continue to operate under the originally agreed procedures. Boulogne was, in all respects, a civil-military experiment.

The result of this sequence of delays was that the SECR took over operations at a port which had experienced increasing congestion, as huge quantities of supplies were despatched to a port largely incapable of handling them.¹⁵³ With demands from the front rising exponentially as the BEF commenced operations at Neuve Chapelle, the War Office responded by despatching ships as quickly as possible in the direction of the battlefield. Unfortunately, this meant that ships were arriving in France without sufficient intervals to allow each ship's cargo to be discharged and, crucially, cleared from the quayside before the next ship berthed. Further problems were experienced due to poor communications on either side of the Channel, leaving staff at Boulogne with incomplete or unsatisfactory information regarding the contents of arriving ships. As an example, the SS *Juno* set out for Boulogne on 13 March with port staff informed only that she carried 'general cargo'.¹⁵⁴ With limited crane facilities available it was imperative that the port authorities received prior notice of the stores arriving, so that they could be directed to the most suitable berth and dealt with punctually. Without such information, Clayton warned, the supply services could not guarantee that urgent supplies would be processed in time.¹⁵⁵

To help alleviate this issue, Dent suggested the installation of a bespoke telephone connection between Boulogne and the SECR's offices in London, Dover, Folkestone, Calais and Dunkirk. The system would allow for timely information to be received as to the contents of each ship prior to their arrival at the port, allowing those on the French side of the Channel to direct the incoming traffic to the most suitable berth and to arrange for the provision of any

¹⁵² WO 95/3954 Clayton to Maxwell, 21 March 1915; TNA: PRO WO 95/3955 Inspector-General, diary entry, 20 April 1915; TNA: PRO WO 95/58 Director of Ordnance Services, diary entry, 19 April 1915.

¹⁵³ TNA: PRO WO 95/3963 Inspector-General, British Lines of Communication in 1915, December 1915, p. 1; I.M. Brown, *British Logistics*, pp. 80–2.

¹⁵⁴ TNA: PRO MT 23/353/1 Naval Transport Officer, Boulogne, Hamilton to Shortland, 15 March 1915.

¹⁵⁵ WO 95/3954 diary entry, 23 March 1915.

specific requirements, such as specialist unloading gear, to be made available.¹⁵⁶ The War Office raised no objection. However, although the BEF had been granted ‘every latitude’ for the improvement of local transport facilities within the zone populated by the fighting troops, schemes for more permanent installations of this type also had to be signed off by the French.¹⁵⁷ The provision of telephone facilities for the use of the SECR was clearly not considered a priority at GQG, as by the end of October Clayton had received no decision. Clayton clearly felt all along that the French were ‘unlikely’ to accede to Dent’s request,¹⁵⁸ but following an appeal to ‘badger’ Joffre’s staff a further enquiry was made which generated a refusal from the French in early November.¹⁵⁹ The reason given was that the French were disinclined to grant such privileges to a civilian firm. Although the proposed telephone line would be of great benefit to the Allies during the war, they would also hypothetically give the SECR a competitive advantage over French firms operating in the commercial sphere once the war was over. This potential scenario was coupled with a perception among the French staff that a ‘custom’ of unauthorized telephone use had ‘grown up’ in the SECR’s offices over the course of 1915, leading to a conviction that the existing facilities were adequate for the BEF’s requirements.¹⁶⁰

Although this ‘incident’ may appear superficial, the disagreement illustrates the limits of the business arrangement which existed between France and Britain during the war. Throughout the conflict, British and French (and Belgian) authorities were involved in a complex series of negotiations, within which the post-war economic and strategic considerations of the individual partners provided an underlying context which militated against absolute cooperation. Even the provision of a unified command in the latter months of the war could not eradicate national concerns and underlying suspicions, culminating in a Franco-British disagreement over the necessity of upgrading the equipment available at Dunkirk which continued until the Armistice had come into force. Although the port was acknowledged by both

¹⁵⁶ WO 95/3954 diary entries, 12 and 23 March 1915.

¹⁵⁷ WO 95/3953 diary entry, 27 February 1915.

¹⁵⁸ WO 95/3955 diary entry, 7 April 1915.

¹⁵⁹ TNA: PRO WO 95/3961 Inspector-General, diary entry, 31 October 1915; TNA: PRO WO 95/3962 Inspector-General, diary entry, 8 November 1915.

¹⁶⁰ WO 95/3962 diary entry, 8 November 1915.

the army and the Admiralty as a more suitable candidate for transport improvement than the other ports serving the BEF at that point,¹⁶¹ the then QMG Travers Clarke was unable to ignore misgivings that the French were keen to see Dunkirk repaired for commercial reasons. Clarke stated in his review of November 1918 that, ‘unless absolutely demanded by the interests of victory, it was no part of our military or national duty to enlarge or modernize the equipment of foreign ports for after-the-war trade’.¹⁶²

Despite ostensibly seeking the same goal in Europe, the defeat of Germany, the war aims of both powers were in many respects profoundly different. These disparities, coupled with the changing nature of the comparative contributions of the two nations, required French and British leaders to constantly participate in a process of discussion and compromise in order to preserve the delicate connection between the countries.¹⁶³ The absence of a ‘formal contract’ agreed upon prior to the war, and the lack of any organ for collective decision-making, helped reinforce the primacy of national considerations over coalition requirements.¹⁶⁴ In 1915, the relative strength of the French in terms of land power, and the location of the BEF on French soil (an expanding commitment the scale of which had not been accurately anticipated before August 1914), acted as a powerful bargaining tool in such discussions. The French retained the ‘upper hand’ and would continue to do so until the attritional struggles of 1916 further equalized the relative strengths of the Allied forces on the Western Front.¹⁶⁵ Consequently, the installation of a bespoke telephone line to help improve the efficiency of the British logistics effort was not deemed of sufficient importance to the war effort to override French national considerations of post-war industrial positioning.

¹⁶¹ TNA: PRO WO 95/40 QMG, Minutes of conference held in the QMG’s office on the subject of the use of the ports of Havre, Rouen and Dunkirk, 7 October 1918, p. 2; Explanatory Review, November 1918, p. 14.

¹⁶² WO 95/40 Explanatory Review, November 1918, p. 14.

¹⁶³ This process of negotiation is charted most comprehensively in Philpott, *Anglo-French Relations*; Greenhalgh.

¹⁶⁴ The Franco-British alliance of 1915 largely failed to meet any of the criteria posited by Hughes and Wilson as essential for the creation and maintenance of a successful partnership. See Hughes and Weiss, pp. 122–3; G.J. De Groot, *Douglas Haig, 1861-1928* (London: Unwin Hyman, 1988), p. 168.

¹⁶⁵ Even then, as illustrated by Philpott, there was a ‘reticence’ among both French and British leaders (political and military) to accept the ‘give and take’ of alliance politics. See W. Philpott, ‘Managing the British Way in Warfare: France and Britain’s Continental Commitment, 1904-1918’, in *The British Way in Warfare: Power and the International System, 1856-1956: Essays in honour of David French*, ed. by K. Neilson and G. Kennedy (Farnham: Ashgate, 2010), pp. 83–100 (p. 85).

A failure of ‘civilianization’?

Although the work of the SECR employees at Boulogne does not appear to have created any problems related specifically to the integration of civilian and military working practices, the continued growth of the BEF and consequent increases in demand for stores to be processed through the Channel ports created enormous strain in the system. The expanding scale of Britain’s commitment to the war also meant that Dent became increasingly disengaged from the experiment at Boulogne from March 1915 onwards. Such were the competing demands for men of established credentials and recognized organizational ability that Dent’s personal commitments were numerous by the time the SECR took over at the Bassin Loubet. In addition to his responsibilities with the various ambulance train sub-committees, Dent also participated in the creation of the Railway Operating Division [ROD], interviewing applicants for commissions in the division, and contributed to the identification and organization of Belgian railwaymen from among the refugee population in Britain.¹⁶⁶ Furthermore, the decision to switch the main port of departure for British troops from Southampton to Folkestone (taken to reduce the journey time across the Channel and save shipping) vastly increased the quantity of military traffic passing over the SECR’s network. The upshot of these developments was that the day-to-day operations at the Bassin Loubet would not be overseen by Dent, but instead were left to Francis Flood-Page, the company’s Northern district Superintendent. Although clearly a capable official (he would receive the Military Cross in 1916), Flood-Page lacked both the experience and authority of the SECR’s General Manager.

Despite encouraging early signs, ‘considerable progress’ was reported in the arrangement of storage accommodation on 3 May,¹⁶⁷ by the middle of the month – less than three weeks after the SECR had taken over – congestion at Boulogne reached the point at which the Director of Supplies was forced to authorize the stacking of stores ‘in the open’.¹⁶⁸ The

¹⁶⁶ Pratt, I, pp. 238, 364; H.A. Ryott, ‘The Provision of Personnel for Military Railways in the War of 1914-1918’, *ICE Compendium WW1*, pp. 1–2 <<http://www.icevirtuallibrary.com/info/compendia/ww1>> [accessed 14 July 2014].

¹⁶⁷ WO 95/75 diary entry, 3 May 1915.

¹⁶⁸ WO 95/75 diary entry, 14 May 1915.

following month, sustained demands for ammunition led GHQ to request that additional labour be sent to Boulogne to ensure that the shells required at the front could be discharged and sent forward each day.¹⁶⁹ For the specialist duty of handling hazardous explosives, the ASC had to transfer men from Calais to alleviate the immediate problem.¹⁷⁰ By the end of August, the Director of Supplies had clearly begun to lose patience with what he deemed ‘the so-called Dent scheme’s’ inability to clear the ports as promised by the civilian the previous winter.¹⁷¹

Following an inspection of the port and discussions with Clayton about the difficulties which had been experienced since the introduction of the ‘Dent scheme’, a decision was made to revert to the ‘old method’ of operating the Bassin Loubet for a fortnight’s trial.¹⁷² The ASC regained responsibility for the removal of stores from the quayside, with the personnel of the SECR retained purely for the discharge of ships and as labour to be directed by the military. The trial was adjudged to be ‘an unqualified success’ by the military departmental representatives asked to review the system (the same departments who had authorized the initiation of the ‘Dent scheme’ in March) as ‘ships were offloaded and dealt with more quickly’.¹⁷³ The naval representatives were less satisfied however, and a report proposing a reversion to the system whereby naval officers supervised the discharge of ships was forwarded to the Principal Naval Transport Officer in France on 1 October.¹⁷⁴

Despite Clayton’s request not to ‘disturb the existing arrangement’,¹⁷⁵ the War Office was forced to concede that with the onshore labour back under the control of the army, it was illogical to resist the navy from regaining authority over the workforce employed on the

¹⁶⁹ TNA: PRO WO 95/3957 Inspector-General, diary entry, 15 June 1915.

¹⁷⁰ WO 95/3957 diary entry, 15 June 1915; TNA:PRO WO 107/296 Report upon the Work of the Quartermaster-General’s Branch of the Staff and Directorates Controlled. British Armies in France and Flanders, 1914-1918, p. 61. Officers based at Boulogne purely for training purposes also found themselves pressed into action to help clear the backlogs. See IWM, Private Papers of Sir Eric de Normann, 72/72/1 de Normann to his mother, 3 September 1915.

¹⁷¹ WO 95/75 diary entry, 25 August 1915.

¹⁷² WO 95/75 diary entry, 1 September 1915.

¹⁷³ WO 95/3961 diary entry, 12 October 1915.

¹⁷⁴ The report itself does not appear to have survived, although its contents can be deduced from TNA: PRO MT 23/443/4 Naval Transport Work Overseas. Report of Proceedings of Principal Naval Transport Officer, 3 October 1915.

¹⁷⁵ WO 95/3961 diary entry, 12 October 1915.

ships.¹⁷⁶ The argument was particularly compelling when it is remembered that of all the supply ports being used by the BEF during 1915 (Boulogne, Calais, Havre, Marseille and Rouen), it was only Boulogne which had been subject to the ‘single authority’ experiment. By reverting to the ‘old method’, the BEF would merely be restoring Boulogne to the working practices familiar to soldiers, sailors and labourers at each of the other ports contributing to the supply of the BEF. On 24 October 1915, the SECR surrendered responsibility for the unloading of ships in the Bassin Loubet.¹⁷⁷ Six months after the civil-military experiment had begun it had been terminated.

The decision to reduce the authority of the SECR’s personnel at the Bassin Loubet is not evidence of ‘anti-civilian phobia’ among the senior command of the BEF, however. Such a conclusion overplays the existence of ‘ingrained distrust’ supposedly displayed by military chiefs towards the civilian expert in the first half of the war. The ‘Dent scheme’ was not persevered with into 1916 and beyond because the nature of the British war effort, to that point, had not provided the required impetus for the military – and political – authorities to re-evaluate the *entire* logistical bedrock underpinning the BEF’s existence. As the QMG’s final report states: ‘the stationary character of the warfare of the first two years placed no undue strain upon the QMG’s branch’.¹⁷⁸ Although congestion remained a considerable issue on both sides of the Channel, it had not as yet developed into the constraining factor on operations due to the relative paucity of supplies being handled in comparison to the capacity of the infrastructure in place. Despite being largely ignored in subsequent works, the progress of the ‘Dent scheme’ is worthy of study as it demonstrates both that the BEF was willing to engage with a man of recognized technical proficiency and established managerial ability, and how the logistical implications of the evolving, industrial character of the Western Front were fully developed neither at the end of December 1914, when Dent made his initial observations, nor in October 1915 when the experiment drew to a close.

¹⁷⁶ WO 95/3961 diary entry, 26 October 1915.

¹⁷⁷ WO 95/3961 Thomson to Macgregor, 24 October 1915; Clayton to Macgregor, 25 October 1915.

¹⁷⁸ WO 107/69 Work of the QMG’s branch, p. 1.

Although there was an acknowledgement within the military of the potential benefits of utilizing civilian expertise to increase productivity and improve fluidity on the transport network in northern France, this was not matched by a political desire to expand this process to cover all aspects of the BEF's operations. The single-port experiment at Boulogne was essentially little more than 'tinkering' with one link in a long and complex chain, one with a multitude of potential weaknesses which lay dormant until the colossal demands of the Somme exposed the structural frailties in the BEF's logistical foundations. As a result, the SECR's failure to generate the estimated levels of productivity over the summer of 1915 (in part due to French protectionism as well as to Dent's overambitious projections and the sustained increase in demands being made on the port by the expanding army) overshadowed the long-term improvements introduced to Boulogne by the SECR. The relatively small-scale of the experiment, coupled with the undesirable complications of operating different working procedures at Boulogne to the other Channel ports, saw the 'Dent scheme' 'shelved' before the end of the year.¹⁷⁹ For another civil-military organization established in the final days of 1914 however, October 1915 would bring about the opposite result.

¹⁷⁹ I.M. Brown, *British Logistics*, p. 106 f.n. 52.

2.3: The Directorate of Inland Water Transport: An overshadowed civil-military initiative

Concurrent with the December 1914 investigation which would ultimately lead to the implementation of the ‘Dent scheme’ at Boulogne, another non-military figure was making proposals to the War Office which would have long-term implications for the logistics of the BEF. In much the same way as the work of Sir Francis Dent has been marginalized, the man responsible for bringing the Directorate of Inland Water Transport into being has been largely forgotten by the historiography of the conflict. Ian M. Brown, whilst acknowledging the role of inland water transport [IWT] in reducing the demands made upon the French railway network, both misdates the initiation of the service and makes no comment upon the manner of its creation.¹⁸⁰ Charles Messenger, in his survey of the British Army’s evolution during the war, refers to IWT only in an appendix dedicated to cataloguing military acronyms and abbreviations.¹⁸¹ Whilst the development of rail transport during the war has generated a considerable collection of material, outside of brief passages in the *Official History* volume on transportation the contribution of IWT to the conduct of operations on the Western Front has been reduced to that of a mere footnote.

The absence of a European companion to Hall’s volume on waterborne transport developments in Mesopotamia,¹⁸² although understandable in terms of the relative importance of IWT on the Western Front and in the Middle East,¹⁸³ has led to the eclipse of canal and cross-Channel traffic and the diminution of the roles of those involved in providing them in Europe for the majority of the conflict. The result is an incomplete understanding of the intricate mixture of supply methods cultivated by the BEF on the Western Front. Furthermore, the history of IWT in France adds further evidence to contradict Lloyd George’s assertions of ingrained distrust from the BEF’s senior command towards those from outside the army. From its very inception, the directorate was a ‘civilianized’ organization. The experience of IWT

¹⁸⁰ I.M. Brown, *British Logistics*, p. 127.

¹⁸¹ Messenger, p. 515.

¹⁸² L.J. Hall, *The Inland Water Transport in Mesopotamia* (London: Constable & Co., 1921).

¹⁸³ The final report of the QMG dedicates less than one page of text to the entire wartime development of IWT on the Western Front. See WO 107/296, Report, pp. 27-9.

demonstrates that profitable civil-military partnerships could be and were developed prior to the arrival of Sir Eric Geddes in the late summer of 1916. However, due to the combination of factors previously discussed: alliance politics; wider organizational deficiencies within the BEF; and an incomplete conception of the role of transportation within the British 'war machine', prior to the Somme IWT would not become a fully integrated component of the BEF's logistics system.

Commander Gerald Holland and the birth of inland water transport

The corner of northern Europe which became the Western Front was not only served by a communications network based on road and rail. The canal and river systems of France and Belgium were 'undoubtedly among the finest in the world',¹⁸⁴ consisting of almost ten thousand miles of navigable waterways across the two nations.¹⁸⁵ Unlike in Britain, where the spread of railways had all but eliminated the canals as a carrier of goods prior to the First World War, the Belgian waterways were responsible for approximately half of the goods and merchandise traffic within Belgium. In 1905, the total quantity of goods carried by water in Belgium amounted to 53,345,000 tons.¹⁸⁶ The war brought this traffic almost to a standstill. The 'permanent way' of the canal network, however, remained in many places both intact and, in northern France following the initial phase of mobile operations, within the hands of the Allies. Yet despite the acknowledged existence of this network of waterways, the thorough reconnaissance of which had taken place over the previous years as the BEF prepared for a European deployment,¹⁸⁷ such studies had not been buttressed by the creation of a procedure for the operation of IWT in the event of war.¹⁸⁸ The only reference made in the instructions issued

¹⁸⁴ TNA: PRO WO 95/56 Director Inland Water Transport, Memorandum number 1, 19 September 1915, p. 1.

¹⁸⁵ TNA: PRO WO 158/851 History of Inland Water Transport, p. 2.

¹⁸⁶ WO 95/56 Memorandum number 1, p. 2.

¹⁸⁷ Robertson Papers, 1/3/2 Text of a lecture on the military geography of Western Europe, 1908, p. 14; TNA: PRO WO 33/615 Report on Roads, Rivers and Billeting in Belgium, volume II, 1913. This booklet contains almost eighty pages of detailed notes on the rivers Sambre and Meuse, and the Ath-Blaton canal.

¹⁸⁸ Henniker, p. 174.

to the IGC on mobilization were that ‘unless otherwise ordered... the Director of Transport will act as Director of IWT’ in addition to their other duties.¹⁸⁹

The reasons for this omission were threefold. In the first instance, the British Army had not utilized IWT during the war in South Africa. Coupled with the minimal use of canals in peacetime British industry, the army had consequently become ‘blinded’ to the advantages which an efficiently operated network of canals and rivers could offer.¹⁹⁰ Secondly, when placed in direct comparison with the railway network serving the Western Front, the limitations of IWT were stark. Waterborne traffic routes were fixed, and the process of altering the flow of rivers or canals would take far longer than the equivalent task on the railways. Repairs to waterways damaged during operations also required far greater commitments of manpower and resources than similar lengths of railway, whilst the rate of progress of river craft also made them unsuitable for supply tasks in what was predicted to be a war of manoeuvre. Restricted to travel only during daylight hours, the negotiation of lock gates and problems related to adverse winds and currents further widened the already significant ‘speed gap’ between barge and locomotive.¹⁹¹ In the same way that the speeds of lorries were restricted in order to protect the roads from unnecessary wear to both vehicle and surface,¹⁹² canal traffic was limited to a top speed of six kilometres per hour for single vessels (and just four-and-a-half kilometres per hour for convoys) to ensure that the wash emanating from the craft did not damage the banks.¹⁹³ Finally, although much of the northern French network remained in Allied hands after the establishment of static warfare in the winter of 1914, a considerable stretch of the Belgian

¹⁸⁹ WO 33/686 Instructions, Part V, sub-section 5.

¹⁹⁰ WO 158/851 History of IWT, p. 126. Canal transport was briefly touched upon in lectures given to students of the administrative course given at the LSE, but as noted above, comparatively few officers participated in the programme. See Gwynn, p. 232.

¹⁹¹ Henniker, p. 174.

¹⁹² TNA: PRO WO 95/441 Fourth Army, Deputy Adjutant and Quarter-master General, Routine Orders, 7 April 1916. Daily speed checks were carried out on main roads by officers stationed at intervals of one kilometre with synchronized stopwatches. The details of vehicles exceeding speed limits were forwarded to Senior Mechanical Transport Officers who would take disciplinary action. See AWM, AWM4/25/4/20 Senior Mechanical Transport Officer, Australian Corps, Lane to ‘K’ Siege Park, 25 August 1918.

¹⁹³ WO 158/851 History of IWT, p. 34.

system along with key connections on the French (such as the St. Quentin canal), either lay in the possession of the Germans or were unsafe for craft.¹⁹⁴

Despite these impediments, Commander Gerald Holland approached the War Office in the early weeks of the war convinced that the ‘splendid’ waterways of France and Belgium could provide a useful supplement to the existing rail facilities.¹⁹⁵ As the rank suggested, Holland’s background was with the navy. Having joined the Royal Indian Marine in 1880, Holland had seen service in Burma before an appointment on the Naval Transport Staff in Durban during the South African War. His naval career ended in India in 1905 as the principal port officer at Rangoon, following which he returned to Britain and entered the employment of Britain’s largest railway company, the LNWR. Following a brief spell as Marine Superintendent at Fleetwood, in 1907 Holland transferred to fulfil the same role at Holyhead, occupying the position formerly held by Francis Dent’s father when war broke out in August 1914.¹⁹⁶

Holland’s initial approach was unsuccessful ‘as it was at that time considered that rail transport, supplemented by adequate road transport, would fully meet the requirements’ of the BEF in terms of logistical support.¹⁹⁷ Rather than evidence of innate Whitehall insularity, however, the War Office’s decision was reflective of the military situation at the time. In the fluid opening encounters of the conflict there was both comparatively little strain on the French railways to provide for the ‘contemptibly’ small contingent from across the Channel, and – as noted above – a dearth of high-quality IWT facilities in the zone initially occupied by the BEF. However, following the move north of the British forces in October, and the onset of trench warfare as the position of the front line stabilized, both of these factors changed. Firstly, the decision to raise and deploy a large army on the Western Front brought with it the requirement to create and maintain a correspondingly large supply network to feed and equip that force. Secondly, the BEF’s deployment in Flanders placed it within the scope of the northern

¹⁹⁴ WO 158/851 History of IWT, p. 4; Henniker.

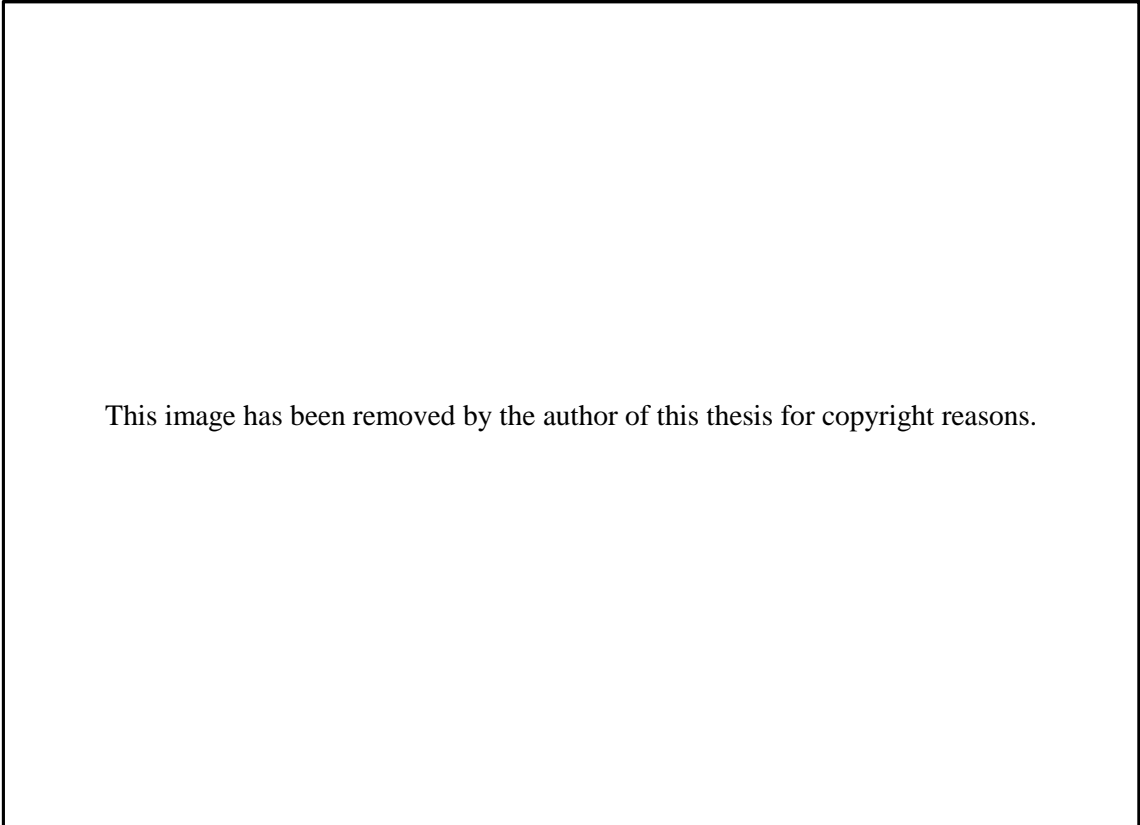
¹⁹⁵ TNA: PRO CAB 45/205 Private diary of Lieutenant-Colonel G.E. Holland, R.E., information dictated by Major Bradbury.

¹⁹⁶ The biographical information in this passage is taken from D. Biggins, ‘Order of the Indian Empire’, *AngloBoerWar.com* <<http://angloboerwar.com/medals-and-awards/british/1869-order-of-the-indian-empire>> [accessed 9 September 2014].

¹⁹⁷ CAB 45/205 Holland diary, information dictated.

waterways (see Figure 2.2) and therefore made the use of IWT far more practicable than had been the case when Holland first approached the War Office. As a result of these developments, on 10 December 1914 the loading of barges as supply vessels began at Berguette,¹⁹⁸ on 14 December Holland's name was raised as a 'suitable officer' to 'connect' the canal and railway networks,¹⁹⁹ and on 28 December Commander Holland (whose name had been retained by the War Office for just such an eventuality) was offered a temporary commission in the Royal Engineers. Two days later, Lieutenant-Colonel Holland crossed the Channel in order to 'report as to the steps which should be taken to enable the waterways to be utilized for transport work for the British Army'.²⁰⁰

Holland's private diary from this period survives, and illustrates both the complexity of the task ahead of him, and the assistance provided by the military despite his status as an 'outsider'. On 30 December 1914, Holland reported for duty at GHQ and, in contravention of



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Figure 2.2 Map of the northern waterways

Source: Henniker, p. 173.

¹⁹⁸ WO 95/3951 French to Kitchener, 9 December 1914; WO 95/27 diary entry, 15 December 1914.

¹⁹⁹ Robertson Papers, 2/2/43 Cowans to Robertson, 14 December 1914.

²⁰⁰ WO 158/851 History of IWT, p. 5.

the instructions issued to the IGC upon mobilization, was placed under the authority of the Director of Railway Transport rather than the Director of Transport.²⁰¹ The reason given for this decision carries the echo of Girouard's report submitted in October, suggesting that as the French regarded canals and railways as 'one question', the British organization ought to mirror that of the senior partner in the coalition and administer canal and railway transport within the same department.²⁰² The idea of following the French hierarchical structure would survive until October 1915. The possibility of using French crews to pilot the craft (in the same way that French drivers operated the locomotives supplying the BEF) was abandoned much sooner. On the day after his arrival in France, Holland interviewed a local tug captain and ascertained that the French custom was for a barge to be operated and lived on by an entire family, and – even more inconveniently – that the locals would not 'go where ordered – [they] want to choose the ports they will ply on'.²⁰³ A meeting with the French Army's canal expert revealed that this obstinacy was not based on any kind of national intransigence, the crews happened to be just as truculent in the face of French military authority.²⁰⁴ At the beginning of 1915, therefore, the IWT department consisted of 'two officers, no men, one hired tug and thirty-four barges'.²⁰⁵

The only alternative available to Holland was to enlist personnel from Britain to man the barges and to provide the technical and administrative support necessary to maintain an efficient fleet of craft. Holland's diary records both the names and the experiences of those chosen to populate the new department, emphasizing the breadth of skills required to manage a modern army. The majority, unsurprisingly, were chosen as a result of having prior knowledge of shipping, such as Horace Pitman, who had ten years' experience as a yachtsman. Corporal William McKinlay, who had originally enlisted in 1914, was transferred into the department by

²⁰¹ CAB 45/205 diary entry, 30 December 1914.

²⁰² Robertson Papers, 2/2/44 Robertson to Cowans, 16 December 1914; Henniker, p. 85.

²⁰³ CAB 45/205 diary entry, 31 December 1914.

²⁰⁴ CAB 45/205 diary entry, 1 January 1915. On 2 January Holland interviewed the Belgian canal representative, meaning that within four days of his arrival on the Western Front he had established what appear to have been friendly and mutually beneficial relations with his counterparts in the Belgian and French armies. Such harmony among technical units offers a significant divergence from the 'discordant strategies' adopted by the senior commands of the various forces in this period. See Philpott, *Anglo-French Relations*, pp. 51–67.

²⁰⁵ WO 95/56 Memorandum number 1, pp. 3–4.

virtue of having trained as a surveyor with Lloyd's before the war.²⁰⁶ George Tagg, despite his being fifty-two years of age, was appointed for his knowledge of the French and Belgian canal systems and his family connections to the boat building industry.²⁰⁷

Others were chosen for less obvious, but no less important abilities, such as E.G. Weston, Assistant Secretary in the Colonial Civil Service, who was appointed to offer clerical support in the War Office for the newly established department.²⁰⁸ The War Office itself also provided a cadre of officers, with the Director of Movements, Brigadier-General Richard Montagu Stuart-Wortley, agreeing to the release of Lieutenant Baugh and the attachment of Colonel Collard to the fledgling outfit.²⁰⁹ However, the majority of recruits, and the nucleus around which IWT on the Western Front was constructed, entered the department as a direct result of its founder's pre-war career. Holland's three senior subordinates were all retired officers of the Royal Indian Marine, whilst the LNWR contributed a number of administrative and marine staff who volunteered to serve under their pre-war manager.²¹⁰ On 13 January, a list of men from the Marine Department at Holyhead who were willing to enlist was compiled, 'fifty all told', each being medically examined and sent to the Royal Engineers' training camp at Longmoor.²¹¹ An 'active campaign of enlistment' at various ports in Britain accounted for the lightermen, watermen, seamen, engineers and other assorted trades required to ensure the department's ability to fulfil its duties.²¹²

Not only would Holland be in charge of the provision of adequate personnel and equipment to maintain a dependable delivery service, he would also be responsible for the repair of vessels and waterways, for the efficient operation of inland quays and docks, for regulating traffic on the canals, and for providing a telephone link across the entire IWT network in order

²⁰⁶ CAB 45/205 diary entry, 20 January 1915.

²⁰⁷ CAB 45/205 diary entry, 23 January 1915.

²⁰⁸ CAB 45/205 diary entry, 22 January 1915.

²⁰⁹ CAB 45/205 diary entries 9 and 10 January 1915. This welcoming and supportive attitude from the Directorate of Movements provides a stark contrast both to the accounts recording Kitchener's aborted attempt to have Geddes investigate transport issues in France at this time, and Stuart-Wortley's personal animosity towards Geddes' transportation mission in 1916. Both of these events are addressed further below, see chapters 3.1 and 3.2.

²¹⁰ WO 158/851 History of IWT, pp. 8-9.

²¹¹ CAB 45/205 diary entry, 13 January 1915.

²¹² WO 158/851 History of IWT, p. 19.

to secure communications.²¹³ With the Directorate of Railway Transport coming under increasing pressure to provide additional railway personnel and facilities as the pre-war agreement with the French began to unravel (not to mention the profound differences between the two modes of transport), it was impossible for Holland to rely upon his nominal superior for guidance and support. The Director of Railway Transport, Colonel Twiss, was a ‘pure’ railwayman, lacking the technical knowledge of IWT upon which to found policy judgments within the directorate.²¹⁴ As a result, on 2 February Holland was given twenty-five expert telephone linesmen to undertake all the necessary communications work required to make IWT a self-sufficient unit.²¹⁵

Concurrent with the organizational concerns, work was beginning. On 5 January 1915 barges received road stone from Guernsey direct from a ship berthed at Calais, and inland discharge utilizing civilian labour contracted from a local firm was arranged the following day.²¹⁶ As the units recruited in Britain passed through Longmoor and crossed to France, the civilian labour withdrew and the department began to resemble more closely a recognizable provider of military logistics. Despite the isolation of IWT from railway transport in terms of its command relationship, the organization of the department’s operations bore similarities to those employed by the railways, in both peace and war. In much the same way that the Railway Transport Establishments were formed to oversee the BEF’s use of railways,²¹⁷ and to act as a conduit for British requirements to the French authorities, authority over IWT operations was divided into districts under the charge of a district officer.²¹⁸ Not only were the district officers responsible for the loading and unloading of vessels within their zone of supervision, and for maintaining contact with the British and French military authorities in the area, they were also responsible for ensuring the safe passage of vessels through the district and the ‘passing on’ of information to neighbouring districts.

²¹³ WO 95/56 Memorandum number 1, p. 4.

²¹⁴ WO 158/851 History of IWT, p. 17.

²¹⁵ CAB 45/205 diary entry, 2 February 1915. Although, as will be noted below, the separation of transport provision into separate, ‘watertight’ compartments was no panacea for the BEF.

²¹⁶ CAB 45/205 diary entries, 5 and 6 January 1915.

²¹⁷ Henniker, p. 17.

²¹⁸ TNA: PRO WO 95/3976B Director of Railways, Memorandum. Inland Water Transport, 4 January 1915. By September 1915 there were fourteen separate districts operating on the Western Front.

In effect IWT operated a system of divisional responsibility which decentralized the detail of everyday work and encouraged initiative among district officers (the ‘men on the spot’), freeing Holland and his senior subordinates to concentrate on establishing the principles and procedures required to obtain the highest degree of efficiency from the fleet. It was an organizational solution borrowed from the railways, expounded by the Midland Railway immediately prior to the war in a pamphlet issued to showcase their pioneering Train Control System.²¹⁹ With the construction of new waterways impracticable, it was imperative that the existing network was used as productively as possible. To do so required the coordination of the BEF’s military traffic (which was by far the most prevalent of all canal use during the war), that supplying the Belgian and French armies, and the small amount of civilian traffic which continued to operate on the water.²²⁰ The telephone system was used to ‘pass on’ vessels from district to district and to update officers of their forthcoming traffic commitments. Such detailed information gave district officers advanced warning of upcoming busy periods, affording them the opportunity to arrange for extra labour to be put in place to reduce congestion around sequences of lock gates.²²¹ The whereabouts of each vessel was also relayed back to GHQ every night and recorded on a diagram board – a central component of the Midland Railway’s control system – giving Holland’s staff a daily, graphical illustration of the whereabouts of the fleet. Such innovations aided decision-making in relation to the redistribution of craft and personnel as circumstances dictated.²²²

By the end of June 1915, almost three months before Brown dates the initiation of a canal service on the Western Front, Holland’s department had provided transport for: 15,926 tons of supplies; 27,241 tons of road metal; 3,216 tons of miscellaneous supplies (including bridging materials and coal); and 628 officers and men had been evacuated from the battle zone

²¹⁹ TNA: PRO ZLIB 6/88 Midland Railway Train Control, 1914, p. 62. This system, first introduced in 1907, would ultimately provide the standard operating procedure for the BEF’s light railway network in 1917. See below, chapter 3.3.

²²⁰ WO 158/851 History of IWT, p. 46.

²²¹ WO 158/851 History of IWT, pp. 45-6.

²²² WO 158/851 History of IWT, p. 22; ZLIB 6/88 Midland Railway, pp. 17-20.

by ambulance barge.²²³ By September, Holland could record with justifiable pride that requisitions for over 156,000 tons to be transported by IWT before the end of the year had been received, and that 1,200 tons were being carried daily over the northern waterways.²²⁴ In nine months the department had expanded from ‘one tug and thirty-four hired barges’ to control a fleet of over 270 vessels (with more on order) with a total capacity in excess of 38,000 tons.²²⁵ Holland, however, was not satisfied with these achievements. Following the separation of IWT from Twiss’ authority in October 1915,²²⁶ and in direct contradiction of the reactive, ‘ad hoc’, pragmatic image of the BEF’s administration during the first half of the war as propagated by Lloyd George, Holland would spend the next twelve months preparing IWT for the future expansion of both the directorate and of the demands which would be placed upon it.

As the ‘Dent scheme’ at Boulogne was in the process of being terminated, Holland’s directorate gained its independence from the Director of Railway Transport and sanction for the raising of a sixth section of workers for the IWT service was granted by the War Office.²²⁷ The ‘failure’ of the SECR’s employees to overcome the challenges created by the scale and complexity of the expanding British war effort should not overshadow the creation and development of a ‘civilianized’ IWT directorate during the same period. Far from being gripped by Brown’s ‘anti-civilian phobia’ at this point in the war, the continued expansion of IWT – in terms of personnel and in the scope of its authority – demonstrates that the BEF’s senior administrators were far more open to the possibility of applying civilian expertise to the challenges of battlefield supply during 1915 than has previously been asserted. However, the process of converting this recognition into an integrated component of the Allied transportation system would expose the limits of the BEF’s freedom of action on foreign soil, and the perceived utility of a slow means of transport operating outside the ‘traditional’ supply hierarchy.

²²³ CAB 45/205 Inland Water Transport Corps, British Army France 1915. Summary of Organization and Development, pp. 6-7.

²²⁴ WO 95/56 Memorandum number 1, p. 9.

²²⁵ See Appendix 2.

²²⁶ WO 95/56 Memorandum number 2, 5 May 1916, p. 2.

²²⁷ WO 95/56 Memorandum number 2, p. 1.

Expansion and restriction in the development of inland water transport, 1915-1916

Although the French and Belgian waterways comprised a vast network of navigable canals and rivers, the department of IWT began work in 1915 on just a small section connecting the ports of Dunkirk and Calais with the towns of Armentières and Béthune. Despite this limited zone of operations, the policy followed by Holland throughout his tenure as head of the service was one of ‘looking well ahead and forecasting the probable requirements of the future’.²²⁸ Such an outlook was by no means unique within the administrative ranks of the BEF. As we have seen, Sir Percy Girouard’s report into transport arrangements had as a core component the question of defining responsibility for supplying the BEF in the event of an Allied advance into Belgium. Regardless of the prevailing school of thought within the directorate, however, for IWT the period between the separation of the command link to the Director of Railway Transport and the Battle of the Somme would not be one of steady and unbroken expansion. The restrictions placed on the service during this time clearly illustrate the limitations of coalition warfare as the scale of the conflict increased, and also the difficulties inherent in the amalgamation of a new transport method into a pre-existing logistics system.

There were many reasons why Holland could write in September 1915 of a need to plan for the acquisition and employment of ‘double, even treble, and possibly a still greater number of vessels’ than the 330 at that time accounted for.²²⁹ In the first instance, inter-Allied discussions under the umbrella of the Railways and Canal Commission had decreed three months earlier that, in the event of any advance taking place in the zone containing the BEF, the responsibility for repair, maintenance, and use of the waterways in the area would be devolved upon the British to effect.²³⁰ Although Henniker’s official account does not record the outcome of the deliberations relating to the canal network, it is clear from Holland’s diary that he had stressed to Henniker the importance of securing British control over the Belgian canals should

²²⁸ WO 158/851 History of IWT, p. 15.

²²⁹ WO 95/56 Memorandum number 1, p. 9.

²³⁰ WO 158/851 History of IWT, p. 64; Henniker, pp. 94–101. Henniker acted as the British representative on the Commission, but unfortunately his account in the *Official History* only includes details of the agreements reached with regard to the supply of railway equipment and the repair of railway lines in the event of an advance.

the advance take place.²³¹ The pre-war agreement between the French and British had already begun to unravel, and Holland was quick to identify that the responsibilities for maintenance and operation of the waterways could not be divorced from control over the network.

A second reason given by Holland for promoting the expansion of the IWT service was financial. For cargo carried by the French railways on behalf of the BEF the British incurred a charge, whereas freight handled in British vessels would incur no cost to the Treasury.²³² Furthermore, Holland predicted, the engagement of French workshops on war-related work, and the ongoing military recruitment of huge numbers from the French labour force, meant that the French stock of vessels was likely to be badly degraded during the conflict. Consequently, Holland observed:

It follows [that] if this is a correct forecast that at the end of the war, any vessels we may have will be of great value to replace losses, and will assuredly be bought by those, who then turn their attention to the restoration of commercial business, at prices which will, I confidently expect, recoup a large proportion of our outlay.²³³

The most significant justification for expanding the role of IWT, however, lay in conjunction with the difficulties being experienced throughout 1915 at the docks under BEF control.

As demonstrated from the very outset of their use in France, IWT vessels drawn up alongside ships berthed in port could be used to eliminate the need for supplies to be landed on the quayside. Not only did this reduce the demand for space within the confined accommodation immediately surrounding the harbours, but stores transferred to canal barge would not require rolling stock to transport them away from the ports by rail. Goods transported several miles inland by IWT allowed the diminishing number of wagons operating in northern France to be worked over shorter distances, leading to individual wagons returning to the depots at a higher frequency, and increasing the number of journeys each wagon could make to and from the front. Furthermore, the extra capacity provided by IWT created the option to remove stores with a

²³¹ CAB 45/205 diary entry, 25 February 1915.

²³² The war diaries of the QMG contain abundant correspondence related to the financial arrangements between the two nations, a significant proportion of which concern railway-related expenditure.

²³³ WO 95/56 Memorandum number 1, p. 3.

stable, predictable demand from the railways, freeing up rolling stock to respond to requests for more volatile stocks, most notably food and ammunition.²³⁴

Consequently, as the shortage of rolling stock became ‘serious’ in the winter of 1915-1916, and congestion at the ports of Calais and Dunkirk threatened the despatch of trains and the turnaround of ships, the decision was taken to construct an IWT depot capable of handling goods removed from those ports. The goal of the project was to reduce the BEF’s reliance upon the Channel ports, and on the railway communications which linked the ports with the wider French transport network. A suitable location for the depot was found at the junction of the Calais canal and the River Aa. Not only was the site within a day’s journey of both Calais and Dunkirk, it had the added advantage of offering a separate return route for traffic from the latter, minimizing congestion at the locks and maintaining fluidity in the system.²³⁵ However, as 1916 progressed and the BEF’s expansion continued, Holland’s ambitions for the site grew. Rather than simply alleviate congestion at the docks by loading direct from ship to barge, Holland envisaged the depot at Zeneghem as the French hub of a direct cross-Channel barge service which would – for whatever traffic could be despatched by barge – entirely eliminate the need to use the Channel ports at all. Not only would such a service help relieve some of the pressure on the limited dock space at the Channel ports, but it would also reduce the journey length for the rolling stock required to forward the goods to the front.

In full recognition of the fact that weather conditions in the Channel would restrict the frequency with which vessels could make the crossing, Holland wrote a memorandum on the subject on 29 April 1916. Following discussion in the Army Council, and despite the significant financial and material commitments required to bring the scheme into being, the project was unequivocally approved in London.²³⁶ By early May, Colonel Collard was engaged in the ‘very extensive’ work of placing orders in Britain for the construction of craft suitable for operation

²³⁴ Henniker, p. 175. In March 1916, the QMG noted that ‘the IWT are daily delivering [road] stone metal, engineering stores and materials, hay and oats’ among other items, totalling approximately 2,000 tons per day. The majority of this was achieved ‘without [the cargo] touching a road or railway’. See TNA: PRO WO 107/15 Inspector-General of Communications, General Correspondence, Maxwell to Clayton, 25 March 1916.

²³⁵ WO 158/851 History of IWT, pp. 47-8.

²³⁶ WO 158/851 History of IWT, p. 56.

both in the Channel and on the northern waterways.²³⁷ That such enthusiastic backing was given to the cross-Channel service, prior even to the breakdown of the transport network associated with the fighting on the Somme, emphasizes the high regard in which Holland's opinion was held at the War Office and GHQ. Clearly, Holland's non-membership of the army's upper reaches did not cause his views to be ignored by the high command.

Despite the obvious advantages to the coalition of implementing such a service (not least for the overburdened French railways, from whom GHQ received its first request for rolling stock in February 1916),²³⁸ permission to proceed with construction at Zeneghem was not automatically granted by GQG. Instead, work did not begin on the depot until 25 July 1916, almost a month into the Battle of the Somme.²³⁹ Although the location of a suitable site and the accumulation of the required building materials were contributory factors, the chief cause of the delay lay in the fractious relationship between Britain and her host. Only after 'several proposals' and multiple meetings with the French was the site near St. Pierre Brouck 'eventually agreed upon' for the depot.²⁴⁰ The requirement that the French must authorize all large-scale British projects on French territory has already been referred to in relation to working methods at Boulogne,²⁴¹ and in the case of IWT, French insistence on retaining overall control of the decision-making process acted as a significant retardant on the growth of the directorate. Yet even before discussions began over the quay at Zeneghem, French bureaucracy had already served to frustrate Holland's ambitions for the service, the proposed relief of Havre affording a notable example.

In October 1915 Holland had suggested that, in order to facilitate the discharge of vessels at Havre and reduce congestion at the port, barges could be loaded direct from the ships

²³⁷ Coventry, University of Warwick Modern Records Centre, Papers of Sir William Guy Granet, MSS.191/3/3/51 Memorandum to Sir Guy Granet, 19 October 1916, p. 3; WO 158/851 History of IWT, pp. 56-8 details the specifications of the cross-Channel barges.

²³⁸ This request led to 2,500 railway wagons being despatched to France. See Edmonds' introduction in Henniker, p. xiii.

²³⁹ Construction on the first quay, measuring 1,575 feet, was not completed until 14 October 1916. WO 158/851 Appendix C 1A, Particulars of Quays Constructed and Equipped by the Inland Water Transport, p. 1.

²⁴⁰ WO 95/56 Memorandum number 3, 3 December 1916.

²⁴¹ The process is also covered in I.M. Brown, *British Logistics*, pp. 111-12.

in dock and forwarded to Rouen via the Tancarville canal. The proposal was approved by both Maxwell and Clayton, but following ‘protracted negotiations’ the French authorities ‘would not hear of the proposal although it would undoubtedly have done much to relieve the congestion on the railways’.²⁴² The relatively dispassionate language included in the post-war official report (which also claimed that ‘the French authorities [had], at all times, given courteous, prompt, and ungrudging aid’)²⁴³ lies in stark contrast to the tone in the documents produced by Holland in the immediate aftermath. In a memorandum written in May 1916, Holland dismissed the numerous reasons given by the French, which are sadly not elaborated upon, as ‘unconvincing’;²⁴⁴ in his private diary he defaced the page charting the chrysalis of the idea with a note, scrawled in red pencil and depicting palpable frustration: ‘Finally French refused permission for any British service’.²⁴⁵

Whilst Holland was attempting to be proactive, and planning for the expansion of the BEF’s logistical capabilities, the French authorities appear to have been asking the BEF to take on a larger share of the burden of sustaining the force whilst simultaneously acting to limit their ability to do so until absolute necessity intervened. This occurred in August 1916, when a chronic shortage of rolling stock resulting from the colossal demands of Verdun and the Somme led to severe congestion at Havre. Finally the French authorities agreed to the installation of a ‘limited IWT service’ taking material direct from ships at the port and conveying it to depots inland. Yet with the barges required to operate the service only able to transfer from the northern waterways and the River Somme via the Channel, a journey time of thirty-three days, it was not until 22 September that IWT began to receive goods direct from ships berthed at Havre.²⁴⁶ As with the delayed start to the cross-Channel service centred on the depot of Zeneghem, it would not be the offensive operations of 1916 which would receive the benefit of Holland’s foresight, planning, and promotion of IWT over the first half of the war.

²⁴² CAB 45/205 Summary of Organization and Development, p. 11; WO 158/851 History of IWT, p. 52.

²⁴³ WO 158/851 History of IWT, p. 16.

²⁴⁴ WO 95/56 Memorandum number 2, p. 2.

²⁴⁵ CAB 45/205 Summary of Organization and Development, p. 11.

²⁴⁶ WO 95/56 Memorandum number 3, p. 2.

Yet to lay the blame for the lethargic exploitation of IWT in 1915-1916 purely at the feet of obstructive French authorities would be unwarranted, and creates a deceptive impression of the extent of logistical 'understanding' within the BEF as a whole prior to the Battle of the Somme. Although, as has been seen, there was a willingness to engage with IWT within the administrative services of the BEF, such openness was by no means universal. In this respect, the decision to sever the relationship between IWT and the 'established' transport divisions actually reduced the influence of Holland's independent directorate in decision-making at corps and army level, with consequently negative implications for the efficacy of the BEF's supply operation as a whole.²⁴⁷ IWT became in essence a 'watertight' directorate, capable of providing assistance to those services who actively requested it, such as the Director of Veterinary Services,²⁴⁸ but incapable of promoting the wider employment of IWT to commanders accustomed to the speed and flexibility of rail and road transport. District officers and Holland's assistant directors were responsible for 'keeping in close touch' with the commanders in their area, and for ensuring that local requirements were met,²⁴⁹ but there appears to have been little desire among corps and army officers to reduce dependency upon the faster method of transport until the French railways were incapable of meeting demand.

Individual formations, each desirous of obtaining the resources they believed were necessary to ensure the security and efficiency of their own units, were reluctant to embrace the canals. The relatively slow progress of the barges made IWT comparatively useless for urgent deliveries. In the absence of a centralizing authority to coordinate transport requests, and until the sheer volume of goods entering France made the identification of priorities a fundamental requirement for keeping the logistics system flowing, there was little IWT could do to persuade commanders to take a holistic approach and voluntarily subordinate their own requests for

²⁴⁷ The decision to separate the various transport directorates should not be used as evidence of a uniquely 'military' method of organization however. As Taylor notes, 'ports, railways, canals [and] roads' were operated as independent services in the pre-war British economy as well. See M.G. Taylor, 'Land Transportation', p. 701.

²⁴⁸ In June 1916 arrangements were made to commence a barge service for the evacuation of wounded horses as a result of an approach made to Holland by the Director of Veterinary Services. See WO 95/56 Memorandum number 3, p. 3.

²⁴⁹ WO 158/851 History of IWT, pp. 23-4, 42.

transport for the wider benefit of the BEF as a whole. The result was ludicrous. When the railways in the rear of the BEF were overloaded during the opening weeks of the Battle of the Somme, the supply of food and ammunition took precedence over that of stone for road repairs.²⁵⁰ The ‘deplorable state of the roads’ soon became the ‘chief source of anxiety for the Chief Engineer of Fourth Army,²⁵¹ a development catalogued by an equally concerned Deputy QMG in a series of notes.²⁵²

Yet despite the shortage of vital engineering material reaching the BEF, during the same period IWT vessels were being utilized for the conveyance of road stone along the River Somme at the request, and for the use of, the French Army.²⁵³ In addition, as Holland would later reveal to Geddes, for all the unprecedented scale of demands generated by the fighting on the Somme, during the opening phase of the offensive Holland was reduced to returning barges requisitioned from the French to their civilian owners due to a lack of military work for them to undertake.²⁵⁴ Clearly then, regardless of the increase in tonnage conveyed by IWT during 1916, there remained spare capacity in the system. Of the 73,500 deadweight tons carrying capacity available in October 1916, Geddes recorded that the maximum quantity conveyed in any single month was just 69,000 tons. ‘Each deadweight ton of capacity’, Geddes observed, ‘was not fully occupied once in the month... a great carrying capacity has been provided and no adequate use found for it’.²⁵⁵ The man who, more than anyone else, had been responsible for providing that great carrying capacity was Gerald Holland, Marine Superintendent of the LNWR. The task of making adequate use of it would ultimately fall to Geddes himself.

The colossal scale of demands placed upon the transportation services supplying the BEF during 1916 were such that IWT could only ever play a subsidiary role in their fulfilment. The position of the directorate as a scion of the established supply chain, coupled with the minor

²⁵⁰ R.U.H. Buckland, ‘Experiences at Fourth Army Headquarters: Organization and Work of the R.E.’, *Royal Engineers Journal*, 41:3 (1927), 385–413 (p. 389).

²⁵¹ Buckland, pp. 391–2.

²⁵² IWM, Papers of Brigadier-General C.R. Woodroffe, 3/38/1/2 Notes and Reports (forwarded to QMG), June to November 1916. The contents of this material will be discussed in more detail below, see chapter 2.4.

²⁵³ WO 95/56 Memorandum number 3, p. 3.

²⁵⁴ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916, p. 2.

²⁵⁵ Granet Papers, MSS.191/3/3/102 Memorandum by Sir Eric Geddes, 26 November 1916, p. 23.

role afforded to the development of waterborne traffic in the pages of the *Official History*, have subsequently overshadowed the evolution of this small, under-exploited but effectively managed civil-military partnership. Unlike at Boulogne, where Francis Dent's position outside the military hierarchy and his other commitments to the war effort removed him from the day-to-day management of affairs, Holland was incorporated into the BEF and free to focus all of his attentions on the improvement and expansion of IWT on the Western Front. He was able to source equipment and raise personnel at a rate capable of ensuring that IWT would constantly be in a position to respond effectively to the BEF's continued growth.

Despite this, Holland's proactive approach and Dent's organizational expertise were together unable to counteract the limitations caused by a lack of pre-war preparation between British and French officials, and hampered by the absence of a formal alliance structure to govern the expansion of the BEF's contribution to the land war. The abilities of Britain's transport experts, although recognized and respected by the majority of officers in France, were only applied in 'penny packets' to the solution of problems identified in single links of the transport chain. Throughout 1915 and into 1916 there was neither the political will to broaden the scope of civil-military cooperation, nor the military imperative to establish long-term, 'semi-permanent' administrative structures in place of short-term 'tinkering'. Such localized responsibilities left individuals such as Dent and Holland incapable of negotiating successfully with an ally attempting to balance requests for further assistance with a desire to retain a position of superiority within the coalition. The resulting frustrations, coupled with the continued decentralization of transport control within the BEF,²⁵⁶ impaired the development of a coordinated, fully integrated, centrally directed logistics system on the Western Front. The 'unmistakable proof of the value, indeed the necessity of centralized control' had yet to surface.²⁵⁷ It would do so astride the Somme, and would precipitate 'the reorganization of the whole service of transportation'.²⁵⁸

²⁵⁶ WO 95/74 diary entry, 20 December 1914; WO 95/27 French to Kitchener, 18 January 1915; WO 107/15 Maxwell to Cowans, 18 July 1915.

²⁵⁷ WO 107/296 Report, p. 12.

²⁵⁸ M.G. Taylor, 'Land Transportation', p. 704.

2.4: The Battle of the Somme: A logistical assessment

The preparations for, and conduct of, the Battle of the Somme have remained a point of controversy ever since the offensive began. The immense losses for little territorial gain within an environment of unremitting horror have been consistently drawn upon as evidence of the obstinacy and ineptitude of the British high command.²⁵⁹ Casualty levels, on the first day in particular, have formed the bedrock upon which criticisms of ‘Butcher Haig’ have flourished in the public memory of the conflict.²⁶⁰ Conversely, historians have also used the Somme to demonstrate the challenges of coalition warfare, and the limitations that acting in concert with a powerful ally placed upon the BEF’s freedom of action.²⁶¹ Within the ‘strategic labyrinth’ of Allied politics and debates over the development of battlefield tactics following the calamity of 1 July 1916,²⁶² the logistical foundations of the battle have been almost entirely overlooked.²⁶³ An examination of the supply preparations for the Somme, and the Allied response to the evolving nature of the fighting after the opening day, highlights that a lack of appreciation for the importance of the transport factor exerted a critical influence over the course of events in Picardy during 1916.

The Battle of the Somme was not a ‘British’ battle. From its conception at the Chantilly conference in December 1915, through to its culmination in November 1916, it was planned and undertaken as part of a coordinated, all-front strategy designed to eliminate the German advantage of interior lines of communication.²⁶⁴ This, coupled with the BEF’s position as the junior partner on the Western Front, severely restricted Haig’s ability to influence the location, if not the character, of the battle upon his appointment as C-in-C. Just as Sir John French’s attack at Loos took place in September 1915 upon ground not of his choosing, it was clear from

²⁵⁹ Lloyd George, I, pp. 321–5; W.S. Churchill, *The World Crisis, 1916-1918*, 6 vols. (London: T. Butterworth, 1927), III, pp. 171–96; T.H.E. Travers, *The Killing Ground: The British Army, the Western Front and the Emergence of Modern Warfare, 1900-1918* (London: Unwin Hyman, 1990), p. 190.

²⁶⁰ J. Laffin, *British Butchers and Bunglers of World War One* (Gloucester: Alan Sutton, 1988); D. Winter, *Haig’s Command: A Reassessment* (Barnsley: Pen & Sword, 2004).

²⁶¹ Philpott, *Anglo-French Relations*, pp. 112–28.

²⁶² W. Philpott, *Bloody Victory: The Sacrifice on the Somme* (London: Little, Brown, 2009), p. 56; Griffith.

²⁶³ Philpott, *Bloody Victory*, p. 158 provides a brief, but notable exception.

²⁶⁴ Greenhalgh, p. 42; W. Philpott, ‘Why the British Were Really on the Somme: A Reply to Elizabeth Greenhalgh’, *War in History*, 9:4 (2002), 446–71 (pp. 460–1).

the outset of his command that Haig would be required to participate in a major offensive in 1916 to preserve the solidarity of the Franco-British alliance.²⁶⁵ The terrain, once again, would not be chosen by the British.

Joffre's plans for the battle envisaged the British contributing to a joint attack with a larger French force, at the junction of the two armies astride the River Somme.²⁶⁶ It would be a wearing-out battle, conceived to draw in German troops and to act as a prelude to the decisive, war-winning offensive. Joffre was as thoroughly aware of the political significance of 'winning the peace' as his British counterparts, and hoped to use British troops in the wearing-out phase in order to husband his own wearying divisions for the *coup de grâce*.²⁶⁷ Fighting side by side would also give the French commander more opportunity to assert his influence over his ally, reducing the prospect of Haig 'postponing' the BEF's contribution in order to preserve British manpower at the expense of further French losses.²⁶⁸

Aside from the fact that the two forces were already located in the area, reducing the quantity of troop movements required prior to the battle, the terrain around the Somme was also considered to offer a number of potential benefits to the attacking forces. There were no precipitate rises to contend with, the soil was well drained (particularly in comparison to the ground in Flanders), and there were no 'industrial wildernesses' to aid the defending Germans and evoke memories of the previous year's encounter at Loos.²⁶⁹ To Henry Rawlinson, Fourth Army commander and one of those whose name was to become inextricably linked to the battle, the Somme offered 'capital country in which to undertake an offensive'.²⁷⁰ Rawlinson's reconnaissance, however, was concentrated on the view east from the British front line. To the west, in the area that would be tasked to supply and sustain the battle, it was a different story.

²⁶⁵ G. Sheffield, *The Somme* (London: Cassell, 2003), pp. 12–13; J.P. Harris, *Douglas Haig and the First World War* (Cambridge: Cambridge University Press, 2008), pp. 271–2.

²⁶⁶ Greenhalgh, p. 46.

²⁶⁷ Philpott, 'Why the British Were Really on the Somme', pp. 461–2.

²⁶⁸ P. Hart, *The Somme: The Darkest Hour on the Western Front* (London: Weidenfeld & Nicolson, 2005), pp. 34–5.

²⁶⁹ R. Prior and T. Wilson, *The Somme* (New Haven, CT: Yale University Press, 2005), p. 37.

²⁷⁰ Rawlinson to Wigram, 27 February 1916, quoted in D. Winter, p. 45.

Preparing for the largest offensive in British military history

In order to build up the necessary reserves of troops, munitions, and supplies for the coming offensive, the BEF was required to essentially build, populate and sustain a new city immediately behind the front.²⁷¹ New railheads were needed, to enable the projected thirty-one trains required per day to maintain the army to disgorge their various cargoes before returning to base; wells would have to be dug to guarantee fresh supplies of water for the hundreds of thousands of men and beasts that would be asked to participate in the battle; road stone would be required in huge quantities in order to ensure that the road network, critical for bridging the gap between the railheads and the trench lines, remained passable.²⁷² The troops themselves would need to be transported into the concentration area prior to the attack, along with the guns required to fire an artillery bombardment of unprecedented ferocity, the shells for which also depended upon transport inland in order to be of any use on the battlefield. Such a colossal enterprise demanded a first-rate transport network. However, according to the official historian, ‘the railways were inadequate, [and] the roads in the area behind the front where the troops would have to be concentrated, were few and indifferent’.²⁷³

Edmonds’ other judgment, that ‘in 1916... almost any part of the Arras-Ypres front was better furnished with villages, railways and roads’,²⁷⁴ has been somewhat overlooked in many texts on the battle. Even Winston Churchill, vocal critic of the Somme campaign, reserved his criticisms over the choice of battleground to the strength of the German defences in the sector and the lack of perceptible strategic gains to be made in the area.²⁷⁵ Yet even in the more understated words of Colonel Henniker, ‘the railways serving [the Somme] part of the front

²⁷¹ H. Strachan, ‘The Battle of the Somme and British Strategy’, *Journal of Strategic Studies*, 21:1 (1998), 79–95 (pp. 85–6).

²⁷² Sheffield, *Somme*, p. 35. Water-supplying trains were required on the northern section of the battle zone until near the end of 1916, taking up space on the railways which would otherwise have been available for other traffic. See Henniker, p. 122 f.n. 1.

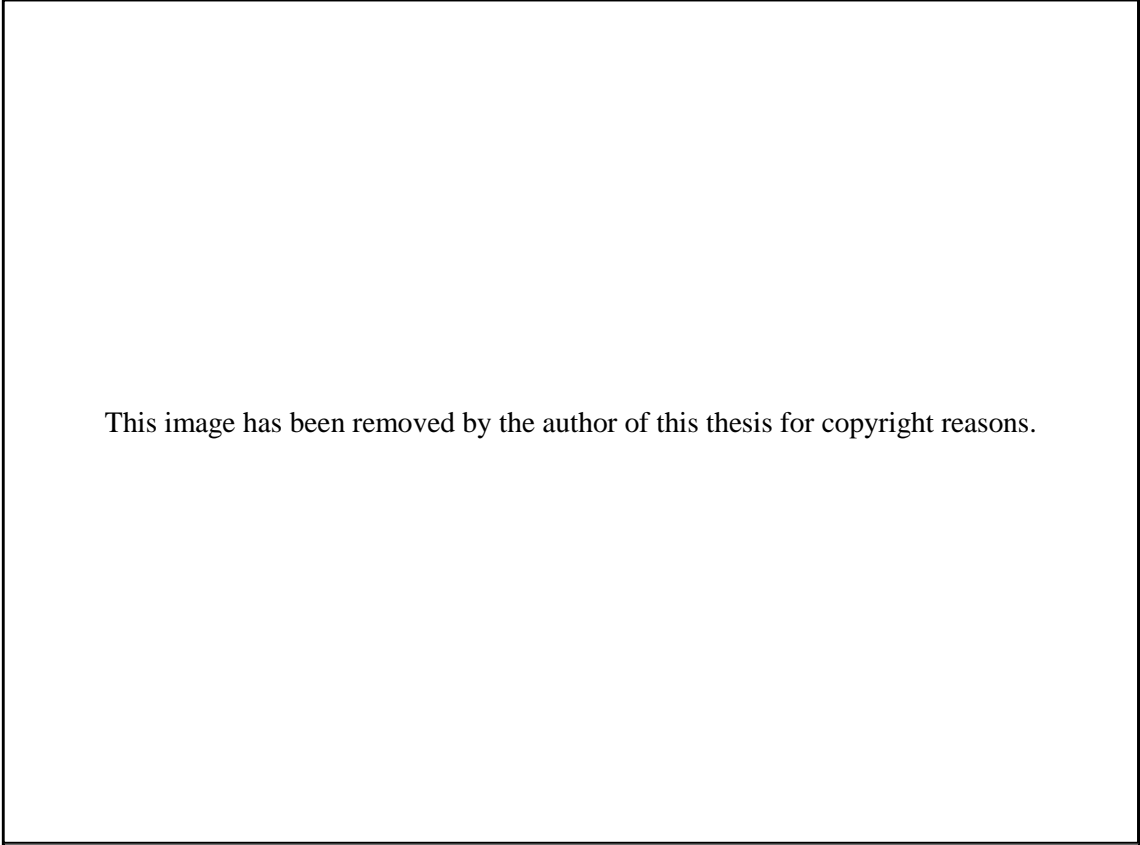
²⁷³ Edmonds, *France and Belgium, 1916*, I, p. 271. Edmonds lays the blame for this squarely at the feet of Joffre.

²⁷⁴ Edmonds, *France and Belgium, 1916*, I, p. 271.

²⁷⁵ Churchill, III, pp. 171–3, 191; Stevenson, in questioning the location of the offensive, restricts his observations to the lack of ‘major communication lines or industrial complexes’ in the rear of the German lines, rather than the available infrastructure immediately behind the Allies’ front. See D. Stevenson, *1914-1918: The History of the First World War* (London: Penguin, 2004), p. 168.

were not good'.²⁷⁶ Two single lines to Arras, running from St. Pol and Doullens, and the double-line between Amiens and Albert (which itself was within range of the German artillery) were the only pre-war main line rail communications available in the twenty-three mile distance between Arras and the Somme. Alongside the task of supplying the multitude of British forces in the area in the build up to the battle, these lines would also be required for the passage of coal from mines in the north to the factories of Paris, a commitment of fifty trains per day.²⁷⁷ In addition, although the 'rolling downs' of Picardy may have lifted the spirits of men transferred from the bleak Ypres salient,²⁷⁸ the undulating countryside was highly impractical for the construction of reliable railways.

The absolute necessity for construction around the Somme had been appreciated almost as soon as the phase of mobile warfare had ended, leaving the main Amiens-Arras line severed



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Figure 2.3 Map of the Amiens bottleneck, 1916
Source: Henniker, p. 136.

²⁷⁶ Henniker, p. 120.

²⁷⁷ Henniker, p. 120.

²⁷⁸ Sheffield, *Somme*, p. 19.

north of Albert (see Appendix 3). French engineers began work on improving and doubling lines in October 1914, and as soon as the decision had been made for joint offensive action to take place in the area, further new lines were taken under construction. One such line, a seventeen mile stretch between Fienvillers-Candas and Acheux, was completed in April 1916 and handed over to the ROD to run. This line alone created five new railheads within the battle zone,²⁷⁹ however the major infrastructure developments took place further south, around the key railway junction of Amiens. Of particular importance to the upcoming battle was the extension of a gun-spur near Dernancourt to supply artillery ammunition to the guns situated on the high ground south-east of Albert. For this extension, envisaged for carrying a relatively small tonnage during the battle, a gradient of one-in-forty-five was adopted in some places.²⁸⁰ This decision would have profound consequences once the battle began.

Another potential problem was the bottleneck passing through Amiens (see Figure 2.3). This section, approximately one mile long, was for almost its entire length situated in tunnels or cuttings which made the laying of extra tracks alongside the existing route impossible. The section heading east through St. Roch comprised the principal rail connection between Amiens and the southerly Channel ports supplying the BEF;²⁸¹ the only inland line running north-south between the French coal mines and Paris; a heavily worked civilian traffic route; and the vital junction for any strategic troop movements that might be required during the battle. At the Camon-Longeau interchange to the east of Amiens, all of the traffic heading to and from Rawlinson's Fourth Army would meet, and be forced to intersect the route of, the vast majority of the traffic serving the French Sixth Army operating on their right flank.²⁸²

The implications of such a heavy traffic flow were recognized, and engendered a series of discussions within the BEF and between Allied representatives.²⁸³ Initial plans for the daily

²⁷⁹ Edmonds, *France and Belgium, 1916*, I, p. 273.

²⁸⁰ Henniker, pp. 120–1.

²⁸¹ I.M. Brown, *British Logistics*, p. 184.

²⁸² Henniker, pp. 136–7.

²⁸³ Edmonds, *France and Belgium, 1916*, I, p. 272. Although details of the discussions are sadly not recorded, the war diary of the Deputy Adjutant and QMG of Fourth Army during the first half of 1916 catalogues meetings at which 'various problems in connection with... railheads and roads' took place,

provision of the troops were created in April, and highlighted that only through the use of every available station, working to the utmost of their capacity and with no dumping of supplies (which was as much a hindrance to efficient working at the railheads as it was at the ports)²⁸⁴ could the armies in the field be maintained. Even this estimate was dependent upon substantial pre-battle construction, led by the French but with the assistance of considerable numbers of British troops, being completed in time.²⁸⁵ Ironically, given the importance placed upon the early commencement of the battle by Joffre to relieve the pressure on Verdun, the BEF's liaison Edward Spears noted in mid-June that the progress of construction meant that 'unless it is absolutely unavoidable', the French should not be asked to attack before 1 July.²⁸⁶ The construction work related to the Somme in the French sector had a projected completion date of 25 June, but no contingency. Furthermore, there would be an unavoidable lag between the completion of construction work and the development of stockpiles of ammunition. In the meantime, materiel was being rushed to the front by lorry, as at Verdun, but this was a slow and difficult process, adding further strain to the already overburdened road network. Such was the pressure placed upon French engineers to finish their allotted tasks on time that the penalty for missing targets was severe: the Chief Road Engineer received fifteen days' arrest for not opening a road 'in the specified time'.²⁸⁷

British construction companies laid some 150 kilometres of track in preparation for the Somme,²⁸⁸ an achievement which demonstrated the increasing logistical contribution of the BEF to the coalition. In addition, by reducing British stocks in France to just ten miles of track,²⁸⁹ the preparatory efforts on the Somme further restricted Haig's freedom to seek battle elsewhere on the Western Front in 1916. The Somme had been agreed to by Haig in the understanding that it

emphasizing the numerous administrative issues requiring solution prior to the launching of a battle on that scale. See WO 95/441 diary entries, 10 March to 30 June 1916.

²⁸⁴ V. Murray, 'Transportation in War', *Royal Engineers Journal*, 56 (1942), 202–32 (p. 203).

²⁸⁵ The construction work completed by both French and British engineers during this phase is documented in Henniker, pp. 123–8; W.A.T. Aves, *The Railway Operating Division on the Western Front: The Royal Engineers in France and Belgium, 1915-1919* (Donington: Shaun Tyas, 2009), pp. 65–7.

²⁸⁶ Spears Papers, 1/7/15 Spears to Elles, 18 June 1916.

²⁸⁷ Spears Papers, 1/7/9 Spears to Kiggell, 17 June 1916.

²⁸⁸ M. Peschaud, *Politique et Fonctionnement Des Transports Par Chemin de Fer Pendant La Guerre* (Paris: Les Presses Universitaires de France, 1926), p. 86.

²⁸⁹ Edmonds, *France and Belgium, 1916*, I, p. 274.

was to be the wearing-out action prior to a decisive battle. The decisive battle Haig favoured would take place in Flanders, with the twin aims of clearing the Belgian coast and striking at the main railway arteries of the German Army.²⁹⁰ Rawlinson had prepared and submitted a plan for such an attack prior to the settlement of arrangements for the Somme between Haig and Joffre.²⁹¹ Having seen the chances of the 'Flanders scheme' being put into practice diminished by a lack of support from King Albert, C-in-C of the Belgian Army and sovereign ruler of the territory Haig wished to attack,²⁹² the exhaustion of British stocks of railway material in the preparations for the Somme contributed the final nail in that plan's coffin. It ensured that any further construction would be reliant on the supply of French material, which was highly unlikely to be released were there any suggestion that it could jeopardize operations astride the Somme. The most significant blow of all against an offensive in Flanders during 1916, however, was struck by the Germans at Verdun on 21 February.

The effects upon the preparations for the Somme of the German attack on Verdun were twofold. Firstly, it provoked a crisis within the French government, which cultivated rumours that Joffre would be replaced and the strategy of the senior partner in the coalition changed. Secondly, as successive divisions were put through the 'Mill on the Meuse', the French commitment to the combined assault on the Somme contracted. Following Verdun, it would be the BEF that would shoulder the main burden of the attack in Picardy. The progressively smaller quantity of French troops being made available for the Somme during the spring of 1916, amidst increasingly bleak prognoses as to the future power of the French Army, has been thoroughly documented.²⁹³ Yet the impact of Verdun upon the French transport infrastructure was equally noteworthy.

Although the network of country lanes dubbed the *Voie Sacrée* between Verdun and Bar-le-Duc has been presented as the 'French Army's only communication route to the

²⁹⁰ Sheffield, *The Chief*, p. 160.

²⁹¹ R. Prior and T. Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-18* (Oxford: Blackwell, 1991), p. 138.

²⁹² Philpott, 'Britain, France and the Belgian Army', p. 129.

²⁹³ Robertson Papers, 7/6/36 Robertson to Haig, 18 May 1916; Philpott, *Bloody Victory*, pp. 81-6; J. Charteris, *At G.H.Q.* (London: Cassell, 1931), pp. 139-50; Bruce, p. 292.

battlefield',²⁹⁴ and the automobile engine championed as the 'difference maker', railways also played a vital role in the defence of Verdun despite the two major lines in the area being rendered 'useless' by the shelling of the German guns.²⁹⁵ The construction of a forty-five mile stretch of standard gauge line, built parallel to the road network in just four months and earning equal praise from Pétain to that issued to the lorry drivers who kept the battle supplied,²⁹⁶ consumed materials and engineers' efforts which would otherwise have been available for the Somme. In addition, the *Chemin de Fer Meusien* metre-gauge railway drew in locomotives and rolling stock from all over France, equipment which – as the battle of Verdun rumbled on into the summer – would not be available to those charged with sustaining operations in Picardy. The strain of Verdun accelerated the degradation of the French transport infrastructure to the extent that urgent demands for assistance were made to GHQ for rolling stock to be despatched from Britain, in addition to large orders already placed in Canada and the United States.²⁹⁷ In the period before those requests were fulfilled, the burden of supplying the Battle of the Somme would fall on a diminishing quantity of resources. Those resources would be asked to accomplish a correspondingly increased workload, adding further pressure to the logistics system.

In an attempt to relieve some of that pressure on both the equipment and on the labourers at railheads, all commercial traffic and trains containing road stone were to be suspended at the outset of the battle.²⁹⁸ This decision, taken in order to concentrate upon the immediate tasks of feeding the troops and maintaining a schedule of seven to ten ammunition trains per day on the Fourth Army front in June, exposes the lack of foresight in the logistical

²⁹⁴ Sheffield, *Somme*, pp. 14–15.

²⁹⁵ Bruce, pp. 290–1.

²⁹⁶ Bruce, p. 298; Wolmar, pp. 175–7.

²⁹⁷ WO 107/15 Maxwell to Cowans, 2 March 1916. In addition, French complaints over the treatment of wagons led to orders being despatched to British troops notifying them that 'considerable damage' was being done to rolling stock as a result of 'careless unloading of stone', and requesting that 'all stone must be thrown at least six feet from the rails' by fatigue parties. See WO 95/441 Routine orders, 16 March 1916.

²⁹⁸ Henniker, p. 122. In Fourth Army at least one meeting took place with representatives of the Directorate of IWT regarding the establishment of a barge service to supply road stone. However, as noted above, this did not lead to any thorough exploitation of waterborne traffic by the BEF. See WO 95/441 diary entry, 1 May 1916.

planning of the offensive.²⁹⁹ This oversight, alongside an inadequate appreciation of the sheer volume of work required to prepare the battlefield prior to the BEF's first offensive on such a scale, combined with the lack of pre-war planning to diminish the chances of success even before the infantry went over the top. The insufficient quantity of labour available to carry out that work, despite Haig's entreaties for labour battalions which he deemed to be 'quite essential' for maintaining the 'large numbers of troops [that] will be required under certain eventualities at certain points',³⁰⁰ demonstrates the problem.

Managing the 'workforce': labour use in the British Expeditionary Force, 1914-1916

The provision of labour for the multitude of tasks necessary to maintain roads, repair railways and handle materials during transit had, as with the operation of the transport network itself, undergone a series of 'ad hoc', uncoordinated changes prior to the Battle of the Somme. The pre-war FSR, upon which the British labour organization was based, contemplated the use of civilian labour 'for unloading and stacking supplies wherever possible', supplemented only when necessary by fatigue parties drawn from the fighting troops.³⁰¹ However, although the French had agreed to provide civilian labour for the BEF in 1912,³⁰² it had been recognized immediately upon the outbreak of war that further, British-supplied manpower would be required to ensure the maintenance of British logistical operations. An authorization order for ASC labour companies was issued simultaneously with Britain's entry into the conflict, and the first units were at work in Havre before the end of the month.³⁰³ The need for men with experience of handling and moving supplies was appreciated immediately, and civilian foremen and gangers were enlisted to act as sergeants and corporals within the new units.³⁰⁴

²⁹⁹ I.M. Brown, *British Logistics*, p. 120; Edmonds, *France and Belgium, 1916*, I, p. 280. Attempts to limit the quantity of engineering materials in France began prior to the intense period of preparation for the offensive, under the guise of financial prudence rather than the relief of an overburdened transport network. See TNA: PRO WO 32/5156 Report of committee under Major-General Scott-Moncrieff charged with the investigation of Royal Engineer stores with regard to expenditure, 22 February 1916.

³⁰⁰ Robertson Papers, 7/6/21 Haig to Robertson, 3 February 1916.

³⁰¹ *FSR, Pt. II*, p. 35.

³⁰² Starling and Lee, p. 77.

³⁰³ TNA: PRO WO 107/37 Work of the Labour Force during the War: Report, 1919, p. 1.

³⁰⁴ Starling and Lee, p. 78.

As demonstrated above, the managerial challenges facing the BEF's administrative departments as the force expanded over the first two years of the conflict were approached through a variety of civil-military experiments and short-term expedients. Despite such endeavours the growth of the BEF, coupled with an increasing reluctance on the part of the Belgian and French authorities to continue releasing civilian labour to assist their allies rather than their own national armies,³⁰⁵ meant that the employment of 'resting' infantry became an increasingly vital component of the BEF's supply system. The war diaries of the Army Troop Companies employed in the Somme sector during 1916 illustrate the varied nature of the tasks undertaken by infantry working parties in order both for the battle to go ahead, and for it to be sustained after 1 July.³⁰⁶ That the maintenance and goods-handling demands of the lines of communication had a deleterious effect on the training of infantry units prior to the Somme has been thoroughly acknowledged in the literature on the battle.³⁰⁷ The negative effects of the redeployment of fighting troops to labour duties, however, was not merely restricted to the dismal performance of the BEF on 1 July.

A further problem, as demonstrated by the Deputy QMG in the days before the battle commenced, was the manner in which the short-term desire to ensure readiness for zero hour trumped considerations as to the long-term effects on the infrastructure of the work being undertaken:

It seems quite clear that in view of the operations now going on, every effort should be made to get *as much as possible as far forward as possible*, even if the roads in rear do suffer a bit for the time being.³⁰⁸

As far as the administrative departments of the BEF were concerned, the primary concern in June 1916 was to get the items required by the *fighting* troops sent forward. The issues arising from the manner in which this task was accomplished were visible in the week before the battle,

³⁰⁵ WO 107/37 Report, p. 2; TNA: PRO WO 95/28 QMG, diary entry, 3 September 1915.

³⁰⁶ See, for example, Gillingham, Royal Engineers Museum Library and Archive [REMLA], WW1 63 132 Army Troop Company, May to November 1916; 133 Army Troop Company, May to November 1916; WW1 64 144 Army Troop Company, May to November 1916.

³⁰⁷ J. Baynes, *Far from a Donkey: The Life of General Sir Ivor Maxse* (London: Brassey's, 1995), p. 135; Prior and Wilson, *Somme*, pp. 58–9.

³⁰⁸ Woodroffe Papers, 3/38/1/2 Unofficial notes, 30 June 1916. Emphasis in original.

with Woodroffe noting during inspections on both 28 and 29 June that roads near Corbie and in the III Corps area were ‘in a terrible condition’ and a ‘bad state’ respectively.³⁰⁹ However, as corps were not ‘fixed’ to one sector but rotated between armies, there was little onus on individual commanders to prioritize road repairs for which their troops might never see the benefit;³¹⁰ crucially, such work would reduce the number of opportunities for training those soldiers to adequately perform their duties on the battlefield when required. In the same manner that national priorities and post-war industrial concerns eclipsed the potential benefits of inter-Allied cooperation at the strategic level, a preoccupation with ensuring satisfactory battlefield performance was enough to ensure that individual corps commanders gave precedence to front line considerations over those of creating and maintaining a solid logistical foundation for the benefit of the BEF as a whole.

Furthermore, the troops themselves took little interest in ‘grunt’ work for which they had not enlisted. As Frederick Voigt’s account of a fatigue duty which consisted of moving railway sleepers from one side of a line to another indicates, groups of soldiers instinctively ‘swung the lead’ or sought out hiding places in which to rest. At the same time, others refused to do more than what they considered their ‘fair share’ of the work. The net result of such behaviour was that the men who *were* working became increasingly tired, and the group as a whole descended into inefficiency and resentment of those ‘shirking’ the duty, all supplemented by a combination of disinterested or officious supervisors.³¹¹ Such practices were prominent in the pre-war workplace from which the majority of the citizen soldiers were drawn: ‘An important aspect of learning about work was learning how to avoid it, to make it easier, to dodge the foreman, to sneak off for a smoke without getting caught.’³¹² To mitigate the effects of such behaviour, and to help cope with the lack of available labour (which had been

³⁰⁹ Woodroffe Papers, 3/38/1/2 Unofficial notes, 28 and 29 June 1916.

³¹⁰ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916, pp. 4-5.

³¹¹ F.A. Voigt, *A Combed Out: Reminiscences of the European War* (London: Swarthmore Press, 1920), pp. 24–30.

³¹² Bourne, ‘The British Working Man’, p. 345.

recognized as a developing problem in 1915),³¹³ the army raised specialist battalions that would be dedicated to the performance of ‘unskilled’ jobs rather than viewing such work as a distraction from their primary duties as fighting soldiers.

The labour battalions raised in the spring of 1916 from men unfit for general service but available for labour duties overseas, did little to alleviate the issue. The men were found to be enthusiastic but hopelessly inadequate, having had ‘absolutely no knowledge of road making’.³¹⁴ Furthermore, the lack of expert supervisors (from either civil or military engineering backgrounds) available to teach them meant that ‘consequently the waste of labour [was] very great’. As Woodroffe concluded, ‘the difference between the class of work done on a road by a trained Field Company, RE, and one of the labour battalions is... remarkable’. Nor were the numbers of labour battalions anything like enough to satisfy the quantity of tasks required to ensure Fourth Army’s preparations for the Somme were complete. As a result, not only was Rawlinson unable to avoid the sustained use of infantry working parties on ‘grunt’ work in the build-up to the battle, but the supply of materials had to be prioritized and subordinated to take into account the limited amount of labour available to handle and store it at the railheads. Road stone, with its demand for huge quantities of rolling stock which otherwise could be used for the provision of food and ammunition, was the victim of pre-battle austerity. By cutting the supply of stone, however, the BEF solved one problem by creating another; and one which would only increase as the battle wore on and the roads behind the army were placed under unprecedented pressure.³¹⁵

The collapse of the transport network

The opening month of the battle would exacerbate the transport issues which the reactive policies of the previous months had engendered. The poor weather of late June, which

³¹³ See, for example, TNA: PRO WO 95/3958 Inspector-General, diary entry, 14 July 1915. A general account of British labour requirements, and the methods by which they were met, prior to the formation of a specialized labour directorate is Starling and Lee, pp. 77–100.

³¹⁴ Woodroffe Papers, 3/38/1/2 Notes, 1 August 1916. Woodroffe’s comments were made after inspecting a labour battalion at La Boiselle who had been formed just five weeks previously. All quotes in this passage are taken from this source.

³¹⁵ WO 95/441 diary entry 15 July 1916.

contributed to the postponement of zero hour, continued into July.³¹⁶ GHQ's weather diary for July 1916 records fourteen days during the month on which there were 'slight showers' or heavier.³¹⁷ Away from the 'chateaux' in the rear, Lieutenant-Colonel Whitty, serving in the Somme area with the 25th Division, recorded several days of 'heavy rain' in July, making movement very difficult.³¹⁸ In periods of poor weather, horse transport, which would usually travel by the open ground next to the roads, was forced to share road space with the lorries.³¹⁹ The inevitable results of this action were increased congestion and, as the roads were not built to withstand much more than their pre-war traffic of farmers' carts and bicycles, continued degradation of the road surface. 'Under repeated impact the sub-base [of the road] first compacted, the road surface then became uneven and ultimately failed, forming potholes' for the repair of which neither the labour nor the materials were available in the required quantities.³²⁰ Within the first week of July, the sheer quantity of vehicles 'all over the country' drew comment from even the most experienced campaigners.³²¹ Within the first fortnight, the two armies were forced to make arrangements to minimize the use of particularly damaged roads.³²² Emphasizing the volume of traffic, on the twenty-four hours ending at 9am, 22 July, the traffic passing Fricourt Cemetery was recorded by Fourth Army. In total: 26,516 troops; 568 cars; 1,244 lorries and ambulances; 3,832 horse-drawn vehicles; 1,660 motor-cycles and cycles; and 5,404 horses passed the spot, on what the Provost Marshal described as 'one of the quietest days we have had'.³²³ In just six hours over the following day, over two-and-a-half thousand vehicles pounded along the Amiens-Albert road.³²⁴

The roads were not the only network in need of urgent attention either. Following the successes of the French and southernmost British units on 1 July, Fourth Army requested that

³¹⁶ Edmonds, *France and Belgium, 1916*, I, p. 278.

³¹⁷ TNA: PRO WO 95/5 General Staff, Weather diary, July 1916.

³¹⁸ Whitty, pp. 110–17.

³¹⁹ Lieutenant-Colonel H. Osborne Mance in discussion of M.G. Taylor, 'Land Transportation', p. 715.

³²⁰ G.D. Clarke, 'Supplying the Battlefield. British Frontline Transport in Mobile Warfare, 1918' (unpublished Masters Dissertation, University of Birmingham, 2006), p. 15.

³²¹ Wilson Papers, HHW 2/83/61 Price-Davies to Wilson, 4 July 1916.

³²² Spears Papers, 1/7/58 Interview between Generals Fayolle and Sir Henry Rawlinson at 11:15am, 9 July 1916.

³²³ WO 95/441 Census of Traffic at Fricourt Cemetery, 24 July 1916.

³²⁴ WO 95/441 Amiens-Albert Road, Census of Traffic, 24 July 1916.

the gun-spur at Dernancourt be extended towards Maricourt on what would become known as the Plateau line (after the high ground upon which Plateau station was situated).³²⁵ With further progress made in the southern sector of the British front during the first fortnight of the battle, it soon became clear that the traffic on the Dernancourt branch would be extremely heavy. A conference at Fourth Army headquarters on 15 July projected the requirements of the forces in the area at a total of thirty-five trains per day in each direction.³²⁶ Yet in contrast to the disagreements of Haig and Joffre over future operations after the battle opened,³²⁷ the task of enlarging and improving the Dernancourt spur was discussed amicably at an inter-Allied conference of railway authorities on 18 July and construction began almost immediately.³²⁸

As noted above, the Plateau line had not been designed with heavy traffic supply in mind, rather as a gun-spur for relatively small deliveries of ammunition. By 1 August however, the line was receiving heavy goods trains weighing between 600 and 800 tons. Simply moving trains on the steep, winding line required great skill on the part of the locomotive crews involved, combined with significant motive power: 'to take such a train up... required two engines in front and three behind'.³²⁹ Despite the application of a rigorous speed limit of just five miles per hour, and the installation of catch points to trap runaway trains, derailments and accidents were a frequent occurrence, interrupting the flow of traffic along the line. The time-consuming process of attaching extra engines to cope with the heavy gradient further disrupted movement on the network.

Thanks to congestion at the ports which made loading times unpredictable, the goods trains of the BEF and French Army were, unlike suburban passenger trains running to a scheduled timetable, despatched whenever they were ready. This meant that trains arrived at the Amiens bottleneck from three different directions at largely random intervals. At Camon junction, 240 trains per day were scheduled to run, intersecting one another's route at a rate of one train every six minutes. When several trains arrived at the Plateau line in quick succession,

³²⁵ WO 95/441 diary entries, 5 and 7 July 1916; Henniker, p. 128. See Appendix 4.

³²⁶ Henniker, pp. 129–31.

³²⁷ Philpott, *Anglo-French Relations*, p. 105.

³²⁸ Henniker, pp. 129–31.

³²⁹ Aves, p. 56; Henniker, p. 134.

the delay caused by the attachment of extra engines meant that those in the rear of the queue could do nothing but block the main Amiens-Albert line. Serious delays were inevitable, and not helped by what was perceived by British observers as ‘local mismanagement’ of the railway traffic by French engineers running the line.³³⁰ At Amiens, ‘eighteen miles of trains under load stood end-to-end waiting to get to railheads’.³³¹

The effects of this paralysis on the railway lines spread throughout the transport network. With so many trains held up on the way to or from the front, a lack of engines and rolling stock were returning to the base ports to collect the ever-increasing quantity of matériel arriving in France. With the railways unable to clear imports from the docks, the ports, quays and wharves became overcrowded with supplies and the unloading of ships became more difficult and less efficient. Urgently required items were buried beneath ‘mountains’ of stores (such as warm clothing for the winter) not yet required at the front.³³² This created further delays as constant stacking and re-stacking was required in order to unearth the desired goods and load them into the limited trucks available.³³³ The sustained calls for ammunition continued to take precedence over deliveries of road metal, which meant that fewer of the new railheads could be completed nor existing ones maintained. The consequences were increasing delays at the railheads, the continued sluggish unloading of trains, and further deterioration of the already worn-out road network.³³⁴ Had a major breakthrough occurred on the Western Front, it could not have been adequately sustained in such circumstances.³³⁵

The Germans had not been idle bystanders either. In response to the gargantuan artillery barrages of the early battle German tactics changed, with further negative implications for the BEF’s supply systems. Rather than remain in their own trenches which presented an obvious, static target for bombardments, German machine-gunners began to deploy in shell holes, well clear of the trench lines. This meant that British artillery could no longer direct its fire on the

³³⁰ WO 95/441 diary entry, 3 August 1916.

³³¹ J.C. Harding-Newman, *Modern Military Administration, Organization and Transportation* (Aldershot: Gale & Polden, 1933), p. 16.

³³² Granet Papers, MSS.191/3/3/51 Memorandum to Granet, p. 8.

³³³ M.G. Taylor, ‘Land Transportation’, pp. 704–5.

³³⁴ Harding-Newman, p. 47; I.M. Brown, *British Logistics*, pp. 126–7.

³³⁵ Sheffield, *Somme*, p. 68.

known and easily located trench lines, but instead had to ‘batter down a whole area of ground, using an immense quantity of ammunition to ensure the destruction of the German defenders’.³³⁶ Despite the corresponding priority afforded to it, however, the supply of ammunition was severely affected by the degrading transport situation in France. As early as 2 July the supply of ammunition was being viewed as ‘the limiting factor’ on the battlefield,³³⁷ with Haig using it to illustrate the BEF’s inability to cooperate with Joffre’s strategic vision for the battle.³³⁸ Despite attempts between the two commanders to ‘thrash out’ the logistical difficulties engendered by the development of the offensive,³³⁹ by early August it appeared that another shells crisis was imminent on the Western Front.³⁴⁰

³³⁶ Prior and Wilson, *Somme*, p. 150.

³³⁷ Haig Papers, Acc.3155/107 Note of Interview at Fourth Army HQ, Quierrieu, at mid-day, 2 July 1916, p. 2; Kiggell to Rawlinson, 2 July 1916.

³³⁸ Haig Papers, Acc.3155/107 diary entry, 3 July 1916; Note of interview between Sir Douglas Haig and General Joffre on 3 July 1916 re: direction of the British attack, 4 July 1916.

³³⁹ Haig Papers, Acc.3155/107 Haig to Robertson, 8 July 1916.

³⁴⁰ Grieves, ‘The Transportation Mission’, p. 63.

Conclusion

In the Anglophone history of the First World War, the date of 1 July 1916 has exercised a ‘tyrannical hold’ over both academic and public discourse alike.³⁴¹ Whether used as evidence of the brutality, obstinacy and inadequacy of the British high command, or the nadir from which the ‘learning process’ began, the evolution of the British war effort during the conflict has been inextricably linked to the aftermath of that day. Undoubtedly, 1916 was a transformative year for the BEF. It would see the first large-scale offensive by British forces on the Western Front and, thanks to the cumulative pressures of twenty-four months of industrial warfare on their own soil, the gradual cession of responsibility for the provision of transport to the British troops from their French hosts.³⁴² Yet although the Somme overshadows Verdun in the English-language history, it was the combined effects of these twin conflagrations that compelled the French Army to abandon the pre-war agreement between the two powers, and which ultimately led to the ‘civilianization’ of the British logistics effort in France and Flanders.

At the end of 1914, when Francis Dent and Gerald Holland became enmeshed with the military authorities at GHQ, the circumstances of undoubted French primacy in the land-based coalition; the relatively insignificant scale of British operations; and the general level of contribution asked for by the French, all of these factors combined to erect substantial barriers to the widespread implementation of industrial operating procedures within the BEF. The result was to constrict the influence of Britain’s transport experts to the periphery, and to subsequently eclipse their contributions in the voluminous literature on the conflict. By the late summer of 1916 these barriers had been eroded. The sheer scale of the Somme and Verdun as battles of materiel, combined with fundamental oversights in logistical preparation which led to dependence upon a wholly inadequate transport infrastructure, created a situation in which ‘gradually movement as a whole slowed down, and complete cessation was threatened’.³⁴³

³⁴¹ Pete Simkins, quoted in Sheffield, *Somme*, p. 73.

³⁴² Lloyd George Papers, LG/E/1/5/17 Locomotives and Rolling Stock for British Armies in France and Flanders, 24 November 1916.

³⁴³ M.G. Taylor, ‘Land Transportation’, p. 705.

For the BEF, the demands of the Somme brought into sharp focus the executive inadequacies of the first two years of the war. Those charged with managing the BEF's lines of communication had, it is true, correctly identified the challenges to be faced in the establishment, expansion, and maintenance of a mass army on foreign soil. They had also engaged with and accepted the advice of technical experts from some of Britain's largest companies. However, as the small scale and eventual abandonment of the 'Dent scheme', and the existence of the Amiens bottleneck demonstrated,³⁴⁴ the supply echelon of the BEF was unable to design and sustain a logistics system capable of responding to the unprecedented demands placed upon it. Instead, it was reactive amendments and adjustments to an inadequate system, rather than the establishment of an integrated, multi-modal transport network based on a holistic consideration of priorities and capacities, which characterized the BEF's approach to the Battle of the Somme. The appointment of David Lloyd George to the position of Secretary of State for War following the death of Lord Kitchener aboard HMS *Hampshire* would, however, change everything.

For Lloyd George, who had taken up the munitions shortage as a personal 'cause' early in the war,³⁴⁵ a scandal resembling that of 1915 would have been a source of acute personal embarrassment for a man who had been publicly critical of previous efforts to match the supply of shells to the demands of the army. Unlike in the crisis of 1915, however, Lloyd George was fully aware of the increases in shell production that had taken place since the establishment of the Ministry of Munitions. In fact, as early as September 1915 he had written to Kitchener questioning whether the French rail network would be able to handle the enormous mass of warlike stores projected to be thrown upon it in the following year.³⁴⁶ Despite his receiving reassurances at the time,³⁴⁷ events on the Somme proved unequivocally that it could not. And if the transport network in France could not cope with the offensive requirements of the Somme, how could that same network be expected to deal with the even larger quantities of matériel in

³⁴⁴ As Harding-Newman would scathingly observe of the situation at Amiens, 'no staff adequately educated in railway operation could have envisaged concentrating a quarter-of-a-million men for the purposes of battle in front of such a bottleneck. See Harding-Newman, p. 16.

³⁴⁵ R.J.Q. Adams, *Arms and the Wizard: Lloyd George and the Ministry of Munitions, 1915-1916* (London: Cassell, 1978), pp. 16–18; Strachan, 'Battle of the Somme', p. 83.

³⁴⁶ WO 107/15 Cowans to Maxwell, 10 September 1915.

³⁴⁷ WO 107/15 Maxwell to Cowans, 12 September 1915.

the process of being manufactured for the consumption of an even larger BEF in 1917 and beyond?³⁴⁸

The answer, Lloyd George believed, lay in a comprehensive re-evaluation of transport facilities in France. The goal would be to assess what resources were available, what they would be required to carry in the forthcoming battles, and what improvements would be necessary in order to ensure that the carriage of such quantities would be possible. In short, with the ‘very fate of nations [depending] on replenishing the artillery shells and machine-gun ammunition they hurled at the enemy’,³⁴⁹ guaranteeing the reliability and fluidity of the logistics network upon which those munitions travelled was now fundamental to the continuation of the war. To tackle this imposing challenge, Lloyd George did what he would later claim misleadingly that the British Army had a ‘rooted prejudice’ against doing.³⁵⁰ He turned to a civilian. Sir Eric Geddes’ transportation mission would soon begin.

³⁴⁸ TNA: PRO WO 32/5163 Appointment of Sir E. Geddes and others to investigate transport arrangements in connection with the British Expeditionary Force at home and overseas, Lloyd George to Haig, 1 August 1916; Grieves, *Sir Eric Geddes*, p. 27 highlights that this question had pre-occupied Lloyd George and Geddes prior to the opening of the Somme campaign.

³⁴⁹ R. Kanigel, *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency* (London: Abacus, 2000), p. 493.

³⁵⁰ Lloyd George, I, pp. 457–8.

Part 3: Unleashing Armageddon

*I tremble to think what our position now would have been, had I not grappled... with the whole question and brought in the best railway men from England and created a new department viz 'Transportation' under a 'Director General' to deal with it.*¹

Field-Marshal Sir Douglas Haig

On 19 November 1917, the by now Prime Minister David Lloyd George made a statement in the House of Commons during which he claimed to have acted against the advice of the military high command only twice during the war. The first case was in the ordering of 'extravagant' quantities of guns and shells whilst acting as Minister of Munitions.² The second time Lloyd George had pressed his advice 'on soldiers against their will was in the appointment of a civilian to reorganize the railways behind the lines... and [he was] proud to have done it'.³ In the *War Memoirs*, Lloyd George restated his position: firstly, that the War Office 'held the opinion that [transport issues] were purely military matters, into the sanctity of which no profane civilian must be allowed to intrude';⁴ and secondly, that 'the whole story of British achievement in the sphere of transport during the war... would reflect very high credit on those who were responsible for its development, most of all on Sir Eric Geddes'.⁵ In his final despatch in 1919, Haig also paid glowing tribute to the former Deputy General Manager of the NER:

The Director-General of Transportation's Branch was formed under the brilliant direction of Major-General Sir Eric Geddes in the autumn of 1916... To the large number of skilled and experienced civilians included by him on his Staff, drawn from the railway companies of Great Britain and the Dominions, the Army is greatly indebted for the general excellence of our transportation services.⁶

That the two principal figures in the direction of Britain's war effort, diametrically opposed in almost every aspect of their attitudes towards the war, could come together over the contribution of Sir Eric Geddes to the logistical organization of the BEF is significant. That Geddes' contribution was itself substantial is similarly beyond doubt.

¹ Haig Papers, Acc.3155/110 diary entry, 27 January 1917.

² Adams, pp. 167–8.

³ Hansard, Commons sitting of Monday, 19 November 1917, 5th series, vol. 99, col. 904.

⁴ Lloyd George, I, p. 471.

⁵ Lloyd George, I, p. 479.

⁶ D. Haig, *Sir Douglas Haig's Despatches (December 1915-April 1919)*, ed. by J.H. Boraston (London: J.M. Dent & Sons, 1919), p. 351.

Few civilians could claim to have had a larger, more important role in the organization of the BEF during the First World War. Between August 1916 and May 1917, Geddes investigated and reported upon the existing logistics network on the Western Front; created, installed, populated and directed entirely new transport management hierarchies in France and at the War Office; and bequeathed both of these organizations to civilian successors sourced from the railway companies of the British Empire. The directorates established by Geddes in the autumn of 1916 continued to operate for the duration of the conflict, supplying the men, materials and coordination required to sustain the BEF during the *Materialschlacht* of the second half of the war. From October 1916 until the Armistice, through Arras, Passchendaele, Amiens and the final battles of the hundred days, the BEF was reinforced and equipped by a logistics network comprising some of Britain's most experienced transport professionals, utilizing working practices and managerial methods which had proven themselves on the civilian transport network. Through the successful fusion of military and civilian expertise the BEF would not face a transportation 'crisis' to match that experienced on the Somme for the remainder of the conflict.

3.1: Sir Eric Geddes

Although the transportation mission to France in the summer of 1916 and subsequent developments in logistics organization have received periodic attention in the history of the First World War,⁷ a fundamental question relating to Geddes' personal involvement remains largely unexplored; why him? At the outbreak of the war, Geddes was not the senior manager of a British railway company, the role of General Manager of the NER being occupied by Sir Alexander Kaye Butterworth. Nor was he employed by the largest railway company in Britain, that being the LNWR under the stewardship of Sir Guy Calthrop. Neither, unlike the SECR's Francis Dent, had Geddes made any contribution to the existing transport infrastructure in France prior to the opening of the Somme offensive. In fact, Geddes was the Deputy General Manager of the NER, the fourth-largest railway company in Britain behind the LNWR, GWR and Midland railways, and had spent the majority of the war to that point in York and London. Yet in the summer of 1916, when the logistical demands of the Somme threatened to paralyze the transport network in northern France, it was not to Butterworth, Calthrop or Dent that Lloyd George would turn, but to the thirty-nine year old Geddes.

The historical literature on Sir Eric Geddes owes much to the work of Keith Grieves. Geddes has been the subject of a biography, three chapters of which deal with the war years, complemented by a chapter-length discussion of the transportation mission to GHQ and an article outlining Geddes' focus 'on problems whose unravelling was vital if the efficiency of the war effort was to be sustained' during the period 1915-1918.⁸ However, Grieves' biography dedicates just nine pages to Geddes' life between 1875 and 1914. A thorough assessment of the formative experiences and distinctive career path taken by Geddes prior to the outbreak of the war uncovers a man on an unequivocal ascent to the peak of his profession; a talented and resourceful figure on an upward trajectory that was redirected from private enterprise to the service of the state only as a result of the conflict. Furthermore, a focus upon Geddes' life and work before the war not only reinforces the existence of close professional relationships

⁷ Grieves, 'The Transportation Mission'; Grieves, *Sir Eric Geddes*, pp. 27-39; I.M. Brown, *British Logistics*, pp. 139-51; Henniker, pp. 183-92, 200-11.

⁸ Grieves, *Sir Eric Geddes*; Grieves, 'The Transportation Mission'; K. Grieves, 'Improvising the British War Effort: Eric Geddes and Lloyd George, 1915-18', *War & Society*, 7:2 (1989), 40-55 (p. 51).

between the government, the military and the railways prior to 1914,⁹ it also confirms Grieves' conclusion that Geddes was not a 'discovery' of the Prime Minister.¹⁰ The name of Eric Geddes was well known to some of the highest political and military authorities in Edwardian Britain long before the summer of 1916. By the summer of 1917, Geddes would be a recognized name to the 'general newspaper reader' as well.¹¹

'No doubt a remarkable man': the early career of Sir Eric Geddes¹²

Born at Agra, India, in 1875, Eric Campbell Geddes was the eldest son of a Scottish civil engineer. Having originally set sail for the east in 1857, Campbell Geddes had been engaged by the government on survey and construction work for the Indian railways before entering into private practice.¹³ Although Geddes Sr. was part of what Buchanan described as 'the diaspora of British engineering' during the nineteenth century,¹⁴ the family would move to Edinburgh a year after Eric's birth. Following a disruptive childhood in which he was 'asked to leave' a succession of public schools, Geddes was eventually placed in the Oxford Military College at Cowley. His studies were ultimately competent enough for him to pass the preliminary examination for entry into Woolwich, yet despite the opportunity to follow in his father's footsteps (albeit along the military rather than civil engineering path) the impetuous young Geddes would instead 'set sail on a passenger liner for New York with ten pounds... and an introduction to family friends in Pittsburgh'.¹⁵ The army's short-term loss would be its long-term gain.

Over the next twenty years Geddes would accumulate the breadth of knowledge and experience required for the various tasks he would be called upon to undertake during the First World War, beginning in his two-and-a-half year spell in the United States. During this time Geddes performed a variety of jobs, from selling typewriters for Remington to labouring at

⁹ See above, chapter 1.2.

¹⁰ Lloyd George Papers, LG/F/18/4/36 Lloyd George to Geddes, 24 February 1922; Grieves, 'Improvising the British War Effort', p. 40.

¹¹ TNA: PRO ZPER 39/41 'British Railway Service and the War', *Railway Magazine*, 41 (1917), p. 186.

¹² The quote refers to the impression Geddes left on the British military attaché in Paris, Colonel Herman Le-Roy Lewis, following their first meeting. See Lloyd George Papers, LG/E/3/14/29 Le-Roy Lewis to Lloyd George, 22 November 1916.

¹³ Geddes, pp. 89–104.

¹⁴ R.A. Buchanan, 'The Diaspora of British Engineering', *Technology and Culture*, 27:3 (1986), 501–24.

¹⁵ Grieves, *Sir Eric Geddes*, pp. 1–2.

Andrew Carnegie's steel works.¹⁶ It is the identities of the employers in these cases which are largely more significant than the menial roles being performed by Geddes on their behalf. Both Remington and Carnegie were innovative businesses, operating at the forefront of the new systematic management ideology that was spreading across America and into Europe at the turn of the century. Remington had been among the first private enterprises to experiment with modern office equipment such as the typewriter, and had also been swift to adopt the card index as a management tool following its transition from the library sector.¹⁷ Carnegie's Pittsburgh steel works possessed a global reputation for the 'perfection' of its organization.¹⁸ Whether the experience gave Geddes similar insights into labour conditions as those gained by the scientific management pioneer Frederick Winslow Taylor during his own period on the 'shop floor' is unclear due to an absence of surviving records.¹⁹ However, the period at Carnegie's undoubtedly contributed towards Geddes' awareness of the role of labour within large and increasingly complex businesses, organizations in which relations between the workforces and their managers had become increasingly 'distant and impersonal' as the quantities of men and machines employed had multiplied.²⁰ Although Geddes managed in a period when managerial positions were becoming increasingly taken by men whose characteristics denoted the 'initial advantages of birth and education' rather than by those who progressed from the shop floor,²¹ throughout his career Geddes would extol the virtue of labour work for giving the budding manager 'sympathy with the point of view of the working man, the value of which cannot be exaggerated'.²²

¹⁶ Geddes would also try his hand during this period as a bar tender and theatrical agent among other duties. See Grieves, *Sir Eric Geddes*, p. 2.

¹⁷ M. Krajewski, *Paper Machines: About Cards and Catalogs, 1548-1929*, trans. by P. Krapp (Cambridge, MA: MIT Press, 2011), pp. 105–6.

¹⁸ G. Brown, *Sabotage: A Study in Industrial Conflict* (Nottingham: Bertrand Russell Peace Foundation for Spokesman Books, 1977), pp. 121–2.

¹⁹ Taylor's experience of the 'battle' between labour and management over the implementation of new working practices is covered in Kanigel, pp. 151–230.

²⁰ D. Nelson, 'Scientific Management, Systematic Management, and Labor, 1880-1915', *The Business History Review*, 48:4 (1974), 479–500 (p. 480).

²¹ As Gourvish has noted, before 1890 no general manager of a British railway company had attended university. After 1890, there would be eight graduates appointed to the position, with five of them among the eighteen appointments made after 1910. See Gourvish, 'A British Business Elite', pp. 293–7; T.R. Gourvish, 'The Rise of the Professions', in *Later Victorian Britain, 1867-1900*, ed. by T.R. Gourvish and Alan O'Day (Basingstoke: Macmillan Education, 1988), pp. 13–35 (p. 29).

²² Geddes writing in 1915 to Agnes Ferguson, quoted in Grieves, *Sir Eric Geddes*, p. 2.

America would also bring Geddes into contact with the industry which would become his ‘religion’, and one which would interest him ‘more than anything else’: transport.²³ The young man clearly showed an aptitude for the profession too, progressing from the position of station agent at a lumber-loading station in Virginia, through to assistant yardmaster in a freight yard of the Baltimore and Ohio railroad, and, with further promotions, to the role of car tracer for the southern group of railroads known as the ‘Big Four’. As Chandler has demonstrated, the American railways of the period were pioneers in modern management techniques, having faced up to the challenges associated with efficiently handling large numbers of men, money and materials within a single business unit earlier than the huge industrial concerns such as those created by Carnegie and Henry Ford.²⁴ Although illness impaired Geddes’ ability both to continue climbing the managerial ladder and to further absorb the methods and working practices of America’s blossoming corporations (he would return to Edinburgh in August 1895), the United States had provided Geddes with skills which would prove invaluable the next time his ‘volcanic energy’ became too large to be constrained by the British Isles.²⁵ This time, however, he would follow in his father’s footsteps by travelling east, to India.

Building upon his experience gained in the Virginia lumber yards, and with the aid of family contacts, a post was secured for Geddes managing a forest clearance project in the Himalayas. Part of the job called for the building of a light railway system which was linked up to the Powayan Steam Tramway. Geddes oversaw the construction and became responsible for the management of the network, the efficiency of which so impressed an agent of the Rohilkund and Kumaon Railway [RKR] (who also happened to be a former employee of Geddes’ father) that the company assumed control of the line and retained Geddes to run it. Thence began Geddes’ second rise in the railway industry, along with marriage to Alice Gwendoline Stokes, the sister of an Indian Army officer.²⁶ Geddes became Traffic Superintendent for the RKR in 1901, moving to the prominent railway junction at Bareilly. His wife’s ill health led Geddes to

²³ Geddes to Lord Riddell, 28 August 1919, quoted in K. Grieves, ‘Sir Eric Geddes, Lloyd George and the Transport Problem, 1918-21’, *Journal of Transport History*, 13:1 (1992), 23–42 (p. 31).

²⁴ A.D. Chandler, ‘The Railroads: Pioneers in Modern Corporate Management’, *The Business History Review*, 39:1 (1965), 16–40 (p. 16).

²⁵ Geddes, pp. 126, 202.

²⁶ The officer in question was Colonel Claude Stokes, who would serve as military attaché in Tehran between 1907 and 1911, and in the Mesopotamia Expeditionary Force during the war.

seek employment with a British railway company during 1903, but his lack of success would bring Geddes into close re-acquaintance with the army the following year. On this occasion, he would get the opportunity to showcase his burgeoning talents as a railway administrator to none other than Lord Kitchener himself.

The catalyst for the meeting between Geddes and Kitchener was the outbreak of the Russo-Japanese War in February 1904. Upon the declaration of hostilities, the Russians began deploying troops to their frontiers in order to meet any force Britain might have been compelled to send north from India in support of her Japanese ally.²⁷ The build-up of soldiers on the Afghan border fed into longstanding British concerns over Russian intentions on the north-west frontier, leading to a call being made upon the Indian railway network to convey an all-arms force to the area as quickly as possible.²⁸ With several lines intersecting in the city of Bareilly, the junction formed a key component of any large-scale troop movements and placed a significant responsibility upon the RKR to ensure a smooth concentration. The efficiency with which the scheme was realized so impressed Kitchener, himself an expert in the use of military railways from his campaigns in Africa, that he requested to meet and congratulate Geddes, the man responsible for devising the programme.²⁹ Contact between the two would be rekindled a decade later, but in the meantime Geddes once again took advantage of family connections to obtain employment. In late 1904 Geddes would become Claims Agent at the NER, under the management of Sir George Gibb. For the next ten years, the structure and working practices Gibb had created on the NER would play a critical role in developing Geddes into the recognized transport expert he would become prior to the outbreak of the First World War.³⁰

²⁷ P. Towle, 'The Russo-Japanese War and the Defence of India', *Military Affairs*, 44:3 (1980), 111–17 (p. 112).

²⁸ Haig Papers, Acc.3155/2D diary entries, 13 June to 3 October 1904 provide periodic references to Kitchener's concern over mobilization questions during this time, and demonstrate Haig's own appreciation of the importance of logistical aspects.

²⁹ R.J. Irving and R.P.T. Davenport-Hines, 'Geddes, Sir Eric Campbell (1875-1937)', in *DBB*, ed. by Jeremy, II, 507–16 (pp. 507–8).

³⁰ R. Bell, *Twenty-Five Years of the North Eastern Railway, 1898-1922* (London: Railway Gazette, 1951), p. 30.

Sir George Gibb, the North-Eastern Railway and modern management

The NER provided the organizational culture within which Geddes obtained the majority of his pre-war management experience. It is therefore essential to establish how the company itself operated, and what lessons the NER's particular approach to business management would impart upon Geddes during his years of employment there. From the 1870s onwards, Britain's railway companies had confronted increasingly difficult operating conditions caused by factors such as rising expenditure on resources such as labour and coal, augmented by parliamentary controls designed to check opportunities for the railways to raise prices for customers.³¹ This restrictive legislative environment produced an industrial atmosphere in which efficient operating procedures were therefore vital to sustain the profitability of the railways. However, contemporary observers such as William Acworth and George Paish suggested that British railway companies were on the whole unresponsive, and their managers too conservative, to cope with the challenges facing them. Such commentators were particularly disparaging in their comparisons between the performance of British railway managers and their American counterparts, men among whom Geddes had gained his first, albeit brief, taste of the railway industry.³²

Thanks to the progressive attitude of George Gibb, however, the NER was not considered part of this trend. Instead, the NER was held up as one of the 'too few' British companies to have taken advantage of the lessons provided by the innovative railways of the United States in order to revolutionize their own working practices and organizational systems.³³ Having taken up the post of General Manager in 1891, Gibb was convinced that the NER's managerial framework was defective, and that 'there were few men in the higher grade of management who could give him a critical assessment of operating procedures which had

³¹ D.H. Aldcroft, *Studies in British Transport History, 1870-1970* (Newton Abbot: David & Charles, 1974), p. 34; G. Alderman, 'The Railway Companies and the Growth of Trade Unionism in the Late Nineteenth and Early Twentieth Centuries', *The Historical Journal*, 14:1 (1971), 129-52 (pp. 131-8).

³² W.M. Acworth, 'Railway Economics', *The Economic Journal*, 2:6 (1892), 392-98; Paish, pp. 5-6, 14-15.

³³ That 'too few' British businesses matched the 'best practices' employed in other countries is the central argument of Keeble's survey of the period. See S.P. Keeble, *The Ability to Manage: A Study of British Management, 1890-1990* (Manchester: Manchester University Press, 1992).

remained basically unchanged for at least thirty years'.³⁴ The traditional practice of promotion from within, and the lack of professional education available for managers, had created an executive branch which suffered from a narrowness of vision and a deficiency of original thought. The similarities to Lloyd George's criticisms of the 'military mind' are clear.

Gibb's response to such insularity of experience was encapsulated in the creation of a Traffic Apprenticeship Scheme, which sought out 'young blood, some of it not long out of the universities', as well as those from within the industry who displayed potential for higher appointments.³⁵ The first recruit, Ralph Wedgwood, typified the class of 'outsider' Gibb wished to attract. A descendent of the famous pottery family, Wedgwood possessed no experience of the railway industry prior to his enrolment on the scheme, having studied Classics at Cambridge before his arrival in York.³⁶ By the time Geddes arrived in 1904, the Traffic Apprenticeship Scheme was offering a carefully planned, comprehensive introduction to the NER's operating procedures. The scheme was 'designed to allow the employee to move around the system experiencing the work of various grades of labour, as well as that of supervisory and management levels'.³⁷ Rather than rely upon traditional, haphazard methods of learning by experience, Geddes received the benefits of a planned introduction to managerial 'best practice' upon entry to the company. A management culture emerged upon the railway which was diffused throughout the multitude of departments within which 'graduates' of the scheme found employment, reducing the need for overwhelming and time-consuming central control. Senior managers were thereby relieved of administrative duties which could be confidently devolved upon talented juniors, allowing those at the top to concentrate on the consideration of broader questions of policy and procedure within the hostile competitive environment of turn-of-the-century Britain.

³⁴ R.J. Irving, *The North Eastern Railway Company, 1870-1914: An Economic History* (Leicester: Leicester University Press, 1976), pp. 214–15.

³⁵ Irving, pp. 215–16. Gibb would also be a prominent figure in the establishment of careers guidance services for graduates from Cambridge. See L. Waters and others, *'A Work Worthy of the University': A Centenary History of Cambridge University Careers Service* (Cambridge: Cambridge University Careers Service, 2002), p. 7.

³⁶ Wedgwood would go on to become the Chief Goods Manager of the NER in 1912, and his work as Director of Docks in the BEF will be discussed further below.

³⁷ T. Strangleman, 'Railway and Grade: The Historical Construction of Contemporary' (unpublished Doctoral Thesis, Durham University, 1998), p. 45.

Concerned by the escalation of working costs, and unable to pass many of these expenses onto consumers in the form of higher prices, Gibb sought instead to reduce working expenditure and increase productivity within the company through a relentless focus on improving efficiency. To this end, he set in motion a detailed reassessment of the operating methods, organization, and information systems employed by the NER, based upon lessons acquired during a month-long tour of the United States.³⁸ Alongside the management ‘hustle’ of the Americans, which Geddes himself had experienced during his own time across the Atlantic,³⁹ the tour demonstrated to Gibb the potential benefits of using different forms of statistical analysis as management tools to those traditionally produced by British railway companies. It was a conviction Gibb would circulate within the trade press, to parliamentary committees, and in discussion with the Royal Statistical Society for the rest of the pre-war period.⁴⁰ Gibb passionately advocated the use of statistics for allowing

a railway manager to test the work done in carrying passengers and merchandise on any part of the railway, to measure the work performed in relation to many important items of cost incurred in performing it, to compare period with period and district with district, to supervise local staff with a full knowledge of results, to control train mileage, and to enforce economy in working.⁴¹

Comprehensive statistics, disseminated throughout the company, were used to ‘found judgments, to make policy decisions and to establish standards which would enable officials to watch and control the effects of the steps being taken to improve working methods’.⁴² In collaboration with the statistician George Paish, Gibb oversaw the opening of a Traffic Statistics Office in York in 1902 to ‘pioneer and promulgate the use of new statistical concepts for operational measurement, control and efficiency’.⁴³ A highly publicized event, the opening of the office was a physical manifestation of the company’s abandonment of old-fashioned, ‘rule-of-thumb’, experience-led management, and the embrace of new methods of control founded upon scientific knowledge gained through the collection, dissemination and interpretation of reliable, regularly collected data streams.

³⁸ W.W. Tomlinson, p. 731.

³⁹ Grieves, *Sir Eric Geddes*, p. 2.

⁴⁰ W.M. Acworth, ‘English Railway Statistics’, *Journal of the Royal Statistical Society*, 65:4 (1902), 613–64 (pp. 652–4).

⁴¹ W.W. Tomlinson, p. 732.

⁴² Irving, pp. 218–19.

⁴³ R.J. Irving, ‘Gibb, Sir George Stegmann (1850-1925)’, in *DBB*, ed. by Jeremy, II, 543–45 (p. 545).

The NER was not the only company to undertake a ‘pilgrimage’ to the United States during this period,⁴⁴ nor were such fact-finding missions restricted to the railway industry. Thousands of engineers from various organizations crossed the Atlantic in the early twentieth century to examine American working practices, fostering a wide-ranging discussion of the merits and weaknesses of US methods prior to the First World War.⁴⁵ But the NER was one of very few British railways to adopt the so-called ‘American practice’ of using statistical data as the driving force behind root and branch reform of their operating procedures. In fact, some railway companies were downright hostile to the efficacy of the ton-mile statistics which provided the foundation of the NER’s restructure, despite their successful use on both American and Indian railways.⁴⁶ It is highly likely that Geddes, having had experience on the railways of both nations, was at least familiar with the compilation and application of such statistics prior to his arrival at the NER. However, the chairman of the LNWR, in a particularly scathing criticism, stated that ‘in his opinion such statistics were worthless and absolutely useless’.⁴⁷

Such dismissive attitudes, in spite of Gibb, Paish and Acworth’s unrelenting advocacy, have been held up as evidence of the inherent conservatism of British railway administrators in the early twentieth century.⁴⁸ Although the present study is not the place to reassess this debate in depth, not all companies rejected Gibb’s approach on the grounds of reluctance, either to provide the necessary funds to create the machinery for statistical accumulation, or to depart from ‘trusted’ operating procedures.⁴⁹ A compelling reason for the NER’s ability to apply the

⁴⁴ In addition to Francis Dent’s trip noted above (chapter 2.2), Sir Sam Fay, then General Manager of the LSWR, visited North America on behalf of that company in the early 1900s. The Chief Inspector of Railways, Lieutenant-Colonel Horatio Yorke, also undertook a wide-ranging examination of American railways on behalf of the Board of Trade in 1903. See J. Simmons, ‘Fay, Sir Samuel (1856-1953)’, in *DBB*, ed. by Jeremy, II, 328–31 (p. 329); TNA: PRO RAIL 1053/244 Visit to America: Report by Lieutenant-Colonel Yorke, Chief Inspecting Officer of Railways; M. Robbins, *The Railway Age*, 3rd edn (Manchester: Mandolin, 1998), p. 119.

⁴⁵ Whitston, ‘Reception of Scientific Management’, p. 209.

⁴⁶ G.L. Boag, *Manual of Railway Statistics* (London: Railway Gazette, 1912), p. 7; S.C. Ghose, *Lectures On Indian Railway Economics*, 3 vols. (Calcutta: University of Calcutta Press, 1927), I, pp. 90–4.

⁴⁷ Aldcroft, p. 48.

⁴⁸ H.J. Dyos and D.H. Aldcroft, *British Transport: An Economic Survey from the Seventeenth Century to the Twentieth* (Leicester: Leicester University Press, 1969), pp. 186–7.

⁴⁹ *Departmental Committee on Railway Account and Statistical Returns. Report of the Committee Appointed by the Board of Trade to Make Inquiries with Reference to the Form and Scope of the Accounts and Statistical Returns Rendered by Railway Companies under the Railway Regulation Acts*, Cd. 4697, 1909, LXXXVI.705. Different approaches to the challenging working conditions facing the pre-war railways are illustrated in R. Edwards, *Instruments of Control, Measures of Output: Contending Approaches to the Practice of ‘Scientific’ Management on Britain’s Railways in the Early Twentieth*

‘ton-mile’ more effectively than other companies lay in the unique composition of the NER’s business in comparison to its rivals. Comprising a territorial monopoly over the industrial regions of Tyneside, the coalfields of Yorkshire and many of England’s north-eastern ports, the NER – unlike the majority of British railway companies – derived a majority of its income from the carriage of goods traffic rather than passengers.⁵⁰ The NER therefore gave Geddes experience of the particular requirements of managing a railway network upon which bulky freight operations comprised a large and important share of the company’s business. To recall Mackinder’s maxim: the efficient, economical movement of goods was critical for the accumulation of profits on the NER, and with the BEF’s soldiers treated as commodities to be moved to one place rather than ‘commuters’ to be transported to a range of destinations each day, would also prove vital for the concentration of power on the Western Front. The ‘worthless’ ton-mile would provide the foundation both for Geddes’ reorganization of transport in France, and the statistical framework upon which the post-war Ministry of Transport was constructed.⁵¹

In five years as Chief Goods Manager at the NER between 1907 and 1912, Geddes obtained a significant appreciation of the challenges involved in freight rail operations. And, despite the testing working environment referred to above, the period was one of great prosperity for the company. Between 1899 and 1912, the NER improved its earnings per freight train by eighty-seven per cent. The improvement was due in large part to the application of methods derived from statistical analysis, which led to ‘more work being done but [by] fewer trains all round, thus giving greater line capacity throughout the system... a smaller number of engines employed, economy in rolling stock, repairs, renewals, and... staff’.⁵² Utilizing the data prepared by another graduate of the Traffic Apprenticeship Scheme (and Geddes ‘indefatigable

Century (Southampton: University of Southampton School of Management, 2000). Edwards is dismissive of Dyos and Aldcroft’s pessimistic conclusions regarding the responsiveness of British railway managers in the period. For a similar argument, based on a broader survey of British industry as a whole, see D. Edgerton, *Science, Technology and the British Industrial ‘Decline’, 1870-1970* (Cambridge: Cambridge University Press, 1996).

⁵⁰ Irving, pp. 13–14.

⁵¹ J.G. Beharrell, ‘The Value of Full and Accurate Statistics: As Shown under Emergency Conditions in the Transportation Service in France’, *Railway Gazette: Special War Transportation Number*, 21 September 1920, p. 39; M. Campbell-Kelly, ‘The Railway Clearing House and Victorian Data Processing’, in *Information Acumen*, ed. by Bud-Frierman, pp. 51–74 (p. 69).

⁵² Irving, pp. 241–5.

assistant' for the rest of their professional lives) J. George Beharrell,⁵³ and through the maintenance of a dynamic, enterprise-promoting office, by 1912 the goods train mileage of the NER stood at roughly the same level as it had been in 1906. Over the same period, however, the gross tonnage hauled had increased considerably. Through the implementation of more efficient loading and marshalling practices, the receipts per goods train mile on the NER rose from 75.20*d.* in 1900 to 132.91*d.* in 1912.⁵⁴ Not only had his five years in the Goods Department prepared Geddes for the wartime challenge of an army requiring colossal quantities of work to be performed by a limited pool of human and material resources, it also, in much the same way as Francis Dent's reorganization of Broad Street had done in 1902, marked out Eric Geddes as the 'coming man' in the British railway industry. Consequently, in 1912 Geddes was offered the position of Deputy General Manager, a title he would hold until the outbreak of war two years later.

Geddes' appointment to this new role was made not only as a reward for his achievements in the Goods Department, but also to ensure that the NER retained his services. News of Geddes' talents had spread throughout the industry, with companies foreign and domestic making overtures for his services. The Buenos Aires Southern and Western Combine and the LSWR both attempted to lure Geddes away from York with the title of General Manager and the promise of a wage increase.⁵⁵ However, such was Geddes' standing within the NER that his salary was renegotiated alongside his change of job. Upon becoming Deputy General Manager therefore, Geddes became the highest paid railway official in Britain. It was a decision that the NER, according to one of its directors, 'never regretted'.⁵⁶ Furthermore, with the incumbent General Manager, Alexander Kaye Butterworth, scheduled to retire in 1916, Geddes' meteoric rise to the peak of the industry appeared to have had its trajectory mapped out. Yet Butterworth, or more precisely Butterworth's religious proclivities, would also play a role in reintroducing Geddes to the institution he had almost joined after leaving school, briefly assisted during his time in India, and for whom his brother-in-law was the subject of

⁵³ Bell, p. 39.

⁵⁴ Grieves, *Sir Eric Geddes*, pp. 6–7.

⁵⁵ Grieves, *Sir Eric Geddes*, p. 7.

⁵⁶ Lloyd George Papers, LG/D/1/2/2 Bell to Lloyd George, 30 May 1915.

contemporary gossip between some of the highest ranking members of the profession;⁵⁷ the army.

Eric Geddes' military connections in peace and war, 1912-1916

Upon taking the position of General Manager in 1906, Butterworth also received a commission into the ERSC. However, Butterworth's religious persuasions (his father George had been a vicar at St. Mary's parish church in Deerhurst) sat uneasily with this quasi-military status, and he resigned from the corps in January 1907. For the following six years the NER would be represented on the ERSC by the company's engineer, Charles Harrison (commissioned in 1900) and Traffic Superintendent, Henry Watson (commissioned in 1910). There was, however, no representative of the General Manager's office. The rules of qualification were explicit in only permitting appointments to the corps to general managers. Yet upon Geddes' appointment as Deputy General Manager, and in a further demonstration of the NER's long-term expectation that Geddes would ultimately step up to the top job, Butterworth began to lobby for the entry criteria to be relaxed. As a result, on 27 January 1913 Geddes obtained his commission and became Lieutenant-Colonel Eric Geddes, the only Deputy General Manager of a railway company to gain admission to the ERSC prior to August 1914.⁵⁸

The NER had a further operational link to the army. As noted above, the mobilization programme for the BEF 'assumed very large proportions, the tables to be prepared and the mass of details to be dealt with involving an amount of labour greatly in excess of what had previously been necessary'.⁵⁹ The critical process of coordinating the thousands of individual railway movements required to mobilize the BEF called for a systematic distribution of the necessary labour. Consequently, a network was created to link the major railway company in each of the territorial commands with the local army headquarters, to act as a 'secretary railway' under the overall supervision of the LSWR. In the northern command, under the future Field-Marshal Sir Hubert Plumer, the NER was the obvious choice. Not only did the NER possess a near monopoly over the traffic passing through the northern command's jurisdiction, but the

⁵⁷ Wilson Papers, HHW 2/70/7 Haig to Wilson, 2 August 1911.

⁵⁸ Townsend, p. 45.

⁵⁹ Pratt, I, p. 16.

NER's head office in York was located just over a mile from Plumer's headquarters. Geddes' company was therefore closely connected to the detailed, demanding requirements of the military. Although no documentary evidence has been found which links Geddes explicitly to the NER's contribution to the 'W.F.' scheme, it would be surprising if the man who had prepared large-scale troop movements for Kitchener in 1904 had not passed on the benefits of his previous experience to facilitate the development of the BEF's mobilization timetables. What is clear, however, is that in line with his position as 'General Manager designate' at the NER, Geddes took on a significant amount of army-related work in London on Butterworth's behalf.⁶⁰ Geddes regularly attended REC meetings on behalf of his chief and, as a consequence, by the time war broke out Geddes' name was already 'well known' within the walls of the War Office.⁶¹ Although Butterworth would take up the REC duties commensurate with his role in the opening days of the conflict, the War Office would also not have seen the last of Eric Geddes.

The pre-war career of Eric Geddes reinforces the claims made in the first section of this thesis. The professional link between the army and the railway companies was embodied by Geddes' experiences in India and at the NER. Yet the civility within which the voluntary officers of the ERSC and the professional soldiers met for their annual dinner at the War Office appeared for Geddes to have been extinguished with the outbreak of war in Europe. In August 1914, Geddes approached the War Office with the idea of raising a battalion of skilled railwaymen of all grades for service in France. His approach was rebuffed by the Director of Movements, Brigadier-General Richard Montagu-Stuart-Wortley, with Geddes being 'told that the military railway personnel were competent to deal with the situation in France and that railway units were not wanted'.⁶² Reflecting upon the incident, and no doubt coloured by the manner in which relations between Geddes and Stuart-Wortley developed during the war, the NER man later claimed that the rejection was due to the 'military machine' at that time not being prepared to accept civilian specialists within its ranks.⁶³ However, Stuart-Wortley's

⁶⁰ Grieves, *Sir Eric Geddes*, p. 10.

⁶¹ Pratt, I, p. 45; Lloyd George Papers, LG/D/1/2/1 Butterworth to Lloyd George, 27 May 1915.

⁶² Geddes' introduction in J. Shakespear, *A Record of the 17th and 32nd Service Battalions Northumberland Fusiliers, N.E.R. Pioneers, 1914-1919*, ed. by H. Shenton Cole (Newcastle-upon-Tyne: Northumberland Press, 1926), p. xiii.

⁶³ Geddes' introduction in Shakespear, p. xiii.

response was more a reflection of the pre-war agreement between the British and French staffs which saw the task of providing logistical support to the BEF devolved entirely upon the French Army to fulfil. Unfortunately, the legacy of this misunderstanding, as demonstrated by Geddes' reference to it twelve years later, would needlessly politicize the transportation mission in the summer of 1916.

Undeterred by this perceived snub from the War Office, Geddes turned his attentions to the answering of Kitchener's call for volunteers by helping to raise a battalion from among the NER's staff. The creation of what became the 17th (Service) Battalion (NER Pioneers) of the Northumberland Fusiliers, which would be equipped with uniforms relatively quickly in comparison to other locally raised units, brought to Geddes' attention the complexities associated with feeding, housing and administration that would be of paramount importance to the supply services on the Western Front.⁶⁴ And whilst Butterworth had resumed his position on the REC in August 1914, the multitude of logistical concerns generated by the opening months of the war intensified pressure on the committee to delegate the work of investigating potential transport issues to sub-committees of trusted senior officials. Geddes would therefore have the opportunity to remain directly involved in the expanding war effort, playing an active role on one such sub-committee tasked with the organization of civilian labour in and around London in the event of an emergency arising.⁶⁵ The priorities of governmental decree had by now firmly supplanted commercial imperatives as the driving force behind operations on the NER, which meant Geddes' skills as an enterprising manager were no longer of paramount importance to the day-to-day running of the business.⁶⁶ This meant that Geddes was free to undertake duties more suited to a man of his talents, and his former mentor Sir George Gibb was quick to recommend Geddes for more 'hands on' work in support of the forces in France.⁶⁷

⁶⁴ Simkins, pp. 91, 250, 269; Bell, p. 52; Shakespear, pp. 1–14. The *Railway Gazette* would later claim that the speed with which the battalion was 'enlisted, housed, clothed and equipped' was due to Geddes' 'capacity for organization'. See 'North-Eastern Railway Battalion. A New Chapter in the Relation of Railways to Warfare', *Railway Gazette*, 14 March 1919, p. 493.

⁶⁵ Pratt, I, p. 91.

⁶⁶ Lloyd George Papers, LG/D/1/2/1 Butterworth to Lloyd George, 27 May 1915; Bell, pp. 57–8.

⁶⁷ Irving and Davenport-Hines, II, p. 508.

Following on from Sir Percy Girouard's investigations into the administrative structure of the BEF's supply echelons, over Christmas 1914 Kitchener summoned the railway organizer he had first encountered a decade previously in northern India to the War Office. What followed has been presented as evidence of the insular and protective nature of the military 'family', closing ranks to avoid the criticisms of outsiders. This perception stems mainly from the account given in the Geddes' family chronicle, which states that Kitchener proposed sending Geddes to France in order to 'see what was wrong' (as Lloyd George would do eighteen months later), but that the mission was vetoed by the QMG, Sir John Cowans:

Eric realised... that such a mission would be hopeless unless he had the good will of the soldiers; and, from the way in which Lord Kitchener, in Eric's presence, sprang the proposal on a totally unprepared QMG, it was obvious that the officer must think Eric had already passed adverse judgment on his department's handling of railway transport. In such circumstances good will would inevitably be lacking.⁶⁸

As Cowans was a fellow Rifle Brigade officer and close friend of Stuart-Wortley's, Geddes himself would suggest to Lloyd George after the war that it was personal jealousy and professional 'demarcation' that led to the abortion of any possible transportation mission in January 1915.⁶⁹ Unsurprisingly, given the subsequent success of Geddes' work on the Western Front, Cowans' biographers makes no reference to the event.⁷⁰ Cline has also suggested that the NER's reluctance to release Geddes played a part in the project being abandoned.⁷¹ However, on the basis of the company's proactive recommendation of Geddes in 1915, when Lloyd George was looking to populate the Ministry of Munitions, this conclusion appears to be unlikely.

It would be unfair to suggest that this episode was purely a case of rhadamanthine military attitudes to civilian assistance, as Geddes later asserted. Cowans had been a significant early promoter of the potential benefits of civil-military cooperation in the sustenance of the

⁶⁸ Geddes, p. 222.

⁶⁹ TNA: PRO MUN 9/35 Lloyd George Papers. War Memoirs: Drafts. 'Sir Eric Geddes'. A handwritten, undated note in this file suggests that Kitchener's project fell through due to the QMG's department claiming responsibility for railway organization in France; Grieves, 'The Transportation Mission', p. 71.

⁷⁰ D. Chapman-Huston and O. Rutter, *General Sir John Cowans, G.C.B., G.C.M.G.: The Quartermaster-General of the Great War*, 2 vols. (London: Hutchinson & Co., 1924).

⁷¹ Cline, p. 77.

army,⁷² whilst at the same time as Geddes was being ‘rebuffed’, Francis Dent was busy examining potential efficiencies at Boulogne and Gerald Holland was drawing together the civilian technical experts who would dominate the senior appointments in the Department of IWT. Both illustrated the army’s receptiveness to specialist, non-military advice in early 1915. The key differences between the Dent scheme and the proposed Geddes mission were of scale and control. The Bassin Loubet was one dock, with responsibility for the unloading of ships and the operation of the docks under the control of the BEF. The French railways, however, were still very much under the control and direction of the French authorities, and would remain so until the strains of Verdun and the Somme overstretched the extant organization.

Under such circumstances, and considering the colossal workload placed before Kitchener (exacerbated by the Secretary of State’s reluctance to delegate much of the responsibility for raising, equipping and feeding the army he was in the process of constructing): the embryonic stages of what would become the Gallipoli campaign; the relatively miniscule size of the demands being placed upon the lines of communication in France; and the continued adherence to the pre-war agreement with the French over responsibility for the maintenance and management of the French railway network, it was perhaps understandable that arguing for another transportation mission in the wake of Girouard’s investigation did not rank as a high priority for Kitchener in early 1915.⁷³ Furthermore, the trench warfare which had developed on the Western Front over the winter was still, at that point, considered to be a temporary anomaly; manoeuvre warfare was widely expected to recommence in the spring. Until the French indicated a willingness to share the burden of supplying the BEF, and until the character and duration of the ‘static war’ had been accurately comprehended, it would seem reasonable to suggest that the military authorities believed there was little Geddes could offer to the British military effort at that time.

Just a few months later, Geddes’ opportunity to apply his business skills to the war effort would arrive. In April 1915, Lieutenant-Colonel Eric Geddes, commissioned officer in the

⁷² The administration of Deptford Cattle Market by a combination of soldiers and businessmen was looked upon as a particularly successful hybrid organization in Britain at this time. See Chapman-Huston and Rutter, II, pp. 55–6.

⁷³ Grievs, ‘Improvising the British War Effort’, p. 42.

ERSC, pre-war contributor to the REC on behalf of one of Britain's largest employers,⁷⁴ and a man 'well known' both at the Board of Trade and the War Office, was 'discovered' by Lloyd George. Upon receiving a 'glowing account' of Geddes' abilities from Sir Edward Grey, a former director of the NER,⁷⁵ Lloyd George supposedly interviewed Geddes with a view to utilizing his talents in the newly formed Ministry of Munitions. Although he admitted to knowing nothing about the production of munitions, Geddes claimed to have 'a faculty for getting things done'.⁷⁶ This conviction was enough, according to Geddes family folklore, for Lloyd George to make him head of a department in the nascent Ministry.⁷⁷

In fact, Geddes was first interviewed by Christopher Addison as part of the 'man-grabbing' process involved in the Ministry's formation.⁷⁸ Addison's first impression, that Geddes appeared to be 'first rate', was supplemented by positive references forwarded to Lloyd George by Grey, Butterworth, Sir Hugh Bell, and the NER's chairman, Lord Knaresborough. Further positive reports were received shortly after from within the Board of Trade and from Sir Percy Girouard.⁷⁹ Each confirmed what Geddes' pre-war career had demonstrated in detail; that he was a successful administrator of large, complex organizations. He was a man of energy, efficiency, and drive. He possessed the ability to 'think big' and was comfortable working within an innovative, proactive environment, liberated from the constraints of established routine.⁸⁰ Geddes' 'first class business experience' was precisely what Lloyd George intended to mine in order to drastically increase the output of munitions within his new enterprise.⁸¹

At the NER, Geddes had acquired experience of managing a large, geographically dispersed workforce. The 'blank canvas' of a new department, and the 'minimal attention' paid by Lloyd George to questions of detail, afforded Geddes and his contemporaries the opportunity

⁷⁴ See Appendix 5.

⁷⁵ MUN 9/35 Lloyd George Papers, undated note.

⁷⁶ Grieves, *Sir Eric Geddes*, p. 12.

⁷⁷ Geddes, p. 223.

⁷⁸ C. Addison, *British Workshops and the War* (London: T. Fisher Unwin, 1917), p. 5; Adams, pp. 38–55.

⁷⁹ Cline, p. 78; Grieves, *Sir Eric Geddes*, pp. 12–13; Lloyd George Papers, LG/D/1/2/1 Butterworth to Lloyd George, 27 May 1915; LG/D/1/2/2 Bell to Lloyd George, 30 May 1915; LG/D/1/2/6 Knaresborough to Lloyd George, 5 June 1915.

⁸⁰ Adams, pp. 45–8.

⁸¹ C. Wrigley, 'The Ministry of Munitions: An Innovatory Department', in *War and the State: The Transformation of British Government, 1914-1919*, ed. by K. Burk (London: Allen & Unwin, 1982), pp. 32–56 (p. 40).

to infuse the Ministry with the latest innovations in managerial practice: the statistical analysis used on the NER; scientific management methods of Taylorism; and the motion studies of Frank and Lilian Gilbreth being foremost among them.⁸² The progressive, scientific, analytical management techniques that Geddes had been introduced to in the United States, and had spent the pre-war decade utilizing at the NER, were combined with the pioneering methods of some of the nation's other leading business figures to help raise productivity in Britain's munitions industry. With the assistance of Beharrell's comprehensively gathered statistics, which allowed the team to compare outputs; identify available capacities and weaknesses; and to create accurate forecasts of production, a more efficient use of the labour supply and raw materials available to Geddes' department was established.⁸³ Despite the complexities involved in the production of modern artillery (a single eighteen-pound shell contained sixty-four components, a complete round of 4.5-inch ammunition required fifty-seven parts, all of which had to be drawn together and despatched to the front in an organized, efficient flow),⁸⁴ improvements in output were substantial prior to the commencement of the Somme offensive.

The development of a successful munitions production system based upon what Geddes referred to as 'intelligent' control,⁸⁵ saw the railwayman rewarded with a knighthood in June 1916, official recognition of the improvements made in output since the Ministry of Munitions had come into being. Lloyd George would later declare that there was 'no better driver in the United Kingdom' than Geddes.⁸⁶ The success of the Ministry's efforts in raising output both before and during the Somme had, however, exacerbated the strain on the transport network in northern France. With production rates projected to increase further for the rest of the year and into 1917, Lloyd George believed there to be a very real prospect that the delivery system required to place these resources on the battlefield would be inadequate to the task of keeping

⁸² Grieves, 'The Transportation Mission', p. 65; Wrigley, pp. 47–52; L. Urwick and E.F.L. Brech, *The Making of Scientific Management: Volume 1, Thirteen Pioneers*, 3 vols. (London: Management Publications Trust, 1945), I, pp. 28–38, 126–47.

⁸³ Beharrell, 'The Value of Full and Accurate Statistics', p. 39.

⁸⁴ I.F. Marcossou, *The Business of War* (New York: John Lane, 1918), pp. 269–70; Grieves, 'Improvising the British War Effort', p. 44.

⁸⁵ Lloyd George Papers, LG/D/3/1/6 Geddes to Lloyd George, 15 March 1916.

⁸⁶ TNA: PRO CAB 24/12/86 Note in regard to Sir Eric Geddes' relations to the Shipping Controller's Department, Lloyd George to Maclay, 8 May 1917.

pace with that of manufacturing in Britain.⁸⁷ Having raised the issue of transportation as early as September 1915 without success, upon becoming Secretary of State for War the following June Lloyd George was now in a position to act on those concerns. Unlike before, when the indisputable French primacy in the coalition, the relatively insignificant scale of British requirements, and the general level of work asked of the French railway network had yet to seriously diminish the transport infrastructure behind the Western Front, the barriers preventing substantial British intervention had now been eroded.

Yet far from being a ‘discovery’ of the future Prime Minister, Geddes would arrive on the Western Front in the middle of a life and career which had brought him into regular personal and professional contact with the British military establishment. His brother-in-law was a serving officer, his brother Auckland had served in South Africa, and Eric himself had been educated with a view to his joining the Royal Engineers. Geddes’ career, particularly during his periods in India and York, illustrates the close working relationship between the army and the major railway companies in the pre-war British Empire. He occupied a unique position in the ERSC by virtue of being the only Deputy General Manager to obtain a commission in the corps, had contributed to the pre-war planning process in conjunction with the REC, and in the early months of the war had helped raise the NER Pioneers and prepare plans for the defence of London. He was also ‘known’ to some of the most prominent political and military figures of the period prior to his arrival in Addison’s office in May 1915; men such as Grey and Kitchener both recognized and testified to Geddes’ organizational abilities. Very shortly, the most prominent soldier in the BEF, the C-in-C Sir Douglas Haig, would also gain first-hand experience of this ‘remarkable man’.

⁸⁷ Woodroffe Papers, 3/38/1/2 Woodroffe to Maxwell, 15 July 1916; WO 32/5163 Lloyd George to Haig, 16 August 1916.

3.2: A ‘civilianizing’ mission? Civil-military relations and the birth of the Directorate-General of Transportation

Sir Eric Geddes emerges from the above as a managerial expert thoroughly conversant with modern, professional business methods, none more so than the collection, interpretation and analysis of operational data in the pursuit of informed decision-making and the identification of structural weaknesses. He personifies an era in which statistics had become a recognized ‘weapon’ of the ‘efficiency engineers’;⁸⁸ a process exemplified for the First World War in the 1922 publication of an eight-hundred page compendium documenting the *Statistics of the Military Effort of the British Empire during the Great War*.⁸⁹ However, despite the prominent role played by Major-General Geddes on the Western Front, acknowledged with great appreciation at the time and after the war by Haig, histories of the conflict produced by military figures during the post-war ‘battle of the memoirs’ sought to minimize the impact of this civilian ‘usurper’.

The acerbic introduction to the volume of the *Official History* dealing with transportation on the Western Front (provided by Sir James Edmonds), stating that ‘what soldiers had been denied was freely accorded to a civilian’,⁹⁰ demonstrates the existence of some resentment towards the outside expert from within the military, and emphasizes the importance of Geddes’ access to raw materials and equipment to the growth of the BEF’s transport capacity. The war histories of the various technical corps most closely linked to the reorganization of transport in the BEF are similarly ‘protective’ of the military trade union. Geddes is not mentioned by name in the history of the Army Ordnance Service,⁹¹ whilst the only reference to Geddes in the record of the ASC is a critical observation regarding the size (and cost) of his office whilst employed by the Ministry of Munitions.⁹² Such criticisms were not merely the result of post-war ‘revisionism’ either, Colonel Beadon using the pages of the

⁸⁸ J.R. Beniger and D.L. Robyn, ‘Quantitative Graphics in Statistics: A Brief History’, *The American Statistician*, 32:1 (1978), 1–11 (p. 6); Macmillan, p. 9; Geddes would be dubbed ‘England’s efficiency engineer’ during the war. See Marcossou, *Business of War*, pp. 258–85.

⁸⁹ *Statistics of the Military Effort of the British Empire during the Great War, 1914-1920* (London: HMSO, 1922).

⁹⁰ J.E. Edmonds’ introduction in Henniker, p. xxii.

⁹¹ A. Forbes, *A History of the Army Ordnance Services* (London: Medici Society, 1929).

⁹² R.H. Beadon, *The Royal Army Service Corps: A History of Transport and Supply in the British Army*, 2 vols. (Cambridge: Cambridge University Press, 1931), II, pp. 405–6.

RUSI Journal to publish a number of somewhat trenchant comments on the utility of ‘business men’ in the army during 1917.⁹³ Although the previous sections have demonstrated the inaccuracy of Lloyd George’s blanket statement regarding the army’s *institutional* attitude towards outside expertise both before and during the First World War, clearly on an *individual* level some degree of animosity existed within the British Army. Fortunately for the BEF, it was not shared by its senior commander, nor were the methods of civilian industry disregarded by the ‘managers’ of the British Army’s increasingly mighty ‘business undertaking’.⁹⁴

Attitudes towards civilian ‘interference’ in the British Expeditionary Force ‘pre-Geddes’

The image of a military clique, disengaged from the wider world and reluctant to accept advice from civilians (particularly politicians) was also by no means created in the post-war ‘battle of the memoirs’.⁹⁵ Although the enmity and recriminations that litter Lloyd George’s *War Memoirs* would be particularly affected by the events surrounding the Third Battle of Ypres, and the deterioration in Haig’s attitude towards Lloyd George accelerated in the aftermath of the Calais Conference of February 1917,⁹⁶ an atmosphere of suspicion towards ‘the goat’ was already perceptible in the summer of 1916 when Lloyd George arrived at the War Office.⁹⁷ Sensitivity over the potential for the ‘fluttering of military doves’ was enough of a concern for Asquith to advise Lloyd George to ‘work intimately with the soldiers’ upon his appointment rather than seek confrontation with them.⁹⁸ Lord Esher, himself no stranger to the inner-workings of the military, also counselled Lloyd George to exercise ‘care’ in the use of Geddes in France.⁹⁹

Lloyd George was not the only one being warned to tread carefully. In an ‘unofficial’ chat at the War Office, Auckland Geddes was notified that ‘you can’t do a war-dance on senior

⁹³ R.H. Beadon, ‘The Business Man and the Army’, *RUSI Journal*, 62:446 (1917), 286–96.

⁹⁴ WO 107/69 Work of the QMG’s branch, p. 1.

⁹⁵ The French military attaché described the British Army as ‘insular and therefore mistrustful of whatever came from outside’ in 1913. See Greenhalgh, p. 7.

⁹⁶ As Haig’s intelligence officer noted, the Calais agreement which saw Haig subordinated to General Nivelle for the spring offensive of 1917 was ‘exactly what many people warned us to look for from Lloyd George’. See Charteris, p. 200.

⁹⁷ Wilson Papers, HHW 2/83/65 Hutchinson to Wilson, 7 July 1916.

⁹⁸ Lloyd George Papers, LG/E/3/14/26 Le-Roy Lewis to Lloyd George, 8 November 1916; LG/E/2/23/2 Asquith to Lloyd George, 6 July 1916.

⁹⁹ Lloyd George Papers, LG/E/2/11/2 Esher to Lloyd George, 13 August 1916.

officers' pet corns and expect them not to kick'.¹⁰⁰ Consequently, 'brother Eric' was implored not to 'start a row' or to present himself as Lloyd George's 'dogsboddy' at GHQ. Instead, he was advised to 'talk the language' of the army, emphasize his education at the Oxford Military College and his experience of the American railways, and ensure that the officers in France were made fully aware that Geddes' role was to be that of expert assistant rather than that of civilian usurper.¹⁰¹ Allied to this fraternal pep talk, Geddes' visit was foreshadowed by a letter from Lloyd George to Haig in which the transport problem was laid out in plain terms:

The output at home of munitions has now so greatly increased that we can meet with comparative ease the higher demands which you quite properly make on us, but I doubt whether, without careful preparation, the powers of absorption of the ports and lines of communication can expand to a commensurate degree. What I have specifically in mind is the desirability of ensuring such an expansion as will next year, and the year after if necessary, enable us to cope with the ever increasing volume of munitions and stores which will be needed for the services of your force.¹⁰²

Put simply, Lloyd George could now largely guarantee that the munitions demanded from the front could be manufactured. He could not, however, guarantee that they would arrive where they were required, with obvious implications for the effectiveness of the BEF.

The initially cool response from Haig to Lloyd George's proposal that Geddes visit France gave little cause for optimism; the C-in-C stated that 'you will, I am sure, realize that everyone behind the army, no less than at the front, is working at such high pressure at present that they will not be able to devote as much time to [Geddes] as we should like'.¹⁰³ If Haig's reaction was cool, the attitude of his QMG, Sir Ronald Maxwell, was positively icy. Haig, upon receiving an initial memorandum on the subject of a new transport organization from Lord Derby in mid-July, understandably referred the paper to Maxwell for his comments.¹⁰⁴ The QMG's response claimed that the proposal (which bears a striking resemblance to the

¹⁰⁰ Geddes, p. 233.

¹⁰¹ Geddes, pp. 234–5.

¹⁰² WO 32/5163 Lloyd George to Haig, 1 August 1916.

¹⁰³ WO 32/5163 Haig to Lloyd George, 4 August 1916.

¹⁰⁴ Grieves claims that Derby was sent to perform this role, instead of Lloyd George doing so himself, as Derby 'posed no threat to GHQ's autonomy'. Certainly, Haig's diary illustrate that Derby was well-liked at GHQ, as 'he is so straightforward as compared with the usual politicians who visit us'. If Grieves' contention is accurate, the ploy did not work, as a handwritten note from Haig to Maxwell on the file itself shows that Haig believed the memorandum to be the work of the man who would seek to run the new directorate outlined in 'Derby's' paper. See Grieves, *Sir Eric Geddes*, p. 29; Haig Papers, Acc.3155/105 diary entry, 11 March 1916; Acc.3155/215Q Memorandum (received from Lord Derby), 11 July 1916.

arrangements settled upon by Geddes following the mission, adding credibility to Haig's assumption that it was written by one of 'Lloyd George's men') was 'quite impracticable'. Furthermore, in a demonstration of his inability to foresee the necessity of strong forward planning as the BEF continued to expand, Maxwell noted that:

It is not stated why the time has arrived to strengthen the transport arrangements of the BEF. So far as the work in France is concerned these arrangements have worked perfectly smoothly and efficiently: 1. in the ports; 2. on the railways and canals; 3. on the roads.¹⁰⁵

As will be demonstrated further below, Maxwell was not alone in evincing such opinions among the senior supply officers on Haig's staff.

Yet despite Maxwell's reluctance, Haig's answer to Lloyd George's request in early August was far from the stereotypical image of military insularity that the Prime Minister would seek to accentuate in the *War Memoirs*. Haig's comments were really a reflection of the fact that the BEF was engaged in the largest battle in British military history and, understandably, Haig could not guarantee that an investigation into administrative procedures would receive priority at GHQ over events at the front. The development of significant logistical problems over the first month of the offensive meant that Haig was actually 'anxious to afford Sir Eric Geddes every possible facility for conducting his enquiry, and I shall be glad to make arrangements for his visit'.¹⁰⁶ As Brown has highlighted, Haig's interest in administrative issues was apparent from the moment he became C-in-C,¹⁰⁷ and he was clearly in no doubt as to the potential benefits of Geddes' visit. Consequently, a meeting between the two was arranged.¹⁰⁸ Where Haig's attitude was clearly encouraging, the War Office displayed a far less hospitable posture towards Lloyd George's interference. The chief protagonist behind this was the Director of Movements, Stuart-Wortley. His 'intense dislike for Geddes' had not thawed following their frosty encounters at the outbreak of the war,¹⁰⁹ and had been exacerbated by what Stuart-Wortley perceived to be civilian encroachment into the realm of the professional soldier as the

¹⁰⁵ Haig Papers, Acc.3155/215Q Memorandum (by Maxwell), 17 July 1916.

¹⁰⁶ WO 32/5163 Haig to Lloyd George, 4 August 1916.

¹⁰⁷ I.M. Brown, *British Logistics*, p. 104.

¹⁰⁸ TNA: PRO WO 32/5164 Facilities and arrangements for Sir E. Geddes in conducting his investigation on transport arrangements in connection with the British Expeditionary Force at home and overseas, Haig to Lloyd George, 22 August 1916.

¹⁰⁹ Lloyd George Papers, LG/E/1/1/6 Derby to Lloyd George, 15 September 1916.

war progressed.¹¹⁰ Buttressed by the support of his commanding officer, Sir John Cowans, Stuart-Wortley's antipathy would manifest itself in an attempt to derail the transportation mission before it had even begun.

Mindful of the delicacy of the mission in civil-military relationship terms, and of the requirement that the investigation should be handled swiftly, Geddes wished to be accompanied by representatives of the army who could both explain the existing procedures and minimize the inconvenience to the rest of the staff at GHQ.¹¹¹ From the War Office, Geddes identified Stuart-Wortley's deputy, the now Lieutenant-Colonel Mance, as a suitable companion. Mance had prior experience of both military and civil railway operations. Having served as Director of Railways and Armoured Trains on the Kimberley Line during the South African War, Mance had later returned to the continent to work on the Nigerian railways between 1908 and 1911.¹¹² It is highly likely that Geddes' involvement with the REC before the war meant that he was aware of Mance's work in preparing the British railways for their role in August 1914.¹¹³ Accordingly, a letter was despatched from Lloyd George to Cowans requesting the temporary release of Mance in order for him to join Geddes' team.

Stuart-Wortley's response to the request was to claim that he 'could not possibly spare [Mance] for so long a time as three or four weeks'.¹¹⁴ To do so would 'seriously prejudice the work of my directorate'. Not only was Mance the 'head railway advisor' to Stuart-Wortley, and technical assistant on 'all questions which involve dealings with the REC or with the French and Belgian railways', he was also in charge 'of all questions connected with Mesopotamian, Egyptian and Salonika railways'. Mance, Stuart-Wortley argued, had an expertise that nobody in the Directorate of Movements could match, and in a further appeal to get Mance removed from the mission, Stuart-Wortley highlighted that 'Mance [was] the designated Acting Director of Movements in the event of an invasion... and he has a knowledge of all home defence schemes which is unique'. The ongoing fear of invasion may have led to the retention in Britain

¹¹⁰ Grieves, 'The Transportation Mission', p. 71.

¹¹¹ WO 32/5164 Geddes to Lloyd George, 10 August 1916.

¹¹² Andersen, pp. 206–7.

¹¹³ On Mance's work preparing the BEF, see above, chapter 1.3.

¹¹⁴ Unless otherwise stated, all quotes in this passage are taken from WO 32/5164 Stuart-Wortley to Cowans, 7 August 1916.

of an enormous permanent garrison of 1.5 million men,¹¹⁵ but it would not be enough to prevent Mance from joining the mission.

No such obstructions existed at GHQ. Haig made no attempt to dissuade Geddes from utilizing the services of Colonel Henry Freeland on his investigation, despite the stress being placed on GHQ as the Somme continued to make inexorable demands upon the British staff. Freeland, like Mance, was handpicked by Geddes to join the mission thanks to Geddes' prior awareness of Freeland's talents. The two had worked at the same station, on adjoining railways in India, and 'over a period of several years' Geddes had acquired a 'knowledge of his work and of [Freeland] personally'.¹¹⁶ In addition, Freeland was an expert on the methods employed by the French, having visited the French Army to observe the systems in use for the packing of supply trains in January 1916.¹¹⁷

Lloyd George's recollection of the mission omits the participation of these soldiers, referring only to the 'small expert civilian staff' provided to assist Geddes in his investigations.¹¹⁸ Yet the reasoning behind the choices of Freeland and Mance emphasize the degree of interaction between the railways and the military prior to 1914. Both were chosen for their demonstrable military expertise, obtained during the First World War and before, but were also well known to the civilian railwayman thanks to their employment on railways across the globe. Opportunities existed throughout the Empire in the late-nineteenth and early-twentieth century for British engineers to obtain experience on vast civil engineering projects which helped to both preserve and project British power in the developing world. Buchanan has acknowledged the importance of engineering, both civil and military, as a tool for maintaining the 'political power of the Raj' during the nineteenth century.¹¹⁹ Mance and Freeland, like Geddes (father and son), exemplified the permeability of soldier and civilian in such an environment. Now they would come together on French soil to scrutinize the BEF's existing

¹¹⁵ D. Stevenson, *With Our Backs to the Wall: Victory and Defeat in 1918* (London: Allen Lane, 2011), p. 260.

¹¹⁶ WO 32/5164 Geddes to Lloyd George, 10 August 1916.

¹¹⁷ TNA: PRO WO 95/76 Branches and Services: Director of Supplies, diary entry, 11 January 1916.

¹¹⁸ Lloyd George, I, p. 473.

¹¹⁹ Buchanan, 'Diaspora', p. 523.

transport procedures alongside Geddes' statistics expert, George Beharrell, and another figure with imperial railway experience; East Indian Railway manager, Philip Nash.¹²⁰

Geddes observed that the soldiers, Mance in particular, joined the mission with some hesitancy. This was doubtless thanks to the influence of Stuart-Wortley's hostility at the War Office. Such reluctance was further engendered by the fact that the soldiers were being placed in the unenviable position of passing judgment on the organization and working practices established and managed by their superiors, most notably the IGC, Sir Frederick Clayton.¹²¹ In October 1914, when serving as Director of Supplies in France, Clayton had raised the possibility of employing civilians from large firms on the lines of communication in France. Taking into account the experience of employees from firms like Harrods and the railway companies in moving goods around Britain (and the world) in a timely fashion, Clayton believed that such men could be used in 'essentially the same roles in France as they had filled with their civilian firms in Britain'.¹²² By the middle of 1916 however, Clayton's attitude towards civilian involvement in examinations of the lines of communication had undergone a sea change. His frustrations were threefold. Firstly, the 'combing out' of men suitable for front line duties during 1915 had, Clayton claimed, robbed him of 'all the important trained men... [who] know exactly what to do' in the supply services.¹²³ Secondly, due to Clayton's headquarters being located at Abbeville rather than at GHQ (originally at St. Omer, subsequently Montreuil-sur-Mer), Clayton believed himself to be an isolated figure, cut off from the decision-making cluster surrounding the C-in-C.¹²⁴ That Clayton felt himself to be a

¹²⁰ Nash had been on leave in Britain when war broke out and had joined the Ministry of Munitions in 1915, becoming Director of Royal Arsenal. See Grieves, 'The Transportation Mission', p. 65.

¹²¹ Grieves, *Sir Eric Geddes*, pp. 29–30.

¹²² I.M. Brown, *British Logistics*, p. 87. It is worth reiterating at this point that Clayton was one of the original members of the advisory board set up to oversee the programme of study at the 'Mackindergarten'. He was therefore fully aware of the applicability of civilian methods to military tasks. See above, chapter 1.1.

¹²³ WO 107/15 Inspector-General of Communications, General Correspondence, Clayton to Cowans, 8 July 1915. See also Clayton to Cowans, 23 November 1915; Clayton to Cowans, 4 December 1915. The receipt of a request to transfer men from railway duties for 'more active duties in the field' just as the supply services were gearing up to provide for the largest battle in military history can only have confounded Clayton's frustrations. See Cowans to Maxwell, 31 May 1916; I.M. Brown, *British Logistics*, p. 127.

¹²⁴ I.M. Brown, *British Logistics*, pp. 117–20. The distances from St. Omer to Abbeville, and Montreuil to Abbeville, are roughly fifty miles and twenty-five miles respectively.

‘forgotten man’ was illustrated in a letter to Cowans, bemoaning the lack of recognition afforded to him (Clayton) over the course of the war:

I was not mentioned in the previous dispatch (sic) and as I have told you have never had a mention since I have been IGC over twelve months now. Robb who was not a brilliant success as IGC got a KCB. Maxwell who was IGC for three months and only had 250,000 men to deal with got a KCB. I have had over one million to deal with and have not even had a mention.¹²⁵

Finally, Clayton’s frustrations that his efforts were unappreciated was exacerbated by the number of investigations into logistical and administrative procedures undertaken during his tenure as IGC, pointing out that answering enquiries from such parties took up ‘a great deal of my time and that of my staff at HQ and bases’. All Clayton was interested in was whether ‘the work has been done to the satisfaction of the C-in-C, and if so cannot some steps be taken to stop these constant attacks and investigations being made on the lines of communication’.¹²⁶ Whilst, as the previous section illustrated, these investigations (undertaken by both civilian- and military-led parties) demonstrate that the British Army was by no means static and reactionary in terms of logistical organization prior to the Somme, their overarching goals were not adequately understood by some of the BEF’s senior soldiers. As a result, by the summer of 1916, Clayton’s antagonism threatened both the Geddes mission and the transportation network then struggling to supply the BEF.

Clayton’s argument, summed up in his response to the findings of a commission led by the shipping magnate Sir Thomas Royden into the ongoing problem of congestion at the ports, was that despite the colossal expansion of the BEF over the previous eighteen months the BEF had ‘been supplied with everything it requires with clockwork regularity; nothing had failed, all demands have been met and nothing but praise has been given to those who have done the work’.¹²⁷ Geddes, who had read Clayton’s remarks on the Royden report before forwarding them to Lloyd George, was fully aware that his civil-military mission would have to contend with a mind-set that stated:

¹²⁵ WO 107/15 Clayton to Cowans, 10 February 1916.

¹²⁶ TNA: PRO WO 95/3969 Inspector-General, Clayton to Maxwell, 14 June 1916.

¹²⁷ Granet Papers, MSS.191/3/3/14 Remarks on the Report of the Commission sent out by the Shipping Control Committee, 30 July 1916.

The only conclusion one can come to after reading [the Royden report] is, that it is impossible for the ordinary business civilian to understand what are the conditions under which we have to work and that it is a mistake to allow them to interfere with an army business that most of us have studied all our lives... *when* we fail in any way to keep the army supplied it will be time for criticism.¹²⁸

Clayton was by no means alone in his attitude towards the conclusions produced by such examinations. In April 1916, for example, the Director of Supplies branded a report into the use of labour at the port of Rouen by the head of the Dockers Battalion as ‘simply valueless and useless’.¹²⁹ Even Robertson, whose understanding of logistical issues early in the war helped sustain the BEF as a fighting force,¹³⁰ believed that criticisms of congestion at the ports, bad storage practices, neglect of the canal network and the failure to develop railway traffic prior to the Somme were ‘misinformed’.¹³¹ Such responses exemplified the ‘reactionary’ portion of the military establishment whose influence Lloyd George sought to eradicate. Until the supply line had *actually* broken down, Clayton believed it was unfair for the War Office to continue bombarding the BEF with civilians bent on ‘interfering’. The evidence suggests that, at the very least, Clayton was unwilling to countenance the potential problems awaiting the BEF should the transport network be suffocated under the weight of goods being despatched from Britain. Nothing within Clayton’s remarks implied that he appreciated how investigations such as Royden’s were undertaken precisely to ensure that catastrophic failure did not occur as the British war effort continued to grow.¹³² Investigations taking place *after* the network broke down would, theoretically, be too late to rectify the situation should the BEF wish to remain an effective fighting force on the Western Front.

Despite the successful working relationship fostered between civilian and military figures both prior to and during the early stages of the war, there remained a clear and palpable sense of mistrust between the soldiers of the BEF and the politicians charged with managing the

¹²⁸ Granet Papers, MSS.191/3/3/14 Remarks on the Report, 30 July 1916. Emphasis added.

¹²⁹ Haig Papers, Acc.3155/105 diary entry, 28 March 1916; WO 95/76 Director of Supplies, diary entry, 24 April 1916. As Haig’s diary entry proves, the C-in-C was far more open-minded about the potential benefits of such investigations.

¹³⁰ See above, chapter 2.1.

¹³¹ Robertson Papers, 7/6/60 Robertson to Haig, 28 July 1916.

¹³² Such attitudes were not merely restricted to those with a personal connection to the existing organization either. The owner of *The Times*, and ‘self-styled experienced observer’ of the BEF’s operations, Lord Northcliffe, also campaigned for the preservation of the status quo. See Northcliffe to Lee, 27 August 1916, quoted in Grieves, ‘The Transportation Mission’, p. 68.

war effort. Suspicion and reservation over the motives of ‘outsiders’, particularly those with such close connections to ‘the goat’,¹³³ to do anything other than meddle with pre-existing structures and erode the jurisdiction of the army, were matched by wariness and doubts over the competence of those tasked with overseeing the operation of the BEF’s umbilical cord. Lord Derby, the Under-Secretary of State for War, described Clayton as ‘very stupid, conceited and narrow-minded’.¹³⁴ Maxwell, it was feared, would also not be the ‘sort of man who would favourably impress Lloyd George’ as a result of his ‘hide-bound manner’.¹³⁵ These were the two senior supply officers in the BEF throughout 1916, and it was their working methods and operating procedures that would be under examination by Geddes’ hybrid team of experts. The hostility with which Haig’s senior subordinates viewed the exercise, however, was not replicated by Haig himself. Despite having adjudged Clayton’s ‘methodical system’ as being ‘very remarkable’ in December 1915,¹³⁶ Haig acknowledged the potential benefits the BEF could gain as a result of Geddes’ investigation. The transportation mission was received at GHQ on 24 August, and began work the following day.¹³⁷

The transportation mission and the genesis of the Directorate-General of Transportation

The terms of reference of Geddes’ mission were as follows: to review the existing capacity of the transport network in France and ascertain if it would be capable of dealing with the ‘very considerably increased quantity of ammunition and other stores’ which would be despatched from Britain in preparation for the offensives of 1917; to identify the repairs, extensions and operational improvements required at the ports, on the railways, and on both the canal and road networks in order to render them capable of sustaining an advance;¹³⁸ and finally, to learn ‘all that is possible from the very excellent transport arrangements of the French Army’ in order to appropriate efficient French practices for use in the BEF’s distribution system.¹³⁹

Following the period of investigation, Geddes was to produce a series of statistical breakdowns

¹³³ Haig Papers, Acc.3155/104 Robertson to Haig, 24 January 1916.

¹³⁴ Lloyd George Papers, LG/E/1/1/3 Derby to Lloyd George, 30 August 1916. Conversely, Derby was ‘much impressed by Geddes’.

¹³⁵ Robertson Papers, 7/6/60 Robertson to Haig, 28 July 1916.

¹³⁶ Haig Papers, Acc.3155/104 diary entry, 30 December 1915.

¹³⁷ Haig Papers, Acc.3155/107 diary entry, 24 August 1916.

¹³⁸ WO 32/5164 Lloyd George to Haig, 16 August 1916.

¹³⁹ WO 32/5164 Lloyd George to Roques, 23 August 1916.

detailing the quantities of materials required by the BEF for the conduct of future operations, alongside a number of reports cataloguing the full range of variables involved in the maintenance and improvement of the transport network.¹⁴⁰ In short, Geddes was being asked to undertake a methodical study and analysis of the BEF's transport capability, based upon a comprehensive and precise accumulation of the data necessary to create an effective and practicable logistics policy. Geddes' instructions called for a similar approach to that advocated by the management pioneer Henri Fayol in what Fayol termed the study of the 'administrative apparatus' of an undertaking. The 'surveyor', in this case Geddes, was charged with ascertaining the past, present and future of the BEF's transportation services in order to discover both the weaknesses in the organization and the 'probable consequences' of managerial decisions.¹⁴¹

Accompanied by Colonel Woodroffe, Geddes was given a two-day tour of ammunition railheads, newly constructed stations and sidings, and afforded the opportunity to discuss the existing supply system with the officers on the ground, most notably those in charge of artillery batteries in action along the Mametz-Carnoy valley.¹⁴² Although Grieves states that the tour was 'largely uninformative' due to the 'model' nature of the sites visited,¹⁴³ Woodroffe's account of the trip illustrates that it was actually the chrysalis for many of the subsequent improvements to be made on the transport network. The tour impressed upon Geddes the immediate need for action to be taken in order to alleviate congestion and increase economy in the BEF's administrative tail, and provided the lines of enquiry upon which the wider investigation would rest. The points which impressed themselves most upon Geddes were: the enormous quantity of labour required for road maintenance and the construction of station yards; the urgent need for 'some form of light railway to take the traffic off the roads'; the waste of manpower inherent in the transshipping practices taking place where the various modes of transport terminated; and the

¹⁴⁰ The complete set of statistics and reports demanded of the transportation mission is recorded in Appendix 6.

¹⁴¹ H. Fayol, *General and Industrial Management*, trans. by C. Storr (New York: Pitman, 1949), pp. x-xi.

¹⁴² Woodroffe Papers, 3/38/1/2 Notes, 25 August 1916.

¹⁴³ Grieves, *Sir Eric Geddes*, p. 29.

significant quantities of expended materials (such as ammunition cases) congregating in the rear of the British troops.¹⁴⁴

At the conclusion of the ‘model’ tour, and prior to his return to London, Haig asked Geddes for his opinion on what he had seen. ‘His reply was guarded – to the effect that he had seen plenty to think about but as yet did not know what to think’.¹⁴⁵ Rather than risk sounding like he had arrived in France with pre-existing judgments, Geddes requested the opportunity to have a ‘free run’ of the BEF’s lines of communication, along with access to any information and statistics he may require in order to complete a thorough report. Haig, increasingly concerned by the blockage of supplies around Amiens, acquiesced, and notified Maxwell of the impending investigation. Perhaps mindful of the insularity prevalent in some quarters, most notably Clayton’s and Maxwell’s departments, Haig issued an instruction to all armies, and his senior administrative officers, ordering that ‘all necessary information and any statistics required will be placed at the disposal of Sir Eric Geddes... and the C-in-C desires that every facility will be afforded [Geddes] in the conduct of [his] enquiries’.¹⁴⁶ Demonstrating the thoroughness of the impending investigation, upon his return to France Geddes’ original party was bolstered by the inclusion of Mr Blades, the Dock Superintendent of the NER; another technical specialist to provide expert analysis for the examination of the French Channel ports.¹⁴⁷ Blades joined Nash and Freeland in the task of discovering the capacity of the docks based on the nature of the traffic to be dealt with. Geddes and the others, meanwhile, surveyed the rest of the network and discussed matters with Clayton in order to ‘build up a complete statement of the weight of traffic’ required to support the BEF.¹⁴⁸

Within a fortnight Geddes felt sufficiently informed to offer a preliminary view of the situation to Lloyd George. It is clear from this letter, in which Geddes implores Lloyd George to refrain from revealing its contents to anyone in the War Office or at GHQ, that Geddes remained sensitive to the fragility of relations between his mission and the BEF, fearing that the

¹⁴⁴ Woodroffe Papers, 3/38/1/2 Notes, 25 August 1916.

¹⁴⁵ Geddes, p. 232.

¹⁴⁶ TNA: PRO WO 95/31 Branches and Services: Quarter-Master General, Circular to All Armies, Inspector-General of Communications and Engineer-in-Chief, 3 September 1916.

¹⁴⁷ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁴⁸ Granet Papers, MSS.191/3/3/102 Memorandum by Geddes, 26 November 1916, pp. 2-3.

criticisms the letter contained would severely jeopardize the remainder of the investigation. His conclusions, produced before the bulk of the necessary data had been collected, let alone analysed, were an unequivocal condemnation of the BEF's logistical foundations and the innate reactivity of the administrative echelons:

This is a war of Armies backed by machinery and 'movement' and I do not think that 'movement' has received sufficient attention in anticipation of the advance. I judge this by the total absence of light railway or road organization, or policy for the use of waterways.¹⁴⁹

The fact that even as the railways continued to be clogged up by ever-increasing quantities of matériel, canal barges were being returned to civil work, exemplified the issue. Rather than being viewed as an integral part of the transport mix, canals were only being utilized when rail conveyance was not available. Whilst, as noted above, Holland believed IWT to be capable of carrying a great deal more than was being requested of it, 'neither [in Britain] nor in France' could Geddes 'ascertain what the policy of canal user is. I doubt if one exists'.¹⁵⁰

The problem facing the BEF was one of insufficient forward planning and coordination, a result of the policy of decentralization instigated as soon as the BEF began to expand in early 1915. Whilst Robertson had noted at that time that 'the force is now assuming too great a strength to admit of matters being centralized at GHQ to the extent they are now',¹⁵¹ the corollary was that the departments responsible for supply had become heavily compartmentalized; officers were capable only of making adjustments to their own sections, with no oversight in place to ensure such modifications would not adversely affect other departments whose work was necessarily interconnected.¹⁵² The geographical barrier between Clayton at Abbeville and Maxwell at GHQ was a physical manifestation of an organizational problem, one which Harding-Newman, employed under the QMG, was in no doubt had contributed to the 'bottleneck' around Amiens.¹⁵³

Furthermore, as no structure existed which allowed for regular reviews of the extant systems, forward planning had hitherto been conducted in 'pennyworths', and was liable to be

¹⁴⁹ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁵⁰ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁵¹ Robertson Papers, 2/2/63 Robertson to Cowans, 8 January 1915.

¹⁵² Grieves, *Sir Eric Geddes*, p. 32.

¹⁵³ Harding-Newman, p. 16.

subordinated to short-term exigencies at times of heavy demand on the administrative staff. Transport facilities had been improved ‘here and there’ as the movements and battle plans of senior commanders had dictated, as demonstrated by the construction projects undertaken in preparation for the Battle of the Somme, but the system was a ‘hand-to-mouth’ one.¹⁵⁴ In the event of a substantial advance, particularly should the German lines be ‘broken’, the mileage of railways to be repaired and operated in support of the troops would be greatly enlarged. The plans to deal with the railway construction had been agreed between the Director of Railways and the French authorities, but the quantity of rolling stock required to bridge the gap between the Channel and the front had not been accurately forecast.¹⁵⁵ Instead, the question had been the subject of sporadic ‘rule-of-thumb’ estimates from within the Railway directorate, which highlight the inadequacy of the existing planning mechanisms in the BEF in 1916.

Illustrating that the army was aware of the potential implications should the Somme develop into an extended advance, the Director of Railways had commissioned an examination into how many railway wagons would be needed to service British requirements to the Belgian-German border. The two estimates which came back were at wild variance with one another. Lieutenant-Colonel Henniker predicted that 22,501 wagons would be required to work the BEF’s daily traffic to the eastern frontier of Belgium; Lieutenant-Colonel Paget suggested that a mere 11,240 wagons would suffice.¹⁵⁶ This discrepancy was in part explained by the different parameters the officers had set for themselves, Henniker adding a twenty-five per-cent margin for the dislocation of traffic and the use of wagons as storage vehicles at railheads and in construction areas. Neither officer, however, had based their estimates upon the latest projections as to the anticipated size of the BEF in 1917. As a consequence, their statements were essentially worthless, based on out-of-date information and a perfect example of the limitations under which the BEF’s administrators, until the peak strength of the army was ascertained, had to operate. Until a comprehensive statement as to the eventual size of the BEF (and its related needs in terms of food, fodder, munitions et al) could be made, the staff of the

¹⁵⁴ Grieves, *Sir Eric Geddes*, p. 32; Henniker, p. 184.

¹⁵⁵ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁵⁶ Granet Papers, MSS.191/3/3/155 Railway Arrangements for Advance through Belgium, 28 October 1916, p. 2.

administrative services could only ‘guess’ at the nature of the task that would ultimately confront them.

The problems of control were amplified beyond the railheads, none more so than in the use of light railways. In January 1916, Haig had written in his diary that light railways could be constructed in order ‘to save the roads’ from excess wear through the winter,¹⁵⁷ and where units had acquired light railway systems from the French Army as the share of the line had changed individual formations had begun to request engines and material over the spring. However, in the same way that labour duties were inefficiently completed due to the units engaged in construction frequently being moved, and therefore not seeing the ‘benefit’ of their work, the constant redeployment of formations negated the chance for a coherent, methodically planned light railway policy to develop within the BEF. By the time the Somme opened there were less than half a dozen tractors employed on the BEF’s small, dispersed light railway systems,¹⁵⁸ leading Haig to order that a policy for the development of light railways, as used by the French and German armies, should be adopted by the BEF. Discussions with the individual armies over the form such a policy should take led nowhere, however. A lack of strong central coordination from GHQ (Haig himself placed the Director of Railways, based at Abbeville, in charge) and the absence of a sufficiently senior team to ensure priority was afforded the scheme against the backdrop of the Somme meant an inevitable stagnation between the ‘stakeholders’ in each army. For the army commanders the appearance of the light railways question was yet another intrusion upon the day to day business of running their armies. A month after receiving Haig’s instructions, the Director of Railways had been unable to make any progress on the matter.¹⁵⁹

That Haig was not alone in recognizing the potential utility of light railways was highlighted by Woodroffe’s belief that ‘it is... necessary to apply all our efforts to developing a 60cm system at the greatest possible speed in order to ensure that as much of the front area as possible is served by this means before the winter sets in’.¹⁶⁰ However, although some construction work had begun on new lines in the area around La Boisselle and the ‘Sausage

¹⁵⁷ Haig Papers, Acc.3155/104 diary entry, 4 January 1916.

¹⁵⁸ Davies, pp. 24–6.

¹⁵⁹ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁶⁰ Woodroffe Papers, 3/38/1/2 60cm railways, 9 September 1916.

Valley’, ‘owing to a lack of material, no others can be commenced at the present time’.¹⁶¹ Light railways were in effect being approached in the same ad hoc, piecemeal fashion as characterized earlier British attempts to implement infrastructural changes to the supply chain on the Western Front. Having observed the operation of light railways on the French network alongside Woodroffe,¹⁶² and taking into account his own previous experience of managing a light railway system in the Himalayas, Geddes was equally convinced of the possibilities surrounding the extended use of the medium. A light railways department, he wrote to Lloyd George, would be a great success provided the ‘right men’ were appointed to run it. ‘If they are not, it will be a dismal failure.’¹⁶³

The magnitude of operations on the Somme had overloaded a transport system created through short-term amendments over the previous two years; adjustments which had been made in the absence of any comprehensive, centrally directed policy taking account of the myriad questions of coordination, resourcing, staffing, and expansion which arose in the arrangement of a modern army’s supply requirements.¹⁶⁴ As Geddes concluded in his preliminary report to Lloyd George:

It is beyond argument that there is today no one who controls the continuous transit from this country to the front. There is no one who can tell you throughout where his weak places are, or coordinate the policy and resources, present and future, of the various means of transit. It is not possible for the C-in-C or QMG in France to do it; it is alone a big job for the best man you can find. If the C-in-C is not satisfied with his transport arrangements and desires someone to go into them in anticipation of the spring, he must, I think, appoint a man for the job, put him in charge of it, and back him strongly.¹⁶⁵

Geddes was convinced that the time for further investigations, formal enquiries and interviews had passed. Writing less than two months after the Dardanelles Commission had been established by Asquith to examine the shambolic operations on the Gallipoli peninsula, Geddes warned that Lloyd George ‘would only launch into delay and controversy’ if a formal enquiry

¹⁶¹ Woodroffe Papers, 3/38/1/2 60cm railways, 9 September 1916.

¹⁶² Woodroffe Papers, 3/38/1/2 Notes on a visit to the 60cm Railway System of the French Sixth Army south of the Somme, 6 September 1916.

¹⁶³ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁶⁴ Grieves, ‘The Transportation Mission’, p. 65.

¹⁶⁵ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

into transportation on the Western Front was set up.¹⁶⁶ Witnesses would be required to compile evidence to support their actions, and participants could attempt to conceal their own culpability in the events which had created the existing situation; neither would solve the immediate and pressing issue of ensuring that the BEF continued to receive supplies, whilst simultaneously presenting opportunities for further obstinacy from those within military circles that were unwilling to engage with civilian methods. Lloyd George agreed with Geddes' assessment that 'executive action is called for both on this side [of the Channel] and in France'.¹⁶⁷ Crucially, so did Haig. The special memoranda originally requested by Lloyd George were no longer the priority.¹⁶⁸ Instead, the common ground between Haig and Lloyd George would be used both as a platform for the restructuring of the BEF's logistical organization, and for the appointment of some of Britain's leading transport experts into the military ranks.

In London, Lloyd George requested that Geddes become head of the Directorate-General of Military Railways [DGMR] at the War Office. In this role he would be 'responsible for the supply of all railway, light railway, dock, road and canal appliances in France'.¹⁶⁹ The appointment would see a considerable degree of influence and accountability for the efficiency of the BEF being handed over to a civilian. The following day, Lloyd George's action was augmented by Haig's decision to offer Geddes the position of Director-General of Transportation. This would see Geddes 'take complete charge of the transportation services of the army in France', thereby eliminating the divided responsibility which had emerged as a result of the system adopted in 1914.¹⁷⁰ Upon accepting the two roles Geddes became, in twenty-four hours, responsible both for the provision and maintenance of a logistics network capable of sustaining the BEF in France, and for the acquisition and supply of all the resources necessary to establish and improve that network. By early 1917, Geddes was the head of a directorate with responsibility for the supervision and direction of some 50,000 men; a figure

¹⁶⁶ The fact that the final report of the Dardanelles Commission did not surface until 1919 lends credence to the first half of Geddes' assertion.

¹⁶⁷ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

¹⁶⁸ The full report was never written. See Granet Papers, MSS.191/3/3/102 Memorandum by Geddes, pp. 1-2.

¹⁶⁹ Granet Papers, MSS.191/3/3/51 Memorandum to Sir Guy Granet, 19 October 1916, p. 1. The remit for the directorate covered not just the Western Front, but all theatres in which British troops were engaged.

¹⁷⁰ Gieves, *Sir Eric Geddes*, pp. 29-31.

similar to that employed by the NER before the war. When combined with Geddes' appointment in London, the result was a unique concentration of power within Geddes' hands.

Lloyd George's redeployment of Geddes immediately drew expressions of opposition from two of the military members of the Army Council. In response, Geddes was issued with the temporary rank of major-general, giving him parity with the established military hierarchy.¹⁷¹ Stuart-Wortley reacted to the news by informing Derby that 'under no circumstances' could he work under Geddes, and that he would resign immediately.¹⁷² It was a threat which Lloyd George had anticipated and, in the event, a meeting between the two men was ultimately enough to pacify the Director of Movements. Although Geddes annexed Stuart-Wortley's railway and IWT supply branches, privately the soldier admitted that his 'show had really got too big'.¹⁷³ In France, Maxwell similarly tendered his resignation over the 'position and responsibilities of the new Director-General', but was persuaded by Haig to withdraw the offer.¹⁷⁴ Haig was able to convince Maxwell that the civilian had not 'been sent out by L[loyd] G[eorge] to take over the duties which I had assigned to him'. Furthermore, Haig was able to induce the QMG to instruct his directors to cease their criticisms of Geddes. That such an instruction was necessary in the first place indicates the level of hostility displayed within some sections towards the encroachment of a civilian into the senior ranks of the army, something which Lloyd George would later claim made Geddes 'by no means eager to go to France'.¹⁷⁵ He would not, however, be going alone.

Populating the directorates: 'civilianization' in London and France

If the antipathy between soldier and civilian was mutual, Geddes' treatment of the military figures working alongside and beneath him did not immediately convey it. Although the establishment of the DGMR called for Stuart-Wortley's subordination to Geddes, 'satisfactory talks' between the two men resulted in the migration of Stuart-Wortley's duties

¹⁷¹ Lloyd George, I, pp. 473–4; Grieves, 'The Transportation Mission', p. 67.

¹⁷² Lloyd George Papers, LG/E/1/1/6 Derby to Lloyd George, 15 September 1916.

¹⁷³ Wilson Papers, HHW 2/84/34 Stuart-Wortley to Wilson, 7 October 1916.

¹⁷⁴ Haig Papers, Acc.3155/108 diary entry, 30 October 1916. Unless otherwise stated, all quotes in this passage are taken from this source. See also Grieves, 'The Transportation Mission', pp. 70–1; I.M. Brown, *British Logistics*, p. 141.

¹⁷⁵ Lloyd George, I, p. 474.

being put on hold. Rather than being placed under Geddes, Stuart-Wortley was to remain under the supervision of the QMG for ‘as long as matters go smoothly at the British ports’.¹⁷⁶ In addition, clearly mindful of the necessity for the civil and military elements to work in the closest harmony in the new organization, Geddes employed as Director of Docks in France a man with whom Stuart-Wortley (as the two positions would come into close contact) would be most likely to cooperate.¹⁷⁷

The man chosen for the role was Geddes’ colleague from the NER, and his successor as Chief Goods Manager, Ralph Wedgwood. As noted above, Wedgwood had been the first graduate of the Traffic Apprenticeship Scheme, and Geddes believed that he and Stuart-Wortley had ‘always got on well’.¹⁷⁸ Wedgwood possessed experience of handling the large volumes of freight traffic moved by the railway company both to and from the principal shipping ports in the north-east.¹⁷⁹ In joining Nash and Beharrell (Deputy Director-General and Assistant Director-General (Statistics) respectively) in France, Wedgwood was yet another railwayman with scant military experience being parachuted into a senior appointment in the newly created transport directorate. The trend led Lord Northcliffe to conclude, with some cynicism, that ‘we have brought to France a considerable portion of industrial England’.¹⁸⁰

Northcliffe was not the only one dissatisfied by the outflow of railwaymen from Britain to take up new posts in France. The departures of Beharrell, Nash and Geddes from the Ministry of Munitions were keenly, if melodramatically, felt by Lloyd George’s successor as Minister, Edwin Montagu:

To meet your wishes, and with tears in my eyes, tears which have been flowing ever since, Geddes left the Ministry... When Geddes left this Ministry he took with him Nash and Beharrell, and since then I can hardly bear to look at War Office correspondence, for almost every day, if you will excuse a slight exaggeration, I receive

¹⁷⁶ Granet Papers, MSS.191/3/3/62 Attachment ‘A’, Brade to Geddes, September 1916; MSS.191/3/3/51 Memorandum, 19 October 1916, p. 7.

¹⁷⁷ The responsibilities of the Director of Movements ceased at the French ports, therefore the Director of Docks received goods straight from the care of Stuart-Wortley’s department. See Fay, p. 23; ‘Directorate of Inland Waterways and Docks’, *Royal Engineers Journal*, 29:6 (1919), 338–64 (p. 354).

¹⁷⁸ Granet Papers, MSS.191/3/3/51 Memorandum, 19 October 1916, pp. 7–8. Whilst the language of this letter suggests pre-existing social or professional contact between Wedgwood and Stuart-Wortley, no concrete evidence linking the two during the period 1914–1916 has been found. Wedgwood did, however, serve in France on the Railway Transport Establishment prior to joining his colleagues in the Ministry of Munitions in 1915.

¹⁷⁹ Bell, pp. 51–4.

¹⁸⁰ Quoted in Grieves, ‘The Transportation Mission’, p. 68.

a request for the service of some new man to be sent somewhere or other, sometimes China, sometimes France. By a curious coincidence they are nearly always NER men, and it looks as though we shall be left without a railway man anywhere about.¹⁸¹

Just two days later, and ‘despite the fact that I find it very difficult to spare him’, Wedgwood was also released.¹⁸² The ‘curious coincidence’ was a consequence of the particular skills nurtured by the NER’s apprenticeship scheme, and the progressive approach to management which the company had fostered prior to the war. These men had proven themselves adaptable to the challenge of increasing munitions production, and would now be turned back to a more recognizable problem for a transport expert; the reorganization of the BEF’s logistics. However, the NER would not be the only British railway company to make a contribution to the senior management cohort of the DGT and the DGMR.

The scale of the task in France was expected to demand the majority of Geddes’ attention, therefore it was found desirable to appoint a representative to act on his behalf in London. Sir Guy Granet, the General Manager of the Midland Railway, took up the post of Deputy Director-General of Military Railways at the War Office, overseeing the British half of Geddes’ dual appointment. The two men shared a number of similarities, from both having been born outside Britain (Granet in Genoa to a merchant banking family) to the possession of business experience obtained outside the railway industry.¹⁸³ Like Geddes, Granet’s rise to seniority had been rapid. Unlike Geddes, however, Granet did not join a railway company that had benefitted from the long-term input of a man like Sir George Gibb. Instead, despite improvements made by his predecessor, upon Granet’s arrival the Midland was ‘an undertaking rather living on its past reputation’.¹⁸⁴ The Midland had become known for the ‘easy-going regard for the virtue of punctuality’ displayed by its 66,000 employees over the 1,400 miles of track operated by the company.¹⁸⁵ The manner in which this deficiency was addressed will be

¹⁸¹ Lloyd George Papers, LG/E/2/19/8 Montagu to Lloyd George, 11 October 1916.

¹⁸² Lloyd George Papers, LG/E/2/19/9 Montagu to Lloyd George, 13 October 1916.

¹⁸³ Granet initially trained as a barrister, entering the railway profession at the age of thirty-three in the role of Secretary of the Railway Companies’ Association. In 1905 he became Assistant General Manager of the Midland, taking over from John Mathieson as General Manager the following year. See H. Parris, ‘Granet, Sir William Guy (1867-1943)’, in *DBB*, ed. by Jeremy, II, 328–31.

¹⁸⁴ Granet Papers, MSS.191/10/1/40 ‘A Maker of Railway History’, *Railway Gazette*, 22 October 1943 (press cutting).

¹⁸⁵ C. Hamilton Ellis, *The Midland Railway* (London: Ian Allan, 1953), p. 144.

examined further below, for the time being it is suffice to note that Granet's 'powers of organization, coupled with the work of a good team of officers, rapidly raised the Midland... to first class standards of efficiency'.¹⁸⁶ Foremost among Granet's gifts, as the appreciations written after his death testified, were 'a keen and scientific mind' and a willingness to consider new developments and policies. Like Gibb at the NER, Granet encouraged the Midland to abandon precedent and 'past practice', and to embrace improved methods and 'better alternatives'.¹⁸⁷

It was this ability to discard the accepted 'way of doing things', Granet's demonstrable success in cultivating systemic change (which led to the receipt of a knighthood in 1911), and his employment of modern working methods that doubtless encouraged Geddes to request Granet's appointment. As a member of the REC, Granet was well known at the War Office and, adding further weight to the case against Lloyd George's assertion of military insularity, Sir John Cowans offered his 'hearty approval' to the suggestion that Granet should enter the DGMR.¹⁸⁸ Even Stuart-Wortley found Granet to be a 'nice fellow',¹⁸⁹ illustrating that it was a personal dislike of Geddes rather than a blanket aversion to civilian 'interference' which guided his earlier antipathy. Despite the reluctance of the Midland's directors, permission for Granet to take up the role was granted by the railway company on 19 October.¹⁹⁰ The exchange of letters between Lloyd George and the Midland's chairman, alongside emphasizing the impact of Granet's withdrawal upon the company, also highlights the difficulties which the railway was experiencing as a result of the 'absence of so many of our chief and subordinate officers, who are either serving in the Munitions Department, or who are fighting'. Lloyd George's appreciation of the company's 'patriotic efforts' can have done little to ameliorate the pressures upon the Midland Railway which, alongside the other major British railway companies, was

¹⁸⁶ Granet Papers, MSS.191/10/1/25 'The Late Sir Guy Granet', *Modern Transport*, 23 October 1943 (press cutting).

¹⁸⁷ Granet Papers, MSS.191/10/1/41 'Sir Guy Granet', *Railway Gazette*, 22 October 1943 (press cutting).

¹⁸⁸ Granet Papers, MSS.191/3/4/2 Geddes to Cowans, 20 October 1916.

¹⁸⁹ Wilson Papers, HHW 2/84/68 Stuart-Wortley to Wilson, 25 October 1916.

¹⁹⁰ Granet Papers, MSS.191/3/4/9 Murray Smith to Lloyd George, 19 October 1916.

experiencing a significant increase in demand for its services during the war, whilst many of its workers had joined the army.¹⁹¹

Whereas the railway companies and the Ministry of Munitions acceded to the release of men to serve in the new directorates, the NER even continuing to pay Geddes' salary throughout the war,¹⁹² not all institutions displayed the same cooperative spirit. The most prominent example surrounded Geddes' desire to employ a 'man with practical knowledge in dock administration and working to act as Deputy Director of Docks to Wedgwood, particularly on the mechanical engineering side'.¹⁹³ From both a 'technical and personal point view', Cyril Kirkpatrick was viewed by Geddes as the man for the job. Kirkpatrick, described as a 'very strong man and a pusher', was well known to Wedgwood from the former's time spent as Engineer to the Corporation at Newcastle-upon-Tyne before the war. A request had already been sent to Kirkpatrick to ask for his advice on how labour could be obtained for various positions within the Docks directorate, and Geddes believed Kirkpatrick to be 'quite glad' to go to France; however, his employers, the Port of London Authority, refused to release him.

Geddes was not to be deterred, writing to Lloyd George that 'if the ports over here are to be worked satisfactorily it is essential that we should have not the third or fourth class men from the British ports but the best'.¹⁹⁴ Geddes' hope was that Lloyd George could use his influence to persuade the Authority to reconsider their position. Lord Devonport, the chairman of the Authority, was a former colleague of Lloyd George's at the Board of Trade, but despite their prior relationship and the despatch of a letter in which the national importance of the 'valuable public service' represented by the release of Kirkpatrick was stressed, the Authority

¹⁹¹ Granet Papers, MSS.191/3/4/7 Lloyd George to Murray Smith, 20 October 1916. Some 2,000 supervisory staff and managers were 'loaned' from British railway companies to the government for work in various departments during the conflict. In total the railways released over 180,000 men to serve in the forces. See Hamilton Ellis, II, p. 301.

¹⁹² This arrangement was much to the approval of the king even though, as a result of the NER receiving payments from the state as part of pre-war arrangements between the railway companies and the government, technically Geddes was being paid from the public purse. See Lloyd George Papers, LG/D/1/2/1 Butterworth to Lloyd George, 27 May 1915; LG/E/2/16/3 Stamfordham to Lloyd George, 5 October 1916.

¹⁹³ Lloyd George Papers, LG/E/1/5/16 Geddes to Lloyd George, 19 November 1916. All quotes in this paragraph taken from this source.

¹⁹⁴ Lloyd George Papers, LG/E/1/5/16 Geddes to Lloyd George, 19 November 1916.

resisted.¹⁹⁵ Kirkpatrick remained in London, overseeing the construction of the King George V Dock which would eventually open in 1921. Clearly then, despite the later assertions of the official historian, Geddes did not receive everything he desired upon his appointment.

Edmonds was employed at GHQ during the period of Geddes' reorganizations, and it is highly plausible that he may have contributed to the 'whispers' circulating around Haig that viewed Geddes as a threat to the autonomy of the military high command.¹⁹⁶ The abolition of the post of IGC and subsequent removal of Clayton, whose vicious criticisms of 'civilian interference' had so startled Geddes prior to his mission, did nothing to allay such fears among the soldiers who remained;¹⁹⁷ nor did the removal of Brigadier-General Twiss as Director of Railways in November, following Geddes' recommendation that Twiss be relieved of his appointment for failing to supply the required quantities of rails and locomotives to satisfy the BEF's needs.¹⁹⁸ Haig, however, whilst acknowledging the concerns within the BEF as to Geddes' unprecedented position, championed the 'civilianization' process from the beginning. Like Geddes, he believed explicitly in the promotion of the best man for the job, regardless of their background:

There is a good deal of criticism apparently being made at the appointment of a civilian like Geddes to an important post on the Headquarters of an Army in the Field. These critics seem to fail to realize the size of the Army, and the amount of work which the Army requires of a civilian nature. The working of the railways, the upkeep of the roads, even the baking of bread and 1000 other industries go on in peace as well as in war. So with the whole nation at war, our object should be to *employ men on the same work in war as they are accustomed to do in peace.*¹⁹⁹

In the context of an industrialized war in which the resources of entire nations were required to be mobilized and coordinated, Haig recognized that the inefficient use of the British Empire's human and material resources just to placate the sensibilities of the 'military trade union' was incompatible with the size of the challenge confronting the BEF. A far more logical approach

¹⁹⁵ Lloyd George Papers, LG/E/1/5/18(b) Lloyd George to Devonport, 27 November 1916. In the same letter Lloyd George also trusted that 'the Port of London Authority will be prepared to make some temporary sacrifice in order to help forward to a satisfactory solution the vital question of transportation in France'.

¹⁹⁶ Grieves, *Sir Eric Geddes*, p. 31.

¹⁹⁷ I.M. Brown, *British Logistics*, p. 146. As Brown notes, however (p. 141), Clayton did concede to Haig that the new system 'would work well' prior to his departure.

¹⁹⁸ Haig Papers, Acc.3155/109 diary entry, 9 November 1916.

¹⁹⁹ Haig Papers, Acc.3155/108 diary entry, 27 October 1916. Emphasis in original.

was to employ a ‘civilian who was unafraid of large-scale planning and had access to the necessary resources’ in place of officers handed the work ‘merely because they are generals and colonels’.²⁰⁰

Furthermore, the perceived threat from Geddes was not backed up by his actions. ‘Civilianization’ did not mean the wholesale replacement of soldiers with civilians as part of some kind of ‘old boys’ network at the War Office and in France. Where the incumbent proved themselves to be capable of discharging their duties effectively they were, regardless of being generals or colonels, retained in position. In London, Colonel Collard retained control of the provision of material for IWT,²⁰¹ whilst Colonel Mance’s performance on the transportation mission saw him rewarded with responsibility for obtaining the materials required for the expanded road, railway and light railway directorates.²⁰² The explanation given to Granet (under whom Collard and Mance would serve) for the retention of the soldiers in these procurement roles demonstrates Geddes’ appreciation of the advantages of retaining a presence of military ‘specialists’ within the new directorate. ‘Our chief difficulty’, Geddes wrote, ‘will be to get things “through” the War Office’. He was referring to bureaucracy – the dreaded ‘red tape’ – which could only be avoided by ‘knowing the ropes, and knowing where the snags are, and how either to get round them or knock them out of the way’.²⁰³ According to Geddes, not only were Collard and Mance capable of working without close supervision, but both also knew the ‘minor tricks of the trade’ necessary to ensure that requests from the DGT would not get buried in bureaucracy and would receive the priority that the situation demanded.²⁰⁴ For the major ‘tricks’ requiring the direct sanction of the Army Council, direct access to Lloyd George remained Geddes’ most prized weapon.²⁰⁵ That he chose to highlight this in his initial observations to

²⁰⁰ Grieves, *Sir Eric Geddes*, p. 32; Haig Papers, Acc.3155/108 diary entry, 27 October 1916.

²⁰¹ Collard evidently impressed Geddes, as he was invited to join the Admiralty when Geddes took up the post of Controller of the Admiralty in May 1917. Collard was also praised by Sir Sam Fay, who described him as ‘an extraordinary man, full of energy, very able, and prepared to take on anything from the construction of a battleship to the manufacture of a watch’. Collard’s replacement at the War Office was Colonel A.S. Cooper, former General Manager of the Nigerian Railways. See Fay, pp. 78, 167.

²⁰² Granet Papers, MSS.191/3/3/51 Memorandum, 19 October 1916, pp. 1-3.

²⁰³ Granet Papers, MSS.191/3/3/49 Geddes to Granet, 19 October 1916.

²⁰⁴ MSS.191/3/3/51 Memorandum, 19 October 1916, p. 5.

²⁰⁵ MSS.191/3/3/49 Geddes to Granet, 19 October 1916.

Granet demonstrates Geddes' ongoing concerns at the precarious position of the new directorate within the hierarchy of the British war effort.

Stuart-Wortley was another of those whom Geddes was keen to retain. Despite the obvious disdain shown towards Geddes by the Director of Movements, three factors combined to persuade Geddes not to immediately replace Stuart-Wortley. Firstly, as noted above, media reports were beginning to emerge which questioned the veracity of placing civilians in key positions of authority in the army, with the Northcliffe press in the vanguard.²⁰⁶ Secondly, and on a related note, Geddes was keenly aware of the need to retain the support of senior military and political figures in order to ensure a smooth transition while the new organizations were 'bedded in'. The king was 'glad to hear... that General Stuart-Wortley remains as Director of Movements, and that he and Sir Eric Geddes are working in complete harmony'.²⁰⁷ On a more practical level, the backing of Cowans, Stuart-Wortley's most fervent supporter, was critical to the success of the project. Although Cowans was, as we have seen, by no means ideologically opposed to civilian involvement in the war effort, as Sir Sam Fay would discover, the eventual removal of Stuart-Wortley elicited an emotional response:

When I saw General Cowans... he was angry and called me a damn fool. He said I could not carry on the job, that it was a military post, that the tentacles of the Director of Movements were all over the War Office and could not be moved from the building, although they were overcrowded... He reminded me that he had held the position ten years before Stuart-Wortley, and knew something about it.²⁰⁸

Although Cowans' outburst was highly uncharitable towards one of the British railway industry's most respected figures,²⁰⁹ it also demonstrated the third reason why Geddes was loath to dispense with Stuart-Wortley's services immediately. Put simply, Stuart-Wortley's experience and understanding of the role made him, temporarily at least, indispensable.

²⁰⁶ 'We must make changes with caution' was Northcliffe's warning to the government in early August when the Geddes mission was being arranged. See 'The Army behind the Army. Efficiency and Youth', *The Times*, 7 August 1916, p. 7. The *Morning Post* pursued a similar campaign, see Grieves, 'The Transportation Mission', p. 68.

²⁰⁷ Lloyd George Papers, LG/E/2/16/3 Stamfordham to Lloyd George, 5 October 1916.

²⁰⁸ Fay, p. 26. Fay eventually replaced Stuart-Wortley on 8 January 1917, by which time the DGMR was well-established.

²⁰⁹ Fay served on a number of government committees prior to the war, and earned a knighthood in 1912. Alongside this, and reinforcing the point made regarding the close relationships between Britain's senior political and railway figures, Fay was also a familiar face to some of the top politicians of the era, recalling in his diary a meeting with John Burns on 3 August 1914 at the National Liberal Club, following Burns' resignation from the Cabinet earlier that day. See G. Dow, *Great Central. Volume 3: Fay Sets the Pace, 1900-1922* (London: Ian Allan, 1971); Fay, p. 85.

Immediate removal ran the risk not only of upsetting the delicate balance in the War Office, but also of reducing the efficiency of the Directorate of Movements with potentially disastrous results. As Fay himself acknowledged after shadowing Stuart-Wortley for a week prior to taking over, nobody could have ‘run the show’ as well as Stuart-Wortley did at that time.²¹⁰ With Geddes more interested in creating efficient, functional directorates than getting involved in petty boundary disputes with obstinate soldiers, Stuart-Wortley, as with Maxwell in France,²¹¹ gained a temporary reprieve.

Yet with a number of entirely new departments to staff, and the majority of the army’s most skilled administrators already employed either at home or abroad, it was inevitable that a large proportion of the personnel required for the transportation directorates would have to be found from civilian sources. The wartime career of Company Sergeant Major L.W. Conibear illustrates that such experience was not merely required at the ‘senior management’ level either. An employee of the GWR at Bristol, Conibear joined the ROD in January 1917 and left for France on 4 February. Before the summer he would be responsible for on-board train duties (brakesman, guard, signaller), and employed on clerical and operational work (orderly room administration, establishing traffic control, organizing traffic). In July 1917, just over six months after having signed up, Conibear was responsible for all the administrative work in Fifth Army’s Light Railway directorate, a task which involved:

[dealing] with all personnel questions affecting eight Light Railway Operating Companies (over 2,000 men), leave, sickness, promotions, casualties, examinations and general routine. Traffic policy, new construction, signalling arrangements, pay, accounts... numerous telephonic and telegraphic enquiries in absence of the Superintendent of the Line. [Collating] statistics appertaining to the general working of light railways as required by the Director of Light Railways.²¹²

In the dislocation of March 1918, the abilities of such men were of great benefit to the BEF, Conibear finding himself in charge of sixty men attached to the Canadian Railway Troops to construct broad gauge railways after ‘considerable roaming’ following the disintegration of

²¹⁰ Fay, pp. 26–8.

²¹¹ Maxwell would ultimately be removed at the end of 1917, not as a result of friction with Geddes, but because his relationship with Sir John Cowans had broken down. See I.M. Brown, *British Logistics*, pp. 180–1.

²¹² Leeds, Brotherton Library Special Collections [BLSC], Liddle Collection, Papers of Major L.W. Conibear, LIDDLE/WW1/GS0346 Particulars of Service with the Colours, 23 July 1917. The significance of the collation of statistics will be discussed further below.

Fifth Army. Conibear would remain employed on broad gauge duties until the reconstitution of Fifth Army at the end of June, when he took on the role of Central Traffic Controller, responsible for the ‘movement of all power, wagons and traffic under the direction of the Superintendent of the Line’.²¹³

The large-scale logistical issues facing the BEF demanded men with the practical experience to undertake such varied duties effectively.²¹⁴ Geddes’ pre-war career and contacts within the railway industry provided him with knowledge of and access to men like Conibear; the ‘patriotic actions’ of companies like the Midland, GWR and the road board, from where the new Director of Roads, Henry Maybury, was obtained, provided him with their services.²¹⁵ Far from attempting to establish civilian ‘dominance’ over the military, from the outset Geddes endeavoured to merge the talents of Britain’s transport experts with the bespoke knowledge of talented officers who had acquired two years’ ‘on the job’ training as the BEF expanded.²¹⁶ From their inception, indeed even from the constitution of the transportation mission sent from London in August 1916, the directorates created by Geddes in Britain and France were hybrid organizations, viewed with suspicion by some soldiers, but given the unequivocal support of the BEF’s C-in-C. It was a point that, at the time at least, even Lloyd George would concede:

When I was Secretary of State for War one of my first duties was to appoint a great railway manager to take over the question of railway transport. The C-in-C not only welcomed his appointment, but instantly appointed him as chief railway representative behind the line.²¹⁷

When Lloyd George spoke in Wales, however, the new directorates had yet to face the test of active operations. The manner in which they did so would reinforce both the importance of logistics to the conduct of modern, materiel-intensive warfare, and demonstrate beyond doubt

²¹³ Conibear Papers, LIDDLE/WW1/GS/0346 Particulars of Service.

²¹⁴ A further example of the directorate’s awareness of the importance of employing men with prior experience is provided by the case of Colonel M.C. Rowland, formerly of the Union Defence Force in South Africa. Details of Rowland’s service were forwarded to Geddes in December 1916, with the following skills being underlined by Geddes on the document: control of mechanical transport, rail and sea transport; record work; and recruiting. See TNA: PRO ADM 116/1805 Sir Eric Geddes – private correspondence, Colonel M.C. Rowland: QMG: Union Defence Forces. Statement of Colonial Service, 24 December 1916.

²¹⁵ The appointments of prominent railway figures were recorded by the trade press, most notably within the pages of the *Railway Magazine*. See TNA: PRO ZPER 39/39-41 *Railway Magazine*, 1916-1917.

²¹⁶ Henniker, pp. 202–3.

²¹⁷ From a speech made by Lloyd George at Carnarvon, 3 February 1917, quoted in ZPER 39/40 ‘British Railway Service and the War’, *Railway Magazine*, 40 (1917), p. 197.

that 'total' warfare required organizational solutions derived predominantly from civilian sources.

3.3: Remembering the third ‘M’: The application of civilian business methods on the Western Front, 1916-1918

The Battle of the Somme illuminated the shortcomings in the BEF’s logistical support network in the summer of 1916. The congested roads of Picardy and the growing mountain of supplies at the Channel ports were graphic demonstrations of what occurred when the science of transportation was inadequately applied to the conduct of modern, materiel-intensive warfare. Yet in 1917 the BEF was able to launch four ‘large offensives’, all of which dwarfed the Somme in terms of the quantities of ammunition fired in support of the infantry.²¹⁸ In the final year of the war, even the dislocation caused by Germany’s spring offensives was insufficient to eradicate the organizational changes developed in the aftermath of Britain’s first great offensive on the Western Front. The results of the British reorganization of transportation in the preceding two years were played out in the final hundred days of the war. In the eight-day bombardment prior to the Somme, the British had fired 1,732,873 rounds.²¹⁹ Eight weeks later, the BEF’s transport network was in danger of collapsing in the process of sustaining ammunition expenditure of 28,000 tons per week.²²⁰ By contrast, eight weeks after the opening of the Battle of Amiens on 8 August 1918, the BEF was able to fire 943,847 rounds over twenty-four hours in the course of the assault on the Hindenburg Line, the culmination of a week in which the force expended 83,170 tons of munitions (3,383,700 rounds).²²¹ In the final hundred days of the war, the BEF pumped 621,289 tons of ammunition into the German defences.²²²

In conjunction with the myriad long- and short-term issues which combined to reduce the effectiveness of the German Army, the BEF’s supply services were able to provide logistical support on a level which would contribute greatly to Ludendorff’s decision to seek an armistice.²²³ Yet the importance of these munitions actually being in a position to be fired in the autumn of 1918 is largely overlooked in histories of the First World War, particularly among (primarily Anglo-centric) ‘revisionist’ historians. Whilst numerous authors have charted the

²¹⁸ I.M. Brown, *British Logistics*, p. 174.

²¹⁹ J. Terraine, *The Smoke and the Fire: Myths and Anti-Myths of War, 1861-1945* (London: Sidgwick & Jackson, 1980), pp. 118–19.

²²⁰ Stevenson, *With Our Backs to the Wall*, p. 379.

²²¹ Terraine, *Smoke and the Fire*, p. 127; Stevenson, *With Our Backs to the Wall*, p. 379.

²²² B. Bond, *British Military Policy between the Two World Wars* (Oxford: Clarendon Press, 1980), p. 5.

²²³ D. Stevenson, ‘1918 Revisited’, *Journal of Strategic Studies*, 28:1 (2005), 107–39 (pp. 113–19).

technological and tactical modernization of the BEF between 1 July 1916 and the end of the war, few have chosen to document this modernizing process in line with the capacity of the Allies to apply those lessons effectively. As Stevenson notes, although the Allies had superior access to both human and material resources than the Central Powers, ‘many of those resources were in the wrong place: far away in overseas empires or the US’.²²⁴ Furthermore, great quantities of shells were of no use if the Channel ports could not process them from the ships, nor the railways or canals transport them inland to the guns.

That a colossal increase in the transport capacity of the BEF occurred in the second half of the war is beyond doubt.²²⁵ By December 1916, Geddes had already secured the release of 350 locomotives; 20,000 wagons; 320,000 sleepers; and 12,000 railwaymen to improve the BEF’s transport position.²²⁶ Such colossal increases on what had been made available previously bred resentment among certain officers which pervaded post-war analysis. Within a week of Geddes’ appointment as Director-General of Military Railways, Stuart-Wortley observed to Henry Wilson that the ‘civilianization’ of the War Office had been accompanied by an increase in spending hitherto denied to the military. The departments previously staffed by small but willing groups of soldiers within the Directorate of Movements were ‘largely increased’ and the officers promoted to higher grades: ‘The way they waste money is awful.’²²⁷ Edmonds and Henniker would take the same line after the war, noting that Geddes employed a ‘very large staff of civilian engineers and officials’, and that his unique position in the military hierarchy afforded him freedom from the restrictions placed on the purely military organizations which the DGT and DGMR had supplanted.²²⁸ Even soldiers with whom Geddes had fostered a good working relationship, such as Mance, were susceptible to making comments that suggested Geddes and his team had operated with a liberty unavailable to the soldiers. In a post-war discussion at RUSI, the Director of Roads was described by Mance as having ‘ransacked England’, taking away ‘all the skilled men and rollers and everything else connected with the

²²⁴ Stevenson, *With Our Backs to the Wall*, p. 223.

²²⁵ Stevenson, *With Our Backs to the Wall*, pp. 226–7 charts just a small selection of the BEF’s infrastructural improvements in the wake of Geddes’ appointment.

²²⁶ Haig Papers, Acc.3155/109 diary entry, 1 December 1916.

²²⁷ Wilson Papers, HHW 2/84/68 Stuart-Wortley to Wilson, 25 October 1916.

²²⁸ Henniker, pp. xiv, 226. Prior to the wielding of the spending ‘axe’ which bore his name, Geddes had a reputation for being an ‘improvident spender’ of public money. See Cline, p. 99.

roads and quarries that he could lay his hands on' in order to improve the quality of roads used by the BEF in the second half of the war.²²⁹

Table 3.1 illustrates the increase in transport resources provided to the BEF between December 1916 and December 1918. Geddes did not view such expansion as 'extravagance', but merely the logical corollary of the fact that the British were, from September 1916 onwards, requested to undertake a much larger share of the transport burden from the French, and a result of military 'cheeseparing' prior to his arrival. Rather than requesting what was necessary in order to provide for the BEF, the 'soldier', as a result of 'the fear he has of the Treasury', had consistently put forward demands on the basis of what they thought *could* be provided rather than based on the real needs of the situation.²³⁰ Consequently, the BEF had been allocated far less in terms of transport resources than were necessary to ensure the effective supply of the

	31 December 1916	31 December 1917	31 December 1918	Percentage increase, 1916-1918
<u>Docks</u>				
Cranes working at British accommodation	126	290	369	192.86%
<u>Broad Gauge Railways</u>				
Locomotives				
Imported	62	753	1,205	1,843.55%
Hired	198	215	229	15.66%
Captured	0	0	6	
Petrol Tractors				
Imported	0	7	8	
Wagons				
Imported	3,840	34,845	52,597	1,269.71%
Captured or built from scratch	0	0	67	
Equivalent in ten-ton units	6,286	46,317	63,146	904.55%

Table 3.1 Selected increases in transport resources allocated to the BEF, 1916-1918
Source: S.D'A. Crookshank, 'Transportation Report for the Year 1918', *ICE Compendium WWI*, 1919

<http://www.icevirtuallibrary.com/upload/WW1_Crookshank_Transportation_Report-1918.pdf> [accessed 15 October 2014].

²²⁹ Mance, quoted in discussion of M.G. Taylor, 'Land Transportation', p. 715.

²³⁰ Granet Papers, MSS.191/3/3/51 Memorandum, 19 October 1916, p. 4.

troops at the front, particularly during offensive operations. Yet the mere accumulation of transport materials was not all that the BEF required in late 1916. Of equal importance to the acquisition of resources was the effective application of those resources to the task at hand. It was in this arena that the civilian expertise of Britain's transport managers was able to influence the character of the war in its final two years.

The application of modern managerial methods: restoring fluidity to the British Expeditionary Force, 1916-1918

The work undertaken by Geddes and the hybrid organizations he created between the autumn of 1916 and the end of the war to rectify these deficiencies has received comparatively more detailed scholarship than the contributions of men such as Dent and Holland. Grieves' biography dedicates a chapter to Geddes' personal contribution to the BEF's logistical organization on the Western Front,²³¹ whilst Brown's *British Logistics on the Western Front* has provided an unchallenged narrative of 'Geddes' legacy' with regard to the proficient supply of increasingly large quantities of ammunition to the BEF's ever-growing number of artillery pieces.²³² Both illustrate that Geddes was able to use his unique position to centralize the transport challenges facing the BEF, integrating the various modes of transport in use on the Western Front under the supervision of the DGT to realize the ultimate goal of the logistics network: supplying what the army required, in sufficient quantities, and at the time and place where it was needed.

As Brown has demonstrated, the shortages of ammunition noted by commanders early in the Somme offensive were the result not of insufficient production, but of longstanding tactical delivery problems. These issues were exacerbated by the voluminous increases in supply from Britain as the offensive got underway.²³³ Three potential solutions existed to remove the 'bottlenecks' which were reducing fluidity within the BEF's supply chain. The first option, proposed by the IGC in August, was for ships to be sent from Britain at a slower rate,

²³¹ Grieves, *Sir Eric Geddes*, pp. 27–39.

²³² I.M. Brown, *British Logistics*, pp. 155–74.

²³³ I.M. Brown, *British Logistics*, pp. 123–4.

thereby synchronizing their arrival in France with the discharge speeds at the Channel ports.²³⁴ Geddes reported the second possibility to Lloyd George in mid-September: ‘the only answer to the problem that I have had so far... is that the factories must slow down!’²³⁵ Both were impracticable. The scaling back of munitions production was a ‘moral and physical impossibility’ in a nation increasingly geared towards a more ‘total’ form of warfare, whilst a reduction in the frequency of deliveries to France would simply shift the storage problem to Britain.²³⁶ Besides which, in the event of a large-scale offensive those munitions would still be required to pass through the French ports *en route* to the front. The outcome in such circumstances would be familiar; congestion would inevitably develop at the ports as goods could not be removed from the quayside at a quicker rate than they could be discharged from the ships, and a similar situation would occur at the opposite end of the railways as the railheads struggled to cope with the unpredictable mass of traffic on the network.

In order for the BEF to undertake offensive operations using more matériel than the Somme,²³⁷ the only remaining option was for the DGT to improve the efficiency of the network as a whole, in terms both of the equipment used and the personnel operating it. In coordinating the entire process of supply from the ports to the front, rather than splitting the responsibility between two officers, Geddes’ new directorate would oversee both the infrastructural developments and the introduction of civilian operating methods to ensure the flow of matériel required to undertake the colossal offensives recognized as being necessary in the wake of the Somme’s failure. Unlike in the previous year, where the BEF’s logistics had been operated by a combination of the French and individual, loosely-related units reliant on uninterested and inadequate labour provided by the fighting troops, Geddes’ intention was to create a comprehensive, interlinked system of transport networks, with the required labour and equipment allocated according to the needs and priorities of Haig’s strategic vision.

²³⁴ TNA: PRO WO 95/3070 Inspector-General, Clayton to Lloyd George, 2 August 1916.

²³⁵ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

²³⁶ The pressure on the existing storage space in Britain had already been recognized by Geddes prior to the opening of the Somme. See Lloyd George Papers, LG/D/5/2/4 Memorandum on Filling for week ending 10 June 1916, 17 June 1916, pp. 7-8.

²³⁷ ‘Unless we can get 200,000 tons carried from the ports weekly... we cannot carry out our offensive as early as we wish’. Haig Papers, Acc.3155/110 diary entry, 28 January 1917.

However, despite his unique position within the British state and military machinery, Geddes was by no means given the status of autocrat during his tenure as Director-General of Transportation.²³⁸ Between the coast and the railheads, the BEF's logistical foundations continued to be constrained by the requirements and policies of their host and ally. At the docks, the continued French reliance on imports of coal restricted the BEF's options in terms of acquiring further port space,²³⁹ whilst on the railways the divergence between the BEF's demands for traffic and France's desire, and ability, to provide it formed the backdrop for the now infamous conference at Calais on 26 and 27 February 1917. The political machinations which saw Haig's forces subordinated to the command of Robert Nivelle have become synonymous with the events of the two day conference, aided by the manner in which the meetings were recalled in the works of the key delegates.²⁴⁰ Sir William Robertson's autobiography reserves just one sentence for highlighting what was, before the conference took place, supposed to be the major topic of discussion at Calais: transportation.²⁴¹ Although Lloyd George's account of the conference does refer to the 'long delays over questions of transport and coordination' which determined the need for a meeting of Allied political and military leaders,²⁴² his account of the discussion on transport (which he claimed occupied 'much of our time') was little more than an attempt to portray Haig as a stubborn and unreliable ally, creating the 'difficulties' that ultimately caused the failure of Nivelle's offensive.²⁴³

The provision of railway facilities was 'the governing factor' that required consideration at Calais according to Haig.²⁴⁴ The exceedingly poor weather in France during the

²³⁸ Geddes was sometimes referred to as the 'Napoleon of Transport' within British circles. See Cline, p. 75.

²³⁹ Greenhalgh, p. 119. As Greenhalgh also notes (p. 123), 'much adverse comment' was raised from Britain when, as the BEF was valiantly attempting to unload the munitions required to open the Flanders offensive, French port space was taken up with the somewhat less vital commodity of a 'boatload of rhododendrons'. For a more positive view of relations within the coalition, see I.M. Brown, *British Logistics*, pp. 155–7 on Franco-British cooperation in the wake of the sinking of the SS *Araby* outside Boulogne in December 1916.

²⁴⁰ The role of logistical considerations in bringing about the conference are covered in Harris, *Douglas Haig*, pp. 286–8.

²⁴¹ W.R. Robertson, *From Private*, p. 307.

²⁴² Lloyd George, I, p. 891.

²⁴³ Lloyd George, I, pp. 891–3. Andrew Suttie has comprehensively demolished Lloyd George's version of events, claiming that the Prime Minister distorted the facts and omitted material in his *War Memoirs*. See Suttie, pp. 116–19.

²⁴⁴ Haig Papers, Acc.3155/110 Questions for discussion at the Franco-British conference to be held at Calais on 26 February 1917; Haig to the king, 28 February 1917.

winter of 1916-1917 was exacerbated by a severe ‘cold snap’ in late January which saw the canals of France freeze over.²⁴⁵ As a result, all of the factories in Paris became reliant upon the railways for deliveries of coal, reducing the capacity of the Nord system and making the complete fulfilment of the BEF’s requirements impossible.²⁴⁶ The Calais conference, despite Robertson’s concerns over the wisdom of involving the French and British governments,²⁴⁷ was arranged primarily for the two nations to discuss the ongoing construction works on the French rail network and to ascertain when the BEF would be in a position to commit to offensive action. Whilst the French believed that the British demanded a disproportionate amount of transport for the number of men they employed in the field,²⁴⁸ the British complained that the Nord railway, for which the French were naturally responsible, was being managed inefficiently,²⁴⁹ and that as much as two-thirds of the traffic being carried on the Nord was for French rather than British use.²⁵⁰ Lloyd George observed at the conference that the French and British experts ‘did not appear to agree on a single figure’, and that continued discussion would therefore be fruitless.²⁵¹ His subsequent intervention, for which the conference is ultimately remembered, ensured that ‘very little progress’ was made on the matter at Calais,²⁵² leading Geddes to ‘question the utility of his remaining’ in France under such constraints.²⁵³

The docks and railway network of northern France were thoroughly established ingredients of the shared Franco-British logistics chain prior to Geddes’ arrival. Unlike on the privately-owned lines of the NER, the development of these strategically vital arteries was

²⁴⁵ WO 95/56 Memorandum number 4, 29 April 1917, pp. 2-3.

²⁴⁶ Haig Papers, Acc.3155/110 diary entry, 26 January 1917; I.M. Brown, *British Logistics*, p. 158. The poor winter weather would have a further tragic consequence for the BEF, as Brigadier-General Holland was struck down by illness following a prolonged period spent surveying the devastated canals left behind in the wake of the German retreat to the Hindenburg Line. Having been invalided to Britain, Holland died on 26 June 1917. He was replaced as Director of IWT by his assistant, another former Royal Indian Marine commander, Brigadier-General Cyril Luck.

²⁴⁷ Robertson Papers, 7/7/7 Robertson to Haig, 14 February 1917.

²⁴⁸ Robertson Papers, 7/7/8 Robertson to Haig, 28 February 1917.

²⁴⁹ Haig Papers, Acc.3155/110 Note on the present Transportation Situation, 16 February 1917.

²⁵⁰ TNA: PRO WO 158/41 Transportation: Agenda and notes for the Calais Conference on Transportation, 26 February 1917, p. 4.

²⁵¹ Granet Papers, MSS.191/3/3/183 Notes of an Anglo-French Conference Held at the Hotel Terminus, Calais, on 26 and 27 February 1917, p. 7. Liaison officer Edward Spears would note later on in the year that discussions on shipping were frequently influenced by the production of ‘reams of statistics’ from the French which were ‘accepted in London as absolutely bonâ fide’ despite having been prepared ‘by men who know absolutely nothing about the question’. See Spears Papers, 1/13/1/LS160 Spears to Maurice, 1 November 1917.

²⁵² Robertson Papers, 7/7/8 Robertson to Haig, 28 February 1917.

²⁵³ Haig Papers, Acc.3155/111 diary entry, 3 March 1917.

therefore understandably subject to a constant process of negotiation and renegotiation between the two principal ‘stakeholders’ on the Western Front. Even so, as table 3.1 demonstrates, the British were expected to and did supply a range of equipment to increase the capacity of these key elements in the overall transport mix following the Battle of the Somme. These modifications, combined with increases in the quantity of manpower devoted to transportation in 1917; the construction of new engineering projects such as the cross-Channel train ferry;²⁵⁴ and the implementation of the working practices to be discussed further below, were designed to ensure a regular supply to the railheads of increasingly large quantities of matériel. In this they were successful. The average tonnage discharged from vessels at the French ports in January 1917 was 12.5 tons per hour. By January 1918 this had risen to 25.8 tons per hour and by July 1918 had reached a peak of 34.4 tons per hour. As the DGT’s report for 1918 explains, such increases would have continued but for the increasing inability of the railways to provide rolling stock to the ports as the lines of communication expanded to follow up the advances of the hundred days.²⁵⁵

Despite the improvements made between the sea and the ‘head of steel’, the final gap between the railheads and the front line remained a concern.²⁵⁶ The road network had, during the Somme, proven incapable of providing a reliable medium for the transport of supplies during an offensive. The winter weather and the devastation wrought by the Germans in the withdrawal to the Hindenburg Line merely exacerbated difficulties which had been a constant presence on the Western Front.²⁵⁷ The utility of light railways as an alternative had already been

²⁵⁴ H. Best, *The Mystery Port*, *Richborough* (Blackpool: Blackpool Gazette & Herald, 1929); J.K. Robertson, ‘Richborough Military Transportation Depot’, *Institution of Civil Engineers. Minutes of the Proceedings*, 210 (1920), 156–207; ‘Discussion on Richborough Military Transportation Depot and Ferry’, *Institution of Civil Engineers. Minutes of the Proceedings*, 210 (1920), 239–51; Hamilton Ellis, II, pp. 307–8. Although the overall tonnage conveyed by the train ferry was relatively modest, the service ‘proved of inestimable value’ in allowing for the quick and easy discharge of bulky items such as locomotives, wagons and tanks. According to the Director-General of Transportation at the end of the war, Major-General Sidney d’Aguilar Crookshank, the train ferry provided ‘a very great assistance to port working’. See Crookshank, ‘Transportation Report 1918’, p. 4.

²⁵⁵ Crookshank, ‘Transportation Report 1918’, p. 3.

²⁵⁶ ‘It is not found advisable to push Broad Gauge railheads nearer the front than seven miles, and the average distance behind the front line of these railheads may be put at about ten miles’. See TNA: PRO WO 158/852 Director-General of Transport: History of Light Railways, Untitled Memorandum, p. 10.

²⁵⁷ See, for example, WO 95/3951 Kitchener to French and French to Kitchener, 27 November 1914.

recognized at GHQ prior to Geddes' arrival,²⁵⁸ but it would only be upon his appointment as Director-General of Transportation that the wherewithal existed to provide a centrally directed light railway network in accordance with Haig's wishes. Furthermore, with the system lying entirely within the province of the BEF, it would be largely free of 'interference' from Britain's coalition partners. It was upon this network that Geddes would have the opportunity to exercise the full range of his organizational talents. Even so, the meteorological and enemy factors noted above ensured that the DGT's light railway operations got off to a faltering start.

With Haig's intention at the turn of the year still being to recommence offensive operations on the Somme, initial building work on the 60cm network was concentrated in the area then held by Gough's Fifth Army. The existing lines, taken over from the French during 1916 were in 'an exceedingly bad condition' due to the lack of material and motivation to affect repairs. The severe weather, added to the lack of available labour as the Light Railway Operating Companies were in the process of being raised, further retarded construction. The withdrawal of the Germans in late February then rendered much of the work which had been completed practically useless.²⁵⁹ As a result, the locomotives and rolling stock were loaded onto broad gauge railways and sent north towards Arras.²⁶⁰ When W.J. Hill arrived at Marceuil with the 19th Light Railway Operating Company early in 1917, he and his comrades found 'no motive power of any description, and only a few bogie wagons of French design'.²⁶¹ Gradually, the equipment ordered by Geddes the previous winter (1,000 miles of track; 797 locomotives; 3,622 double-bogie trucks; and assorted workshop equipment) began to arrive on the Western

²⁵⁸ It is important to note that light railways were originally intended for use as an *alternative* to road traffic, hence the establishment of a combined Directorate of Light Railways and Roads in Geddes' initial hierarchy. However, despite the large-scale introduction of light railways behind the BEF in 1917, the sheer volume of materiel being landed in France meant that road traffic continued to increase and the directorate was eventually split in half. See WO 158/852 General Review, pp. 2-4; Henniker, pp. 200-1, 207.

²⁵⁹ Henniker, pp. 270-2. On the logistical and engineering implications of the German withdrawal, see M. Wedge, 'From the Hindenburg Line (1917) to the Hindenburg Line (1918): An Evaluation of the Developments in BEF Logistical and Engineering Methodology Based on the Experience of Open Warfare Gained during the German Withdrawal to the Hindenburg Line (February-April 1917)' (unpublished Bachelors Dissertation, University of Birmingham, 2009).

²⁶⁰ Henniker, p. 215.

²⁶¹ BLSC, Liddle Collection, Papers of Sapper W.J. Hill, LIDDLE/WW1/GS0767 Recollections of France and the LRs during the Great War, 1914-1919, p. 10.

Front,²⁶² allowing for the hitherto theoretical light railway policy to be put into practice. Unlike at the docks and on the railway network, where French demands and desires acted as both a constraint and a consideration, ahead of the railheads Geddes had an almost ‘blank canvas’ upon which to outline the procedures and practices to be followed on the BEF’s expanded light railways.

Auckland Geddes would suggest that his brother had taken inspiration for the BEF’s light railway network from the Powayan Steam Tramway he had helped construct in the early 1900s.²⁶³ As the records of Eric Geddes’ observations of the French light railway networks demonstrate, he was also both familiar with and impressed by operations on the French networks. Unsurprisingly therefore, the policy to be followed by the BEF borrowed heavily from the example set by the French, where the entire 60cm system was controlled from GQG by a special department which allocated all materials and personnel to the ‘*réseau*’ linked to each of the individual army groups. As the armies moved on and the boundaries changed, the ‘*réseau*’ remained in place, ensuring that those responsible for operating the light railway network gained a greater knowledge of their portion of the system.²⁶⁴ The 60cm system was ‘primarily used for heavy gun ammunition, its secondary use being for Engineers’ Stores, and, lastly, if there [was] any further capacity available, for supplies, ordnance stores, [and] light gun ammunition’.²⁶⁵ Light railways were used by the BEF as the primary distribution system for

	January	(Pre-Arras) March	(Messines) June	(Ypres) September	December
Locos in traffic	Unknown	126	342	546	513
Tractors in traffic	Unknown	68	230	335	434
Wagons in traffic	Unknown	1,395	2,756	4,332	4,797
Miles operated	97	164	314	623	717
Tons conveyed	10,325	25,315	95,180	210,808	165,530

Table 3.2 Light Railway weekly averages for selected months, 1917

Source: Davies, p. 74.

²⁶² Haig Papers, Acc.3155/108 Memorandum: Light Railway development on the British Front, France, 11 September 1916); Davies, p. 39.

²⁶³ Geddes, p. 238.

²⁶⁴ Woodroffe Papers, 3/38/1/2 Notes on a visit, 6 September 1916.

²⁶⁵ Haig Papers, Acc.3155/108 Memorandum: Light Railway development, p. 3.

bulk goods beyond the railheads, with mechanical transport and trench tramways used as adjuncts for the onward delivery of items which the 60cm network could not convey entirely to the point of use or storage. Ultimately, roughly half the traffic dealt with by light railways would belong to the latter category, including items such as trench warfare munitions and food, for which the benefit of light railways was felt in the reduction of road use for such traffic in the rear areas.²⁶⁶ All heavy gun ammunition, and a small proportion of engineering stores and field gun ammunition, the other half of the traffic carried, was delivered direct to gun spurs and group stations by the light railway network.²⁶⁷ By September 1917, the traffic circulating on the light railways supporting the BEF had reached a peak of over 200,000 tons per week (see Table 3.2).

To coordinate this traffic, and demonstrating that Geddes was willing to look not only beyond the practices employed by the French and by his own domestic railway, the DGT took its inspiration from the latest operating systems to be developed by some of Britain's other pioneering railway companies. In *Light Railways of the First World War*, Davies remarks that the control system in place to manage the light railway network on the Western Front resembled that of 'an ordinary railway'.²⁶⁸ Writing in the 1960s, Davies' statement was correct, as the nationalized rail network in post Second World War Britain operated under a system of centralized control. At the outbreak of the First World War, however, such methods were the subject of intense experimentation among the competing railway companies, with only two major British railways, the Midland and the Lancashire and Yorkshire [LYR], operating centralized train control systems on their main lines.²⁶⁹ In the case of the Midland Railway, which rolled out its bespoke Train Control System in 1909,²⁷⁰ the primary reasons for instituting the new system – efficiency, flexibility, and the economic use of rolling stock to increase

²⁶⁶ T.R. Heritage, *The Light Track from Arras: A Descriptive Account of the Activities of the 19th and 31st Light Railway Companies, Royal Engineers during the World War* (London: Heathfield, 1931), p. 8.

²⁶⁷ WO 158/852 General Review, p. 10.

²⁶⁸ Davies, p. 71.

²⁶⁹ P. Burt, *Control on the Railways: A Study in Methods* (London: G. Allen & Unwin, 1926), p. 98; J.A.F. Aspinall, *Train Control Arrangements: A Survey of the Comprehensive Control System Operating on the Lancashire and Yorkshire Railway* (Manchester: Lancashire & Yorkshire Railway, 1915); TNA: PRO RAIL 491/815 Midland Railway Company: Records, Train Control Office at Derby, 1914.

²⁷⁰ The company was unequivocal in stressing the originality of the scheme following assertions that it was based upon 'American practice'. See RAIL 491/815 Train Control, p. 7.

fluidity throughout the network – were precisely those governing the BEF’s implementation of centralized control in 1917.

Centralized train control on the Midland began in an experimental form at Masborough, near Sheffield, in 1907.²⁷¹ Congestion associated with the use of railway sidings as makeshift depots had created a situation in which freight trains on the line could not be unloaded efficiently. Similar to the effects of such practices at the Channel ports as identified by Francis Dent in late 1914, and by the Royden Commission prior to the Battle of the Somme, obstructions on the line routinely led to widespread delays throughout the Midland network. As a result of the unpredictable nature of the traffic, train crews were frequently forced into working shifts of fifteen hours or more as replacement crews were allocated according to timetables rather than the actual positions of the trains.²⁷² In the first six months of 1907 alone a total of 24,760 cases of extended duty were recorded by the Midland, contributing to numerous cases of staff absence due to illness, and ‘agitation’ amongst the railway workforce for a reduction in hours.²⁷³ Met by an almost unanimous refusal from the railway companies to receive union officials for negotiation, a threat of strike action was made in October 1907, leading to a series of conferences between representatives of the railway companies and the then President of the Board of Trade, David Lloyd George.²⁷⁴ According to Lloyd George, the potential effects of a strike among railway workers would be disastrous for the British economy, as ‘there is hardly a country in the world... which demands so much upon the absolute promptitude with which goods are delivered’.²⁷⁵ The reliability of the late-Victorian railway industry had created a logistical environment in which industries had felt confident enough to reduce their levels of stock held on-hand, leading to the prospect that any extended dislocation

²⁷¹ Edwards, p. 14.

²⁷² It is important to note also that this was a nationwide problem. According to an official investigation in 1907 the majority of engine drivers (13,722 from a total of 18,354) were working for an average of sixty to sixty-two hours per week. A total of 3,689 of those examined were working an average of more than sixty-six hours. See TNA: PRO RAIL 1053/257 Report of an Enquiry by the Board of Trade into the Earnings and Hours of Labour of Workpeople of the United Kingdom in 1907, VII – Railway Service, pp. 188-9.

²⁷³ RAIL 491/815 Train Control, p. 4; Alderman.

²⁷⁴ Alderman, pp. 138–9. These discussions are documented in TNA: PRO RAIL 1053/258 Railway dispute: conference between David Lloyd George, President of the Board of Trade, and representatives of the railway companies, 1907.

²⁷⁵ RAIL 1053/258 Railway dispute, 25 October 1907, p. 6.

of the railway service would starve manufacturers of crucial raw materials and customers of staple products such as bread and milk.²⁷⁶ In 1917, the military practice was also to ensure stores were placed far enough away from the front line to reduce their susceptibility to artillery fire and the risk of their loss in the event of an enemy advance. This meant that the ‘consumers’ at the front line were also wholly dependent upon an effective transport network to deliver the required goods when called upon. A cut in supply, whether due to labour withdrawal or enemy action, would have the same result. In 1907, Lloyd George was dealing with an economy which he feared would lose out on trade to German manufacturers should the transport network fail. A decade later, Geddes was faced with the supply of an army which depended upon an efficient, reliable, flexible service to ensure it was capable of meeting a very different German menace.

Regardless of Lloyd George’s laudatory pronouncements on the standards of the railway service in Britain (doubtless made to placate his audience and garner their support for more conciliatory policies towards their employees), time-keeping was not a great strength of the Midland Railway. In 1907, the average weekly delays to freight traffic for the entire year stood at 21,869 hours.²⁷⁷ It was within this context of labour unrest and punctuality issues that the new General Manager of the Midland (and future Deputy Director-General of Military Railways at the War Office), Guy Granet, authorized the development of the Train Control System which would ultimately be employed on the Western Front. The experiment at Masborough was such a success that the Superintendent of the Line, Cecil Paget (who acted as head of the ROD on the Western Front), proposed the extension of the scheme to cover the most congested section of the Midland network.²⁷⁸ Following an equally impressive trial period working the goods and mineral traffic between Cudworth and Toton, and despite the apprehensive response of many transport managers outside the company, the Midland Train Control System was eventually rolled out across the entirety of the company’s 1,400 miles of track.²⁷⁹ Mirroring the experiences of Sir George Gibb and those advocating the use of detailed statistical accumulation as the foundation of operational reforms during the pre-war period, the

²⁷⁶ RAIL 1053/258 Railway dispute, 25 October 1907, pp. 6-7.

²⁷⁷ RAIL 491/815 Train Control, p. 68.

²⁷⁸ TNA: PRO ZLIB 29/620 The train control system of the Midland Railway, 1921, pp. 1-3.

²⁷⁹ Hamilton Ellis, pp. 150–2.

Train Control Scheme was expected to fail; ‘quite a number of able railway men’ suggested that the extant methods of control could not be improved upon.²⁸⁰

As figure 3.1 shows, the system did not fail. Between 1907 and 1913 the weekly average hours’ delay to freight traffic on the Midland fell by more than sixty-four per cent, despite the tonnage of goods conveyed growing over the same period by over ten per cent. The speed of trains on the network also increased, from an average of 4.9 miles per hour to 6.3 miles per hour, a twenty-eight per cent rise.²⁸¹ As noted above, ‘in 1907 there were more than twenty thousand cases of men working for excessively long hours. Four years later there were no such cases’.²⁸² The Train Control System had clearly proven itself a success on the home front prior to the outbreak of war, and the opening of a central train control office in Manchester by the LYR in August 1915 demonstrated an acknowledgement of the Midland’s innovation in the wider railway community. It is therefore little surprise that a similar system was adopted for the operation of the BEF’s light railway network in 1917.²⁸³

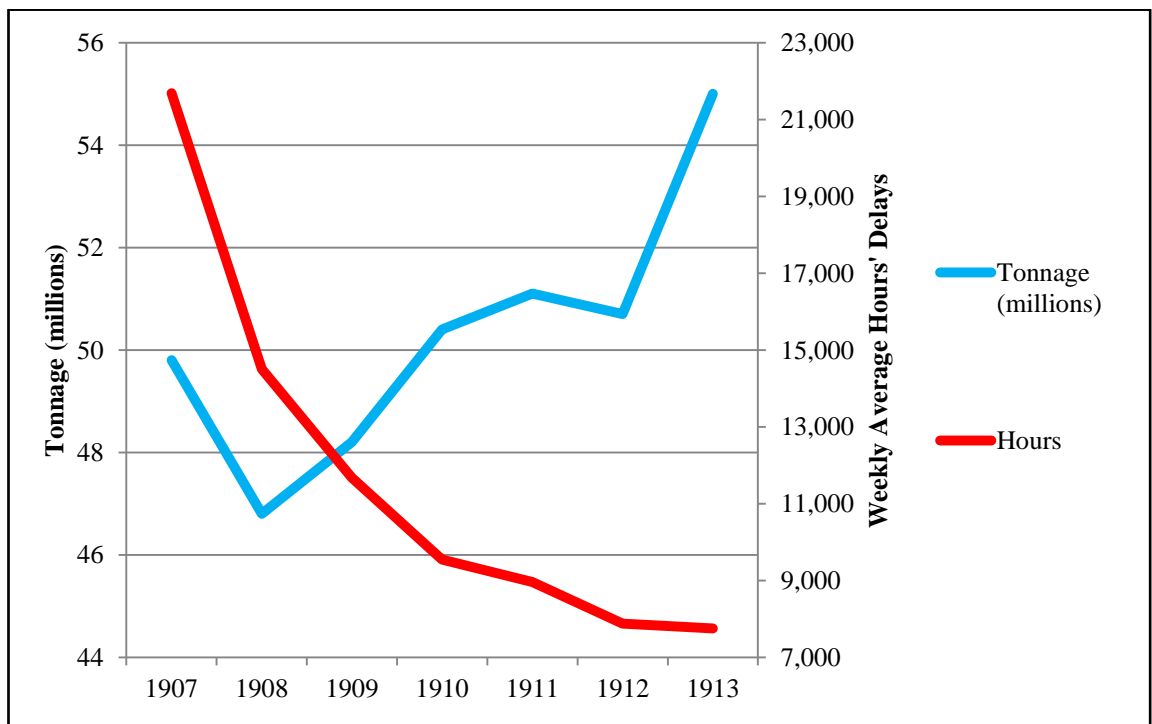


Figure 3.1 Delays to freight traffic on the Midland Railway, Average Weekly Hours, 1907-1913

Source: Edwards, p. 19.

²⁸⁰ RAIL 491/815 Train Control, pp. 6-7.

²⁸¹ RAIL 491/815 Train Control, p. 72.

²⁸² Hamilton Ellis, p. 150.

²⁸³ Burt, p. 130.

The BEF inherited relatively few operable light railways from the French. This meant that the French practice of working a given length of line, typically between twenty and thirty miles, under the ‘box-to-box’ system of passing trains from one section to another was not particularly well established among the British troops.²⁸⁴ It was therefore relatively straightforward to establish a new control system once the DGT took over responsibility for the coordination of the network. Importantly, it also meant that the new lines projected for construction could be planned and built with the requisite equipment installed from the outset, while the extant lines operating on the old system were gradually converted.²⁸⁵ The ‘box-to-box’ system remained in place, however, and acted as a back-up operating system during the periods in which the telephone network was severed by enemy artillery.²⁸⁶

Fundamental to the operating procedure were the control offices. The five armies of the BEF were each served by a self-contained central control office, from which requests from the corps attached to the army were collated. Large schematic diagrams (as per the Midland and LYR systems) were set up in each control office, showing the army’s portion of the light railway network along with the location of all rolling stock and locomotive power within the army’s possession.²⁸⁷ This information was constantly updated by reports from the numerous ‘district’ control offices situated at the marshalling yards from which the supply trains were made up for their journey to the front. Each district also contained several stations or dumping points, the number of wagons on hand at each being reported back to the district control at regular intervals. As had been discovered on the Midland’s system, this process allowed staff at the army’s central control office to obtain an almost real-time overview of the precise whereabouts of the network’s transport assets.²⁸⁸ Daily conferences among the technical staff each morning, another replication of the Midland’s procedures,²⁸⁹ allowed the responsible

²⁸⁴ WO 158/852 Operation, p. 19.

²⁸⁵ This process clearly took some time, as the diary of the 31st Light Railway Operating Company illustrates that the new system, reported to be ‘working quite satisfactorily’, was only up and running in August 1917. See TNA: PRO WO 95/4061 Lines of communication, 31st Light Railway Operating Company, diary entry, 16 August 1917.

²⁸⁶ Hill Papers, LIDDLE/WW1/GS0767 Recollections of France, p. 51.

²⁸⁷ Davies, pp. 70–1; WO 158/852 Operation, p. 20; RAIL 491/815 Train Control, p. 18; Aspinall, p. 11.

²⁸⁸ Burt, p. 105; RAIL 491/815 Train Control, pp. 9–11.

²⁸⁹ Edwards, p. 16.

officers to discuss the priority movements of the day ahead and to divide up the number of locomotives available in the most efficient manner possible to respond to the needs of the army.

This process of consultation and coordination allowed the central control to gain an overall picture of requirements across the army as a whole, and to allocate rolling stock around the network as required. This minimized the prospect of a district being left with too few wagons on hand to deal with their daily traffic and leaving front line troops without supplies. As an example of the system in action, on 31 July 1917, the opening day of the Third Battle of Ypres, the 12th Light Railway Operating Company, based at the time in Romarin, received orders to ‘transfer as many bogie wagons as could be put together quickly for ammunition work’ further north.²⁹⁰ Not only did such information create extra flexibility, by allowing for the movement of rolling stock to the point at which it was most urgently required, it also allowed for the central and district control offices to identify where rolling stock was being held ‘under load’ for abnormally long periods. As pointed out by Fayle in relation to the length of time spent by ships in dock, the carrying power of the BEF was dependent not only upon the quantity of rolling stock or tonnage available, but upon the extent to which that capacity was utilized.²⁹¹ Wagons left in sidings awaiting an unloading party represented both a reduction in the BEF’s overall transport capacity and an indication of uneconomical working. Between March and September 1917 the average wagon turnaround time was reduced from 1.7 days to just under a day,²⁹² supplementing the increases in available stock as deliveries of Geddes’ ‘extravagant’ requests arrived in France and facilitating the huge expansion in conveyance illustrated in table 3.2.

To guard against such inefficiencies, a ‘wagon register’ containing the location of all the BEF’s rolling stock was requested by central control on a daily basis. This was based on the ‘Train and Engine Shunting Journals’ recorded in each district.²⁹³ These journals contained information on every train which passed over the light railway network, ‘often compiled in huts

²⁹⁰ TNA: PRO WO 95/4056 Lines of communication, 12th Light Railway Operating Company, diary entry, 31 July 1917.

²⁹¹ C. Ernest Fayle, ‘Carrying-Power in War’, *RUSI. Journal*, 69:475 (1924), 527–41 (p. 530).

²⁹² Davies, p. 73.

²⁹³ WO 158/852 Operation, p. 20.

or dugouts under artillery fire' and passed back over the telephone to the district control offices.²⁹⁴ As will be discussed further below, the data produced from each individual train formed part of a comprehensive system of statistical compilation devised by Geddes' personal assistant George Beharrell, whilst the Train Control System allowed for district and central officers to keep in close contact with otherwise dispersed and inaccessible subordinates. From the information received from each district, summaries were prepared at the central control office of each army which, when combined, detailed the entire working of the system for the Director of Light Railways. Furthermore, by linking the entire network via a bespoke telephone network, traffic could be re-routed almost immediately if (or more correctly when) sections of the line were rendered impassable by enemy fire. Such was the assumed importance of the Train Control System to the operation of the light railways that each of the Light Railway Operating Companies raised during the war consisted of a permanent detachment of telephone operators and train control staff which made up sixteen per cent of the company's establishment.²⁹⁵

Although initially devised as an alternative to the road system, light railways were incapable of replacing road traffic on the Western Front. In fact, despite the increasing mileage of light railways in operation in support of the BEF as 1917 unfolded, the volume of road metal demanded by the armies continued to grow. In January 1917, Fifth Army received 405 lorry-loads of road stone; in July the same army required 1,000 lorries, despite the light railway network in that sector alone carrying an average of 60,000 tons per week (removing the equivalent of 1,350 lorries from the roads).²⁹⁶ Without light railways, the colossal bombardments which took place in 1917 and 1918 could not have been sustained for anything like the same duration or with the same intensity. Artillery 'was the great destructive force in this war'.²⁹⁷ In September 1917 'no less than 7,000 tons of ammunition were being carried daily' by light railway in support of the fighting at Ypres.²⁹⁸ It was a transport network by and large

²⁹⁴ Beharrell, 'The Value of Full and Accurate Statistics', p. 39.

²⁹⁵ WO 158/852 General Review, p. 4. The other employments in each company, consisting of 250 men each, were divided as follows: train crews, thirty-four per cent; repairs and maintenance, twenty-three per cent; station yard and other traffic duty staff, twelve per cent; non-effectives, fifteen per cent.

²⁹⁶ Davies, p. 68.

²⁹⁷ R. Prior and T. Wilson, *Passchendaele: The Untold Story* (New Haven, CT: Yale University Press, 1996), p. 17.

²⁹⁸ Davies, p. 72.

designed, constructed and operated by civilians, utilizing working methods which had been pioneered less than a decade before to meet a challenge related to profits rather than power. Far from being obstructed by an insular, self-preserving army, the DGT under the guidance of Sir Eric Geddes was able to establish and lay the foundations for the transport system which would maintain the BEF during the *Materialschlacht*. Upon Geddes' departure for the Admiralty, Haig recorded in his diary: 'Geddes' organization of the railways (both broad gauge and light) and of the roads, ports, etc. has proved a great success. I am very greatly indebted to him for all that he has done'.²⁹⁹ Indeed, such was Haig's appreciation of Geddes' particular skill set that the C-in-C requested that Geddes remain available to him as a 'consultant on railway questions' for the duration of the conflict,³⁰⁰ and Geddes was singled out for particular praise in Haig's final despatch in 1919.³⁰¹

Yet the result of such concentrated focus upon Geddes has overshadowed the work of those who maintained the BEF's logistical provision in the face both of diminishing support from the French and the seemingly inexhaustible increase in demands from the front line. Transportation was merely one sector of many within the BEF, all of which demanded a share of the Empire's finite resources of men and materials. With no clear indication as to when the war might conceivably come to an end, the more effective use of those resources became of paramount importance to the BEF as the war continued. Yet the officers who oversaw the 'efficiency drive' of the final two years of the war have not received the same level of attention as Lloyd George's 'blue-eyed boy'. The expert knowledge and contacts of Brigadier-General Henry Maybury provided '10,000 workmen, road engineers, quarry men' and the modern equipment necessary to assure Haig that he 'need have no further anxiety as regards roads',³⁰² whilst it was the responsibility of Brigadier-General Geoffry Harrisson, who was building a railway in Brazil when war was declared, to oversee the operations of the Directorate of Light

²⁹⁹ Haig Papers, Acc.3155/113 diary entry, 7 May 1917.

³⁰⁰ Haig Papers, Acc.3155/113 diary entry, 7 May 1917.

³⁰¹ Haig, p. 351.

³⁰² Haig Papers, Acc.3155/112 diary entry, 28 April 1917.

Railways from February 1918.³⁰³ Geddes drew the disparate transportation providers together and gave the consolidated DGT a ‘good start’.³⁰⁴ He restored the concept of ‘movement’ which Haig accepted had been ‘forgotten’ amidst the unprecedented logistical demands of the Somme,³⁰⁵ and he was responsible for obtaining many of the ‘large number of skilled and experienced civilians... drawn from the railway companies of Great Britain and the Dominions’ that contributed to the ‘general excellence’ of the BEF’s transportation services in the second half of the war.³⁰⁶ Yet not all of those who contributed to the increasing logistical excellence of the BEF were ‘temporary gentlemen’, drafted into the army to provide the knowledge and expertise the military professionals sorely lacked. The ability to apply ‘civilian’ methods to the operations of Britain’s largest ever military force was far more widespread than has hitherto been asserted.

Managing the ‘workforce’: labour distribution in the British Expeditionary Force, 1917-1918

The BEF reached its peak strength on the Western Front during the summer of 1917. From that moment on, when the number of troops employed in France and Flanders stood at just over two million, until the end of the conflict, the British contribution to the northern European theatre would, in numerical terms, undergo a gradual decline. That the BEF responded to this unavoidable decline in numbers through the more effective use of the available manpower, and a higher dependence upon the ‘machines’ of war, has been central to the ‘learning curve’ theory of British improvement following the nadir of the Somme.³⁰⁷ Britain’s desire to win the war and the peace at the lowest possible cost had to be reframed, as a determination to win the war before the costs became too great for Britain to withstand whilst also maintaining sufficient influence to exert at the post-war bargaining table.³⁰⁸ In order to do so, the British government

³⁰³ S. Damas, ‘Who Was Who in Argentine Railways, 1860-1960’, *Who Was Who in Argentine Railways, 1860-1960*, 2014, pp. 236–7 <http://www.diaagency.ca/railways/WWW_sample.pdf> [accessed 13 November 2014]; Fay, p. 92.

³⁰⁴ Henniker, p. 196.

³⁰⁵ ‘Warfare consists of men, munitions and “movement”. We have got the men and the munitions but we seem to have forgotten the “movement”’. Haig to Geddes, September 1916, quoted in Davies, p. 27.

³⁰⁶ Haig, p. 351.

³⁰⁷ Griffith; Bidwell and Graham; Stevenson, *With Our Backs to the Wall*, p. 210.

³⁰⁸ D. French, *The Strategy of the Lloyd George Coalition, 1916-1918* (Oxford: Clarendon Press, 1995), p. 291.

had to ensure that the dwindling manpower resources of the nation were employed, regardless of their contribution, in the most efficient manner possible.³⁰⁹

The colossal losses of the Somme in the second half of 1916 could not, without great difficulty, be replenished with men of the same physical calibre as the war entered its third year. In order to preserve, and even to increase, its fighting potential as the war continued, the BEF was compelled to follow the government's lead. Whereas before, during the two-and-a-half years of expansion in which the stresses of wartime exigency and the immediacy of 'getting the job done' had been the dominant considerations for the BEF's administrative departments, the twin requirements of economy in manpower and efficiency of effort now required a fundamental reassessment of the working procedures of the vast operations taking place behind the front lines.³¹⁰ Foremost among them was the requirement that infantry troops be relieved of duties not linked either to fighting battles, or to the improvement of their fighting abilities.

As discussed above, the limited number of labour battalions recruited in the summer of 1916 had done little to alleviate the demand for infantry working parties during the preparation phase for the Battle of the Somme. During the transportation mission, Geddes suggested that 'a very considerable saving in the amount of labour required' to maintain and repair the transport network could be effected through the better coordination of the labour supply, in addition to the implementation of labour saving devices and the construction of a light railway network.³¹¹ In order to coordinate the use of labour however, two things were required: first, a policy for the allocation of labour to the myriad departments and services reliant upon manpower both on the lines of communication and within the individual armies; and second, an organization capable of prioritizing the needs of each of those departments, and ensuring the most efficient use of the available manpower for the benefit of the BEF as a whole.

Geddes, under the terms of his appointment as Director-General of Transportation, would be responsible for the administration of the technical units raised from among the Empire's transport workers over the winter of 1916-1917 (such as the Light Railway Operating

³⁰⁹ Stevenson, *With Our Backs to the Wall*, pp. 259–62.

³¹⁰ TNA: PRO WO 106/362 Report by Lieutenant-General H.M. Lawson, 16 January 1917, p. 3.

³¹¹ Granet Papers, MSS.191/3/3/4 Geddes to Lloyd George, 15 September 1916.

Companies employing Sapper Hill and Sergeant-Major Conibear). These skilled troops would be primarily dedicated to the work for which they were being raised, be that railway construction or light railway operations, and therefore would be controlled by the relevant department within the DGT. The task of coordinating the wide variety of nationalities, abilities and attitudes collected under the umbrella of ‘unskilled’ labour was handed to the newly-established Labour Directorate on 3 December 1916.³¹² The task of heading this directorate was not, however, passed onto a civilian. Despite the fact that, by the end of 1917 the Director of Labour would be in charge of a workforce that numbered an average of 209,118 ‘employees’ per day,³¹³ the job was given to Lieutenant-Colonel Evan Gibb.³¹⁴ Gibb, an ASC officer originally commissioned into the West India Regiment, and with active service in South Africa behind him, had been part of the QMG’s staff in France since the start of the war. He therefore had a thorough understanding of the importance of keeping the transport network flowing.

With British resources already stretched, the vast majority of the labourers required to keep the transport network maintained would by necessity have to be found from ‘foreign’ labour sources. As tables 3.3 and 3.4 demonstrate, in January 1917 the directorate was already in possession of a cosmopolitan labour pool, and as the year developed that pool would be supplemented by the recruitment of men from places as far removed as Fiji, China and Egypt among others. The composition of the labour force also meant that the directorate was beset from the beginning with a number of complexities related to the manner in which the units could be employed. Firstly, the myriad units for whom Gibb now assumed coordinating responsibilities were not available for all of the tasks which needed to be performed throughout the Western Front. For example, Prisoner of War [PoW] Companies, by stipulation of the Geneva Convention, were restricted to tasks far in the rear, and forbidden from being employed

³¹² The Labour Directorate ceased to exist in February 1918, the position of Controller of Labour – under the QMG – being created to replace the functions of the Director of Labour. For sake of convenience, this thesis will refer to the administration of unskilled labour as the ‘labour directorate’ throughout. See Starling and Lee, p. 135.

³¹³ WO 107/37 Report, pp. 2-3. By November 1918 the Controller of Labour was responsible for the administration of over 385,000 men.

³¹⁴ As a clear sign of the importance attached to the role, Gibb was promoted to Brigadier-General three days after the directorate was created. See Starling and Lee, p. 101.

Type of unit	Number of units	Officers	Other ranks
Prisoner of War Company	47	47	18,605
Infantry Labour Battalion	33	340	31,258
Labour Company, ASC	29	169	14,637
R.E. Labour Battalion	11	163	7,044
Non-Combatant Corps Company	8	8	778
South African Native Labour Corps Battalion	4	52	8,000
Naval Labour Company, ASC	2	12	1,903
British West India Regiment (Bermuda RGA Detachment)	2	42	1,160
Cape Coloured Labour Battalion	1	11	985
Canadian Forest Company	1	0	68
Canadian Labour Battalion	1	15	983
	Total	859	85,421

Table 3.3 Number of units under the control of the Labour Directorate, January 1917

Source: WO 107/37 Report, p. 10; TNA: PRO WO 95/83 General Headquarters: Director of Labour, Summary of Labour Units in France, 31 January 1917.

Type of unit	Date first contingent raised	Strength raised (approx.)	Terms of service or contract
Cape Coloured Labour Battalion	13 August 1916	1,100	Duration of war
South African Native Labour Corps	October 1916	21,000	One year
Chinese Labour Corps	18 January 1917	95,000	Three years
British West Indies Regiment	31 March 1917	8,000	Duration of war
Egyptian Labour Corps	22 April 1917	15,000	Six months
Indian Labour Corps	26 April 1917	48,000	One year
Fijian Labour Corps	18 May 1917	100	Duration of war

Table 3.4 Coloured labour raised in substitution of British personnel by the War Office, 1916-1917

Source: TNA: PRO WO 106/33 The Chinese Labour Corps – recruitment and organization – history of the Corps, untitled memorandum, 31 December 1918.

on jobs such as the discharge of ships to guard against the possibility of sabotage.³¹⁵ Due to the nature of the contracts signed prior to their departure for Europe, and the desire within the BEF to maintain racial segregation between black soldiers and both their white counterparts and the local population, the South African Native Labour Corps were also restricted to service outside

³¹⁵ WO 107/37 Report, pp. 61-2. A full breakdown of the restrictions applied to the employment of the various labour classes is given in TNA: PRO CAB 24/58/90 Report on Labour Organisation in France, 11 March 1918, pp. 6-9.

of ‘dangerous zones’.³¹⁶ Such constraints ensured that work in the forward areas, in which the risk of casualties from enemy action were at their highest, had to be borne almost entirely by the remaining British troops.³¹⁷

Secondly, concurrent with the establishment of the labour directorate in France, Lieutenant-General Henry Lawson was directed by the War Office to examine ‘both the numbers and the physical categories of men employed outside the fighting areas’ in order to identify the extent to which the lines of communication could be mined to provide reinforcements for the fighting troops, and to advise on areas in which such men could be replaced with those of a lower physical standard, by foreign labour, or by women.³¹⁸ Following visits to GHQ, five ports, and three other sites used by the BEF (Abbeville, Abancourt and Etaples), Lawson pronounced himself to have been ‘struck from the first’ by the ‘large numbers’ employed by the ASC at the depots, by the poor quality of Warrant Officers which led to inefficient employment of the men, and the significant proportion of men employed in labour companies and as clerks who belonged to the category of ‘fit and under forty years of age’.³¹⁹ Lawson’s conclusion into the efficiency of the work being done, even taking into account such unavoidable difficulties as the late arrival of railway wagons on their return from the front, was that ‘there seemed a considerable wastage of labour, more men being employed on a service than were required’.³²⁰

A critical component of the problem identified by Lawson lay in the allocation of labour prior to the establishment of Gibb’s directorate, and echoed the criticism of ‘compartmentalization’ noted by Geddes in his review of the transport network earlier in the summer. The actual needs of individual services, such as the docks, varied from day to day (and indeed, from hour to hour). However, the various departments for whom unskilled labour was employed ‘wanted as much labour as [they] could get’. Ensuring that their individual requirements were met was paramount. Therefore such departments were ‘very reluctant’ to

³¹⁶ WO 107/37 Report, pp. 25-6.

³¹⁷ WO 107/37 Report, pp. 73-4.

³¹⁸ WO 106/362 Report by Lawson, p. 1.

³¹⁹ WO 106/362 Report by Lawson, pp. 8-13.

³²⁰ WO 106/362 Report by Lawson, p. 17.

release labour to another service during periods in which their own demands were not as pronounced.³²¹ Whereas in a civilian business during periods of slack the wage costs of unproductive workers would compel employers to lay off unnecessary employees to maintain profit levels, the absence of a ‘profit margin’ to the departments of the BEF left little inclination to individual officers to encourage workers to be withdrawn for use elsewhere. The concern that services would not receive ‘their’ workers back when required appeared to supersede all other considerations. Rather than result in the ‘cheeseparing’ identified by Geddes in relation to demands made for resources and materials, in the case of labour the compartmentalized approach fostered an opposite, but equally damaging attitude.

The absence of a dedicated administrative service for the supply of labour meant that individual departmental concerns within the BEF eclipsed the motivation for ‘big picture’ thinking. Consequently, the acceptance of any, even temporary, downgrade in the priority of departmental requirements was something to be fiercely resisted. The result was the submission of ‘extravagant’ demands for labour from individual services, and the development of a protectionist attitude towards the reallocation of manpower resources. The observations of A.D. Lindsay, a senior officer in the labour directorate from January 1917 onwards, are illustrative:

I remember hearing a high official... say, “If no ships came into my ports for thirty days, I would whitewash all my buildings and relay all my track sooner than let another damned department have a single man of mine”. He was no doubt an extreme example, but there was a trace of that spirit in most administrative services.³²²

The lack of any central, coordinating body for the allocation of labour meant that individual departments were essentially competing with each other for the finite resources available, rather than accepting a number of ‘employees’ based on the priority needs of the BEF as a whole.³²³

As an anonymous officer with ‘business experience in civil life’ noted to Lawson:

What struck him most in the Army was that there was not one army but many armies: he explained his statement by saying that what he referred to was the separation into and the lack of mutual help between the various departments.³²⁴

³²¹ A.D. Lindsay, ‘The Organisation of Labour in the Army in France During the War and Its Lessons’, *The Economic Journal*, 34:133 (1924), 69–82 (p. 72).

³²² Lindsay, p. 72.

³²³ E. Gibb, ‘The Organization of Labour in the Great War’, *Royal Army Service Corps Quarterly*, 11 (1923), 171–80 (p. 172).

³²⁴ WO 106/362 Report by Lawson, p. 19.

Vital to the work of the labour directorate, therefore, would be to centralize the allocation of unskilled troops, eliminate the ‘hoarding’ instincts of individual departments, and ensure that labour was allocated according to the needs of the BEF, as opposed to the ‘wants’ of its senior departmental officers.³²⁵

To identify the needs of the BEF required not only the cooperation of the individual departments in their labour requests, but would also demand a thorough investigation into the skills and aptitudes present amongst the ‘heroic crocks’ of the British labour force and the various bands of foreign labour.³²⁶ The manner in which these challenges were addressed by the directorate demonstrates two things: the clear similarities between the problems faced by the labour directorate and those of contemporary industrial leaders attempting to maintain and raise productivity in large, expanding corporations;³²⁷ and the depth to which ‘civilian’ business methods had infused the administration of the BEF by the midway point of the war. However, the labour directorate would continue to run up against the limits of interdepartmental cooperation for the rest of the conflict.

The growth of large-scale business concerns in the second half of the nineteenth century created a series of unprecedented difficulties for employers of labour to grapple with.³²⁸ Although the BEF was not subjected to restrictions linked to shareholder considerations,³²⁹ the effective coordination and management of men and materials across a widely dispersed geographical area would be a critical, and to the managers of Britain’s railway companies an immediately recognizable, requirement for ensuring the economical use of the available resources. Not only would labour be required to operate in the zones covered by the BEF’s five armies, often in close proximity to the front line, but as the records of the directorate demonstrate, ‘employees’ were also scattered from the ports on the Channel coast to Marseilles,

³²⁵ Gibb, pp. 176–7; D. Scott, *A.D. Lindsay: A Biography* (Oxford: Blackwell, 1971), pp. 77–8.

³²⁶ Roger Pocock’s reference to the constituents of the Labour Company he commanded, also referred to as ‘the aged, the disabled, the wreckage of the Army and of the nation’, gives some indication of the physical specimens under his charge. Quoted in Starling and Lee, p. 110.

³²⁷ Such problems are expanded upon in Gantt.

³²⁸ A synthesis of these problems, as discovered by the American railway industry from around 1850 onwards, is given in Chandler.

³²⁹ N.J. Griffin, ‘Scientific Management in the Direction of Britain’s Military Labour Establishment During World War I’, *Military Affairs*, 42:4 (1978), 197–201 (p. 197).

and in the case of one half company of the Cape Coloured Labour Battalion, to Bayonne on the Spanish border.³³⁰ At the formation of the directorate, however, it was found to be

extremely difficult to discover where all the labour was, under whom it was working and how it was employed. Returns of labour were rendered monthly by Armies to the QMG and similar returns were rendered by some Directorates [on the lines of communication]. These returns were however very inaccurate and were not made on a common basis.³³¹

Furthermore, despite being collected under the epithet of ‘unskilled’, the units of the Labour Corps were in fact home to a wide range of talents and abilities. In the language of the day, the post-war report of the labour directorate characterized the Chinese contingent in three groups: ‘pukka coolies’ with ‘no greater ambition than to haul loads; adaptable ‘village tradesmen or handy men’ capable of learning new techniques and therefore able to carry out semi-skilled work; and around 450 skilled tradesmen ‘trained by Europeans according to western ideas’ and therefore proficient at handling modern tools and repairing complex machinery.³³² The existence of these skilled workers within the corps was largely the result of it having been raised (under the direction of the War Office) by Thomas J. Bourne, Chief Engineer of the Pukou-Hsin-Yang Railway.³³³ Yet prior to the arrival of the first tranche of Chinese workers in February 1917, a conference among staff officers at the War Office ‘agreed that the coolies ought to be confined to the performance of the most fundamental tasks; trench-digging, quarrying, loading in ports, railway-track laying, burying the dead, and stacking ammunition’.³³⁴

Such duties were undoubtedly suitable for the unskilled labourers who made up the largest proportion of the Chinese workforce, but to use those with experience in construction and on the railways was to waste skills in which the British labour pool was deficient. In order to identify skilled Chinese labourers from among the thousands departing Wei-hai-wei with little more than a brass identity ring and a copy of their contract, upon arrival in France each draft was subjected to a viva voce examination. A classification of each man’s capabilities was made, and throughout the war periodic trade classifications were rendered by the Chinese

³³⁰ WO 107/37 Report, pp. 30, 33, 43, 56-7.

³³¹ WO 107/37 Report, p. 132.

³³² WO 107/37 Report, p. 50.

³³³ WO 107/37 Report, pp. 45-6; N.J. Griffin, ‘Britain’s Chinese Labor Corps in World War I’, *Military Affairs*, 40:3 (1976), 102–8 (p. 103).

³³⁴ Griffin, ‘Britain’s Chinese Labor Corps’, p. 104.

Labour Corps to catalogue the skills available within the corps.³³⁵ As soon as the first units disembarked, Geddes claimed 7,000 for work within the DGT, with men ‘of suitable trades’ (or likely to be capable of learning such roles) being allocated to work under the Chief Engineer Port Construction, Alexander Gibb.³³⁶

Whilst further skilled Chinese units also found work in areas as diverse as forestry and tank maintenance, the remainder were distributed into the general labour pool for allocation to the ‘fundamental tasks’ referred to above. Yet even the classification of ‘unskilled’ was by no means permanent. As Theodore Stewart, part of one of the earliest labour battalions to arrive in France, noted after the war, men for whom the duties of road making and repairing were ‘entirely new’ in July 1916 had, through repetition and training, by November ‘gained quite a reputation in this class of work’.³³⁷ Although Stewart’s battalion would be removed from road work to concentrate on railway construction (‘a new mystery’) in preparation for the Battle of Arras, the general principle at work in the labour directorate was to retain men on the same class of work to help improve their skills and efficiency.³³⁸ By the end of the war, at ports such as Dieppe, Dunkirk and Rouen, the vast majority of cranes used to unload ships were operated by Chinese labour trained in France.³³⁹

Vital to this efficiency drive was the attachment of the most suitable officers to the various units of the Labour Corps. White supervision, ‘and as much of it as possible’, was deemed to be ‘absolutely necessary if the best results were to be obtained from any form of

³³⁵ WO 106/33 The Chinese Labour Corps – recruitment and organization – history of the Corps, Chinese Labour in France, p. 4; WO 107/37 Memorandum showing the steps taken to apply the skilled Chinese Tradesmen to suitable work, p. 1. The Chinese Labour Corps would ultimately consist of 95,594 other ranks. By January 1918, around 4,725 ‘skilled tradesmen’ were among them. See WO 107/37 Report, pp. 46, 51.

³³⁶ Gibb, who would later become Deputy Director of Docks in France, offers yet another example of a suitable, highly skilled civilian being employed by Geddes. A former pupil of Sir John Wolfe Barry, Gibb’s pre-war engineering career included the extension of Alexandra Dock in Newport, the installation of anti-submarine defences in Scotland and, between 1909 and 1916, the construction of Rosyth naval base. See ‘Obituary: Sir Alexander Gibb, 1872-1958’, *ICE Proceedings*, 10:1 (1958), 130–33 (p. 130).

³³⁷ T. Stewart, ‘With the Labour Corps in France’, *RUSI Journal*, 74:495 (1929), 567–71 (p. 567).

³³⁸ Aside from a brief return to road making in the winter of 1918, the battalion would remain on railway duties for the rest of the war. See Stewart, pp. 568–71. That being said, however, the permanent allotment of troops to specific duties was only possible when the demand for such duties remained constant. See WO 107/37 Report, p. 5.

³³⁹ WO 107/37 Report, p. 51.

coloured labour'.³⁴⁰ In the case of the South African Native Labour Corps, it was found early on that the men were prone to 'slack' unless competently supervised by officers fully aware of the capabilities of the men, a particular problem when the young, physically fit troops from South Africa were working alongside white labour of a 'lower physical category' and therefore only capable of relatively low levels of output. The fear that such comparisons would also lead to 'the native working alongside [white labourers having his] ideas of the position of the white man disturbed' ensured that a programme of segregation was followed as often as possible.³⁴¹ For the Egyptian Labour Corps a thorough knowledge of the country was emphasized as being the primary consideration upon which to select officers. If insufficient men from the Egyptian Army were available, it was recommended to source the remainder of those required 'from past or present officers who have served either in the Egyptian Army or in some other Egyptian service, e.g., police, coastguards, etc.' as many of those in France were 'handicapped by a lack of military experience, and some also by a complete ignorance of the Arabic language'.³⁴²

Not only was the Labour Corps expected to undertake a wide range of tasks across a number of industries, but it was also a multicultural, multilingual force demanding a significant degree of empathy and understanding towards the particular habits and requirements – especially in relation to diverse social and cultural practices such as those required by different religious faiths – to be evinced by the corps' commanders. The global reach of the recruitment process, coupled with the speed with which the units had been raised, created further difficulties for the new directorate. A significant degree of local autonomy in the enlistment of men meant that labour units were arriving in France with officers and NCOs from a wide range of backgrounds. Within the Indian Labour Corps alone, units arrived on the Western Front with officers drawn from the Indian Army, from the Indian government and civil service, and from among plantation owners, many of whom possessed the necessary language skills but had no

³⁴⁰ WO 107/37 Report, pp. 40-1; G.S.O., p. 167.

³⁴¹ WO 107/37 Report, pp. 27-8. The South African authorities were also worried about the men 'picking up political or social aspirations' that they would take back to South Africa, further discouraging the intermingling of black and white labour. The racial politics of the era superseded the need for efficiency throughout the British Empire. See Starling and Lee, p. 231. On the decision not to employ West Indian troops on the frontline, see R. Smith, *Jamaican Volunteers in the First World War: Race, Masculinity and the Development of National Consciousness* (Manchester: Manchester University Press, 2004), pp. 79–89.

³⁴² WO 107/37 Report, pp. 35-6.

prior experience of military command.³⁴³ The Chinese Labour Corps was found to include officers and NCOs drawn from among ‘missionaries, consuls, merchants, authors, journalists and “office men”’.³⁴⁴ Even within the British ‘pool’, which consisted largely of combat soldiers passed unfit and officers disqualified from front line service by dint of their age or medical category, a variety of vocations ‘of considerable value to the technical supervision of labour’ were evident.³⁴⁵ Ascertaining what such men would be physically capable of, which units they could handle effectively, and identifying any skills in their possession which could be applied to particular trades was a prerequisite for ensuring the most profitable distribution of officers within the Labour Corps.

Upon arrival for duty with the corps, therefore, every officer was required to fill in a form ‘giving full particulars of his education, civil and military qualifications’, and details of any known languages.³⁴⁶ Before such a mass of factors could be harnessed effectively, however, the BEF required the creation of an ‘infrastructure’ to govern the process of storing the provided information in a methodical, usable manner. In order to catalogue the data on each individual officer, the labour directorate drew upon one of the emerging tools of efficient business administration in the early twentieth century: the card index. Although a ‘ubiquitous’ presence in industrial organization systems in the period between the wars, the growth in popularity of the card catalogue was simultaneous with the emergence of large-scale industry in the decades prior to the First World War. Derived from the methods used by libraries to organize and maintain vast book collections, the indexing system became increasingly recognized (and marketed) as the perfect method for ensuring that expanding businesses were administered along efficient and systematic lines. The card index exemplified the transfer of early scientific management ideas from the factory to the office.³⁴⁷

³⁴³ WO 107/37 Report, pp. 39-40; Starling and Lee, p. 126.

³⁴⁴ WO 107/37 Report, p. 52; D. Klein, *With the Chinks* (London: The Bodley Head, 1919), p. 5.

³⁴⁵ WO 107/37 Report, pp. 200-1.

³⁴⁶ WO 107/37 Report, p. 201.

³⁴⁷ Krajewski, pp. 3, 95–102, 107–8. Lyndall Urwick also advocated the widespread adoption of the card index system to be used as a selection tool for identifying suitable candidates for an officer’s school in 1915. See Urwick Papers, 1/2/7 The Real Ground for Alarm – letter to the *New Statesman*, 20 November 1915.

In essence, the Labour Corps developed a process of ‘systematizing’.³⁴⁸ And as the list of files destroyed by German bombing during the Second World War attests, they were by no means the only department within the BEF to establish card indexing systems on the Western Front.³⁴⁹ The required information, in this case the skill sets of the available officers, were recorded upon standardized forms which encouraged consistency and made the extraction of relevant data more straightforward.³⁵⁰ As Higgs has shown, paper forms were a key component of the bureaucratic systems created to deal with the colossal information flows generated by government policies in the Edwardian era, the administration of the Old Age Pension providing a notable example.³⁵¹ Once completed, the forms were sent to the labour directorate at GHQ where the information was entered into a card index which, constantly updated as new arrivals or casualties entered and left the labour pool, gave the directorate an efficient, flexible, centralized record of the available officers. With such a system in place, the directorate was able to locate and select officers with the requisite qualifications for specific tasks based on a comprehensive overview of the situation.³⁵² The result was a more intelligent, systematic allocation of staff than in the first two years of the war, and far less reliance on the process of recruiting specialists through the placing of what amounted to job advertisements issued through Orderly officers.³⁵³ Such adverts relied upon both the ‘perfect candidate’ seeing and applying for the post, and the existence of a system whereby that candidate could be readily identified from amongst the potentially voluminous number of applications. The card index made the information on *all* the available officers immediately accessible, thereby eliminating the need for a time-consuming and inefficient application process.³⁵⁴

³⁴⁸ Yates, pp. 30–5.

³⁴⁹ TNA: PRO WO 32/21769 Records destroyed at the Army Records Centre, Arnside Street, London as a result of bombing on 8 September 1940.

³⁵⁰ WO 107/37 Appendix Q, Forms and Returns in use by the Labour Control.

³⁵¹ E. Higgs, *The Information State in England: The Central Collection of Information on Citizens since 1500* (Basingstoke: Palgrave Macmillan, 2004), pp. 120–3.

³⁵² WO 107/37 Report, pp. 201–2.

³⁵³ Heritage, p. 1.

³⁵⁴ Furthermore, as Krajewski notes, card indexes were ‘intricate and demanding machines, for whose use a skilful and responsible organizer is vital’. That the BEF possessed such men (and as often as possible women) was critical to ensuring the smooth operation of these complex administrative systems. By 1914, clerks comprised 5.48 per cent of employed males in Britain. See Krajewski, pp. 128–9; P. Scott and J.T. Walker, ‘Demonstrating Distinction at “the Lowest Edge of the Black-Coated Class”’: The Family Expenditures of Edwardian Railway Clerks’, *Centre for International Business History*, 2014, p. 2

Whilst the implementation of the card index system demonstrates the extent to which the BEF was able to devise strategies to cope with the huge quantities of information being created by the force in a pre-computer age, the success of such strategies was dependent upon the effective collaboration at the highest level between the ‘insular’ professional soldier and his colleague from the business world.³⁵⁵ As with the DGT, the labour directorate was from the start a hybrid organization. Men of considerable military experience such as Gibb and his successor, Colonel Edmund Wace,³⁵⁶ were assisted by a staff ‘equally divided between big business men and typical Oxford men’.³⁵⁷ A.D. Lindsay was one of those ‘Oxford men’ and, in much the same way that Geddes perceived misgivings towards himself as an ‘outsider’ during the transportation mission, Lindsay initially felt the ‘suspicion’ of the army towards him as an academic and insatiable reader (both of which drew assessments that he must be a ‘vague, unpractical creature’).³⁵⁸ Yet with practice, and despite occasional arguments with his superiors over political differences, even a philosopher such as Lindsay was able to adapt to the requirements of the BEF and contribute to the evolving organization of the labour directorate.³⁵⁹

This evolution was necessary due to the ambiguous nature of the directorate’s position in the organizational hierarchy of the BEF. Instructions issued by the QMG on 5 January 1917, notifying the establishment of the directorate, stated that Gibb would be responsible for the ‘allotment... of the necessary unskilled labour required [by the various departments] to

<<http://www.henley.ac.uk/files/pdf/research/papers-publications/IBH-2014-04%20Scott%20and%20Walker.pdf>> [accessed 8 December 2014].

³⁵⁵ Bud-Frierman, p. 11; A. Black and D. Schiller, ‘Systems of Information: The Long View’, *Library Trends*, 62:3 (2014), 628–62 (p. 639). A wider investigation into the processes of knowledge creation, dissemination and utilization within the BEF during the conflict – building upon recent work by Foley and Beach – would be a fruitful area for further study of the British Army as a ‘learning organization’. See Foley; J.M. Beach, ‘British Intelligence and the German Army, 1914-1918’ (unpublished Doctoral Thesis, University College London, 2005); A. Fox-Godden, ‘Beyond the Western Front: The Practice of Inter-Theatre Learning in the British Army during the First World War’, *War in History*, forthcoming. Thanks to Ms. Fox-Godden for sharing a draft of this paper with me.

³⁵⁶ Originally commissioned into the Royal Garrison Artillery, Wace saw much of his service in India prior to his retirement in 1903. At the outbreak of the First World War he became a Major in the Royal Engineers before transferring to the labour directorate on 8 December 1916. He was promoted to Brigadier-General in October 1918, having succeeded Gibb in February of that year. See WO 95/83 Director of Labour, diary entry, 8 December 1916; Griffin, ‘Scientific Management’, pp. 197–8; Starling and Lee, p. 135.

³⁵⁷ G.S.O., p. 168.

³⁵⁸ Scott, p. 78; Lindsay Papers, LIN 149 Lindsay to Mrs Lindsay, 1 November 1917. Lindsay’s letters home during the war offer a running commentary on his reading habits, which mostly consisted of Shakespeare. See, for example, letters on 9 February and 3 March 1917.

³⁵⁹ Scott, pp. 78–86; Lindsay Papers, LIN 149 Lindsay to Mrs Lindsay, 12 January, 1 February, 27 July and 1 November 1917, 12 May 1918; extract of Lindsay to Asquith, 1925.

supplement such technical or specialized labour as may be provided from other sources'.³⁶⁰ However, these instructions did not clarify the question of upon whom the responsibility of arranging those labour requests would fall. Instead, officers from the labour directorate would be attached to formations and departments as 'advisors', capable of offering observations as to the 'proper employment and economical working' of the labour allotted to their unit, but 'subject to the proviso that labour allotted for work under a department will during working hours be distributed and controlled under the orders of [the] department'.³⁶¹ In other words, the Labour Corps' officers fulfilled a consultancy role rather than an executive function; no machinery existed to stop the individual departments from simply ignoring the advice of their attached labour officer and continuing to submit unnecessarily large demands for manpower.³⁶² Furthermore, requests for manpower within a corps were sent to the corps HQ rather than to the labour directorate, thereby removing the opportunity for senior labour officers to query requests which appeared to be excessive.³⁶³ The filtering out of such demands and overseeing the constant fluctuations in the local labour situation were, unsurprisingly, not treated as a priority by the majority of corps commanders already overburdened with duties related to the prosecution of the war.³⁶⁴

The result was a tendency for individual departments, referred to by the labour directorate as 'employers', to regard labour companies as reinforcements to their own technical units. Unskilled workers were frequently 'shifted about irrespective of the chain of command of the Labour unit', and employed according to the wishes of the department regardless of the advice offered by their attached labour officers.³⁶⁵ The 'old habits' of the first half of the war were not easily eradicated, and far from being alleviated by the influx of civilians into positions of authority in the wake of Geddes' reorganization, the entrenched attitudes of the departments were in fact heavily reinforced. Men such as Ralph Wedgwood, the Director of Docks, had been

³⁶⁰ WO 107/37 Appendix A, Maxwell circular, 5 January 1917, p. 1.

³⁶¹ WO 107/37 Appendix A, p. 2; Gibb, p. 177.

³⁶² WO 106/33 Chinese Labour Corps, Fairfax to Gibb, 25 December 1917.

³⁶³ WO 107/37 Appendix B, Duties of Deputy Assistant Directors of Labour, 17 March 1917, p. 2.

³⁶⁴ WO 107/37 Report, p. 14; TNA: PRO CAB 24/39/101 Chinese Labour in France, 18 January 1918. On the work of corps commanders during the war, see A. Simpson, *Directing Operations: British Corps Command on the Western Front, 1914-18* (Stroud: Spellmount, 2006).

³⁶⁵ WO 107/37 Report, p. 6.

recruited specifically because of their working knowledge of port operations, honed by years of experience at the NER, to pilot the directorate which had been set up to oversee the ‘proper control and coordination of dock working at the ports... allotted for the use of the British forces’.³⁶⁶ Unsurprisingly, such individuals rarely felt the need to consult labour officers, particularly when those officers (Lindsay being a perfect example) possessed little or no experience of the work. This element of the civil-military relationship has previously been overlooked, with concentration falling almost entirely upon recording examples of military insularity and the acerbic criticisms of the soldiers. It has created an impression that the civilians introduced to the war efforts were the ‘innocent victims’ of spiteful comments from vindictive soldiers, when in reality the dynamic between the two groups was far more complex.³⁶⁷

Consequently, in the first year of the labour directorate’s existence the combination of inexperienced officers and the ambiguous nature of the directorate’s position within the BEF meant that the importance of establishing fluidity in the labour pool was not sufficiently appreciated within the army. ‘Employers’ were still wedded to the notion that labour allotted to them was essentially ‘theirs’ for the duration of the war. However, as the data from Third Army illustrates, far fewer infantry troops were being employed on ‘fatigues’ as the new global workforce began to arrive in France in huge numbers. In January 1917, the total number of men employed on labour duties in Third Army amounted to 25,000. Of those, 19,000 had been recruited from the fighting formations. The following month the figure rose to 23,000, all of whom had been occupying the front line over the winter and therefore had little time to devote to training. Yet by 9 April, when the Battle of Arras opened, the number of fighting troops employed on labour duties had plummeted to just 2,000 out of a total of 27,000. The Labour Corps provided the rest.³⁶⁸

³⁶⁶ ‘Inland Waterways and Docks’, pp. 338–9.

³⁶⁷ Grieves, ‘The Transportation Mission’ provides a notable example of such works. The specific difficulties encountered between Wedgwood and the labour directorate will be discussed further below.

³⁶⁸ WO 107/37 Report, pp. 69-70.

Ensuring that the labour troops were utilized in the most effective manner possible, rather than being allowed to ‘soldier’,³⁶⁹ was the next challenge the labour directorate was required to address. However, as noted above, the ‘advisory’ nature of the directorate’s position in relation to the ‘employers’ of labour meant that it was a task which Gibb’s subordinates lacked the authority to change.³⁷⁰ Although some departments chose to ‘sub-contract’ the work of ensuring the economic application of their manpower to the local representatives of the labour directorate, the practice was neither universal nor compulsory.³⁷¹ During the winter of 1917-1918 the issue became acute for three reasons: firstly, the BEF was required to undertake large-scale construction projects to create the defences deemed necessary to withstand the anticipated German offensive of the following spring; secondly, as due to the terms of the contracts signed by South African and Indian labourers, plus the repatriation of Egyptian men, there resurfaced the very real possibility of a labour shortage on the Western Front,³⁷² and finally, the colossal struggle at Passchendaele had further eroded the available manpower resources in Britain. As Lloyd George recognized, ‘it was essential that there should be no idle men in France’.³⁷³

The culture of self-interest which had saturated individual departments in the first half of the war continued to dominate the allocation of labour within the administrative services, however. There was a ‘distinct inclination, either through want of knowledge [of the wider implications of the labour situation] or in view of the risk of demands being cut down, for more men to be requisitioned than could be usefully employed’.³⁷⁴ According to the Minister of Shipping, ‘labourers... were badly supervised with four men doing the work of one’.³⁷⁵ The consequence of these observations was that the Labour Directorate was abolished, and replaced by the position of Controller of Labour under the authority of the QMG. The Controller, Colonel Wace, was made responsible for the allotment and distribution of unskilled labour to

³⁶⁹ The term ‘soldiering’ was popularized by Frederick W. Taylor to describe workers deliberately operating below their full capacity. The elimination of soldiering was a key tenet of the scientific management ideology. See F.W. Taylor, *Principles of Scientific Management*, pp. 13–27.

³⁷⁰ Griffin, ‘Scientific Management’, pp. 198–9.

³⁷¹ CAB 24/58/90 Report on Labour Organization, p. 2.

³⁷² Starling and Lee, p. 133.

³⁷³ CAB 24/39/101 Chinese Labour.

³⁷⁴ CAB 24/58/90 Report on Labour Organisation, p. 11.

³⁷⁵ Starling and Lee, p. 133.

the armies and departments on the lines of communication. Furthermore, Wace's subordinates would be charged with the task of inspecting labour parties at work and providing advice to 'employers' on matters of organization which affected the 'working efficiency of labour'.³⁷⁶

But what *was* the work of 'one' man in a Labour Corps comprising a multitude of nationalities, skillsets, ages and abilities? As Sir Edward Pearson, a civil engineer, noted in a report on labour organization, 'the average [age] of one company we heard of was fifty-five years'.³⁷⁷ How could the 'working efficiency' of such disparate groups be assessed and improvements made? As individual units received better quality tools and equipment, to what extent could they be expected to improve their daily output? And how could labour officers whose responsibilities covered a wide geographical area be assured that their 'employees' were not soldiering in a situation where constant visual supervision was an impossibility?³⁷⁸ The solution to these questions, so Colonel Wace (and, it is worth noting, Geddes also) believed, lay in the science of statistics, and in the creation of the type of information infrastructure recognized as being a crucial ingredient of the growth in large-scale, complex businesses in the late nineteenth century.³⁷⁹

Data capture in the British Expeditionary Force, 1916-1918

The process of information-gathering commenced immediately upon the formations of the DGT and the labour directorate. In the latter, individual platoon commanders were asked to render a daily report of their platoon's work which included a column for 'measures of work done'. Although not universally adopted due to the inapplicability of converting many of the tasks undertaken by the Labour Corps into quantitative values, the recording of accurate output results and the maintenance of reports was actively encouraged by Wace.³⁸⁰ The daily returns were sent to the Deputy Assistant Directors of Labour attached to each corps or base, where

³⁷⁶ WO 107/37 Report, pp. 17-19.

³⁷⁷ CAB 24/58/90 Report on Labour Organisation, p. 7.

³⁷⁸ As Heritage's account of life in a Light Railway Operating Company, *The Light Track from Arras*, demonstrates, there were plenty of opportunities for 'adventures ghastly and glorious' in the largely unsupervised units under the command of the DGT as well.

³⁷⁹ Beharrell, 'The Value of Full and Accurate Statistics', p. 37; Bud-Frierman, pp. 7-8.

³⁸⁰ WO 107/37 Report, p. 179. However, as will be seen, the accuracy of the reports submitted would be called into question.

they were consolidated, average numbers were calculated, and a weekly return forwarded to the Assistant Directors of Labour in each army. The assistants would compile a summary from the consolidated weekly returns, from which the staff at GHQ could extrapolate the key information without being submerged underneath the mass of raw data being collected ‘on the ground’.³⁸¹ Within the DGT each individual directorate was issued with a bespoke, elaborate system of statistics to take account of the fixed nature of their work, all created by Geddes’ assistant George Beharrell.³⁸² The process of filtering out data as it passed up the chain of command was the same as in the labour directorate, with weekly compilations ‘affording a panoramic view of the entire situation... [and representing] the mountaintops upon which the general may stand and study in perspective the movements of his army below’.³⁸³ As had taken place on the NER under the guidance of Sir George Gibb, the ‘workforce’ of the BEF, in the final two years of the war, increasingly became the subjects of relentless measurement in the pursuit of economy and efficiency. As a result of prolonged statistical investigation, ‘coloured labour was moved [between various tasks at the docks] until the most suitable form of work and the supervision necessary to secure the best results were ascertained’.³⁸⁴

	April 1917	August 1918	Improvement
Kilometres per locomotive in steam per day	69.5	89	28.06%
Hours per locomotive in steam per day	14.3	10.9	23.78%
Lbs. of coal per locomotive/kilometre	62	42	32.26%

Table 3.5 Comparison of locomotive fuel-efficiency figures, 1917-1918

Source: Beharrell, ‘The Value of Full and Accurate Statistics’, p. 38.

³⁸¹ WO 107/37 Report, pp. 134-5.

³⁸² A comprehensive overview of the processes within each directorate, along with some selected highlights of the improvements recorded during the last two years of the war, is given in Beharrell, ‘The Value of Full and Accurate Statistics’.

³⁸³ C.P. Mossop, quoted in Irving, p. 220. The choice of an army to inform Mossop’s metaphor, which was directed at the growing complexity of the railway industry, is worth noting, as it demonstrates a contemporary recognition of the similarities between the operations of a large-scale business and the difficulties inherent in the administration of a massive military force. See P.F. Drucker, *The Essential Drucker: The Best of Sixty Years of Peter Drucker’s Essential Writings on Management* (New York: Collins Business, 2005), p. 5.

³⁸⁴ Beharrell, ‘The Value of Full and Accurate Statistics’, p. 38.

The use of statistics as a management tool to improve efficiency was not restricted to the deployment of manpower either. The need to conserve coal also drove the BEF towards a reassessment of the manner in which horsepower was deployed, particularly in the form of broad and narrow gauge locomotives. As table 3.5 illustrates, between April 1917 and August 1918 the DGT was able to increase the distances worked by each locomotive, whilst simultaneously reducing both the length of time spent ‘in steam’ each day and, as a corollary, the quantity of coal required to power the BEF’s railway operations. With shortages affecting not just men, but matériel also, every item that could be preserved or utilized more extensively increased the length of time the Allied forces could continue to ‘stick it out’ on the Western Front. The philosophy which had suggested that ‘the Government is rich and can afford it’ was no longer; an ethos of thrift, salvage and economy was now paramount.³⁸⁵

Statistics also played a prominent role in the establishment of another ethos within the logistical and labour units of the BEF. Unlike the fighting formations of the army, for whom the historical traditions of the unit were used as a tool for fostering regimental pride amongst new recruits, the newly created units at work in the DGT and the Labour Corps had no past folklore upon which to draw for inspiration. Furthermore, the men of the Labour Corps were forced to accept the prefix ‘unskilled’, a ‘negative qualification’ unlikely to engender a sense of pride within the hearts of those to which it was attached.³⁸⁶ Although essential to military operations, ‘labour units were regarded as an inferior species in the military hierarchy’.³⁸⁷ Appeals to patriotism were also of limited use. PoW companies for example had no vested interest in ensuring the British won the war. Such units had little reason to perform their work with ‘smartness, cleanliness and discipline’.³⁸⁸ In these cases, statistical records were used as an aid to the generation and maintenance of *esprit de corps* within and amongst the newly-formed units.

³⁸⁵ Marcossou, *Business of War*, pp. 168–99.

³⁸⁶ WO 107/37 Report, p. 6.

³⁸⁷ R. Smith, p. 86. Smith also notes (pp. 87-8) that ‘men of all ranks in the British West Indies Regiment were keen to shed the stigma associated with labour battalion duties’, stressing their commitment to martial custom when assigned to road-mending duties.

³⁸⁸ WO 107/37 Notes on Prisoners of War by a Prisoners of War Company Commander, p. 4.

Although the raw data has since been destroyed, many of the surviving war diaries of the Light Railway Operating Companies acknowledge days on which previous records were broken, for example:

The ammunition tonnage handled today – highest on record – 2,250 tons. Every man doing splendid work and the system working perfectly.³⁸⁹

This entry was submitted in the same week as several references were made to enemy shelling which caused damage to the company's yard and camp. Clearly, therefore, the act of recording respectable statistics, in spite of the enemy's best efforts, played a significant role in motivating the troops of individual companies. Simple targets such as a higher figure for ammunition handling, or the construction of more yards of road, gave the men something tangible to focus their efforts upon. The somewhat abstract notion that building a road was directly contributing to the ultimate goal of Allied victory was superseded by the very real, recognizably attainable benchmarks naturally created by the daily recording of standards. Furthermore, the achievements of each unit created targets for their colleagues in neighbouring units, fostering a sense of competition between companies as each were encouraged to outperform their 'rivals'.³⁹⁰

Yet as the implementation of organizational tools such as the Train Control System demonstrated with regard to the accumulation of resources, the generation of statistics was one thing, the *application* of the information contained within was another story. As Lindsay noted, 'mere information is nonsense'.³⁹¹ Senior officers were unable to invest time in the perusal of reports supplied by individual units, therefore in order for the voluminous quantity of raw data from the front to be of value required the conversion of a mass of figures into an unambiguous, accessible comparison tool. That tool was the graph, which had 'exploded' into widespread use in the late nineteenth century.³⁹² Plotting the results of units alongside one another illustrated clearly the different levels of performance within the category under investigation, allowing

³⁸⁹ WO 95/4061 Lines of Communication, 12th Light Railway Operating Company, diary entry, 11 June 1917.

³⁹⁰ Charteris, p. 230.

³⁹¹ Lindsay Papers, LIN 149 Lindsay to Mrs Lindsay, 17 April 1917; Drucker, p. 5.

³⁹² J. Thompson, 'Printed Statistics and the Public Sphere: Numeracy, Electoral Politics, and the Visual Culture of Numbers, 1880-1914', in *Statistics and the Public Sphere: Numbers and the People in Modern Britain, c. 1800-2000*, ed. by T. Crook and G. O'Hara (Abingdon: Routledge, 2011), pp. 121–43 (pp. 123–4).

commanders to distinguish at a glance where output was satisfactory and where there was cause for concern. Clerks drew up graphs based on the statistics provided by the departments for the consumption of senior officers and as an immediately intelligible visual aid to assist companies to chart their own progress. As the author of a report on the work of the Chinese Labour Corps put it:

by that ingenious method of making statistics intelligible to those who have no mathematics in their souls, the whole situation can be seen at a glance. [I] was shown one graph which dealt with the comparative results produced by the different types of labour in France, and another which compared, month with month, the total output of each type of labour in all the great dumps and workshops. In the first the little blue strip which denoted the Chinese was more than holding its own, in the second there was a steadily increasing blue strip everywhere. A terrific amount of toil had gone into the making of those little strips, and the tale they told was cheering indeed.³⁹³

As the DGT became responsible for new tasks, such as in June 1917 when the directorate took over the supply of ballast, the quantity of statistics recorded and the number of graphs created within the sections began to proliferate.³⁹⁴ As Beharrell emphasized, the graphs ‘told each responsible officer what he was doing, whether he was going back or going forward, and how he compared with his opposite number in other places’.³⁹⁵ The constant flow of data from the ‘workshop’ to the ‘boardroom’ played a prominent role in allowing senior administrative officers to ascertain the levels of output which could be expected of their units on particular tasks, and to identify inadequacies. The knowledge that senior figures would investigate sustained returns of poor performance was a further stimulus to encourage ‘junior managers’ to take a closer interest in their working methods, to reflect on their contribution and to ensure that standards within their own unit were rigorously maintained and improved.³⁹⁶ The importance of this process had been recognized by the railway companies prior to the war, as they themselves

³⁹³ WO 106/33 Chinese Labour in France, p. 15.

³⁹⁴ REMLA, MO 678 Ballast History, 1914-1919, p. 5. See Appendix 7 for an example of the type of work undertaken within this department.

³⁹⁵ Beharrell, ‘The Value of Full and Accurate Statistics’, p. 37.

³⁹⁶ Geddes himself continued to dissect the weekly statistical returns from the Western Front even after his appointment as First Lord of the Admiralty, as noted from his correspondence with his successor as Director-General of Transportation, Philip Nash. In September 1917, at the height of the Third Ypres offensive, Geddes wrote to Nash in order to praise the latter’s ‘hard work’ and to acknowledge the continual improvement in the transport situation behind the BEF. See ADM 116/1805 Geddes to Nash, 21 and 26 September 1917.

had already faced the challenge of motivating and overseeing a dispersed workforce over which close supervision was impracticable.³⁹⁷

The above discussion demonstrates that working practices with recognizably ‘scientific’ elements were promoted by senior officers in both the labour directorate and the DGT. The desire within the BEF to apply the latest methods and technologies to the pursuit of success were not restricted to battlefield applications. Men such as Sergeant-Major Conibear displayed a clear aptitude for the task of collating statistics appertaining to the work performed by his unit, which led to a series of promotions and increased responsibilities,³⁹⁸ whilst A.D. Lindsay recorded his enjoyment of ‘making the most lovely graphs of tonnage in coloured pencils; a joy to behold’.³⁹⁹ The records they (and many others) amassed were used as a foundation for the introduction of task work,⁴⁰⁰ emphasized in two civilian reports into labour organization in 1918 as being critical for ensuring the effective employment of the BEF’s diminishing manpower.⁴⁰¹ Task work helped increase the output of units with no vested interest in the outcome of the war, such as Chinese and PoW labour companies, with the incentive of shorter working hours used to stimulate higher productivity to convincing effect.⁴⁰²

The similar methods by which information was fed up the respective chains of command in both the labour directorate and the DGT would suggest a degree of collaboration took place in the creation of their ‘statistics systems’. However, neither Wace’s account of the methods employed by the labour directorate, nor Beharrell’s discussion of DGT procedures make any reference to the input or experiences of their colleagues having been used to inform the development of the other’s arrangements.⁴⁰³ Sir Edward Pearson’s recommendation in March 1918, that a ‘ready system by which an exchange of ideas’ between departments concerned with the economic employment of labour should be introduced, indicates that a

³⁹⁷ Boag, p. 42; T. Bernard Hare, *British Railway Operation* (London: Modern Transport Publishing Co., 1927), p. 131.

³⁹⁸ Conibear Papers, LIDDLE/WW1/GS/0346 Particulars of Service.

³⁹⁹ Lindsay Papers, LIN 149 Lindsay to Mrs Lindsay, 1 February 1917.

⁴⁰⁰ WO 107/37 Report, p. 179.

⁴⁰¹ CAB 24/58/90 Report on Labour Organisation; CAB 24/58/73 Report by Mr Frank Baines, 12 June 1918.

⁴⁰² See Appendix 8.

⁴⁰³ The similarities between the two departments are particularly pronounced in the two reports’ identical conclusions as to the inapplicability of comparing results between the output rates of different ports.

degree of ‘compartmentalization’ remained an issue within the BEF. Regardless of the levels of cooperation between the two branches, however, the establishment of such systems, and the uses to which the results gained from those processes were put, illustrates the applicability of contemporary industrial management techniques to the administration of the BEF.

The importance of sustaining the ‘spirit’ of the troops, especially among those who could not be subjected to close and constant physical surveillance, was no different to the challenge of enforcing efficient working practices among industrial workers. Establishing ‘right relations’ between workers and managers was viewed as an essential ingredient in the establishment of an efficient factory, just as the preservation of officer-man relations occupied a prominent place in the training of those destined for positions of military command.⁴⁰⁴ However, as Taylor had discovered at the Midvale Steel Works in the 1880s, the introduction of scientific management was by no means universally welcomed.⁴⁰⁵ Despite ‘civilianization’, the organization and working practices of the BEF would continue to be a subject of disagreement between those charged with ensuring the supply of Britain’s largest ever field army.

The application of ‘civilian’ working methods

Although officers such as Lindsay would reflect upon the war as the laboratory for an ‘elaborate experiment in the organization of labour’,⁴⁰⁶ to many of those charged with implementing the bureaucratic system of ‘carefully prepared... forms, [and] adherence to graphs’, the scientific approach taken by the labour directorate was seen as an unnecessary additional burden in the middle of a war.⁴⁰⁷ The precise recording of statistics, fundamental for ensuring the accuracy of the policies decided upon as a result of data analysis, remained in many cases a low priority for officers still under instruction to ensure that the work ‘got done’. Lindsay himself would list his duties as a justification for not having responded to a letter from

⁴⁰⁴ H.N. Casson, *Lectures on Efficiency* (Manchester: Mather & Platt, 1917); G. D. Sheffield, *Leadership in the Trenches: Officer-Man Relations, Morale and Discipline in the British Army in the Era of the First World War* (Basingstoke: Macmillan, 1999).

⁴⁰⁵ The challenges faced by Taylor when implementing his scientific management ideas at Midvale are covered in Kanigel, pp. 151–230.

⁴⁰⁶ Lindsay, p. 69.

⁴⁰⁷ Griffin, ‘Scientific Management’, p. 198.

his wife,⁴⁰⁸ whilst Lieutenant-Colonel Bryan Fairfax, commander of the Chinese Labour Corps,⁴⁰⁹ simply condemned the labour directorate's 'repeated requests for graphs demonstrating job performance' as irksome and futile. For Fairfax 'the war... was not an exercise in scientific labour management, but a life and death struggle in which men must be exploited regardless in order to secure a victory'.⁴¹⁰

Furthermore, a lack of experience in quantitative assessment inevitably led to a degree of imprecision in the data recorded. Even an educated man like Lindsay struggled to attain the necessary precision required to submit accurate returns, and battled with the intricacies of the task throughout his period attached to the labour directorate.⁴¹¹ Consequently, as noted by Frank Baines in his report on labour organization in June 1918, the urge to 'present the best aspect' of a company's work in the official records rather than the complete picture was an ever present temptation to officers lacking both the time and staff to thoroughly discharge such duties.⁴¹² The result of such inaccuracies was that task work was frequently set upon the basis of unsuitable targets. Despite a nine hour day being recommended as 'normal' for labour troops,⁴¹³ Baines found that Chinese and PoW companies were regularly set tasks which could be accomplished within six-and-a-half hours. The loss of up to two-and-a-half hours labour each day was 'conclusive evidence that the labour is not being employed efficiently'.⁴¹⁴ The inexperience of officers in the labour directorate, allied to the difficult relationship between the labour officers and the 'employers' of labour in various departments, led to a series of problems.⁴¹⁵

The Chinese labourer, Wace's final report reflected, 'will not do more than he thinks he is expected to do; if he sees that what is actually a moderate daily output will satisfy his

⁴⁰⁸ Lindsay Papers, LIN 149 Lindsay to Mrs Lindsay, 15 June 1917.

⁴⁰⁹ Fairfax was a retired soldier, recalled from the Reserve List in 1914 to command the 17th Battalion King's Liverpool Regiment. He attained his position at the head of the Chinese Labour Corps by virtue of having served in China during the Boxer Uprising.

⁴¹⁰ Griffin, 'Scientific Management', p. 199.

⁴¹¹ Lindsay Papers, LIN 149 Lindsay to Mrs Lindsay, 22 January, 28 February, 5 and 14 March, 27 April 1917.

⁴¹² CAB 24/58/73 Report by Baines, pp. 3-4.

⁴¹³ WO 107/37 Appendix C, Notes for Guidance of Officers of the Labour Corps in France, September 1918, p. 4.

⁴¹⁴ CAB 24/58/73 Report by Baines, pp. 4-5.

⁴¹⁵ Hill Papers, LIDDLE/WW1/GS0767 My Life Story, 1874-1972, p. 69 discusses a 'quarrel' between Hill, working as a carpenter in the Third Army Light Railways, and an NCO who was a 'pompous kind of chap', over the output of the workers at the camp.

employer, he will time his effort accordingly'.⁴¹⁶ In other words, he would 'soldier'. The failure to accurately assess the capacity of the workers led to the imposition of task work which the men could complete in a relatively short period, so short that employing branches would often insist on further work being undertaken that day. To the Chinese, such commands were viewed as a breach of faith and, particularly in view of the better treatment offered to British labourers employed in the same areas, contributed to a loss of morale and discipline among some units.⁴¹⁷ Among other companies, the developing skill of the men as they became accustomed to their work meant that what had been a 'fair day's work' would, after a short while, become comfortably achievable within an ever-diminishing period of time. This led either to the troops attempting to 'soldier' (deliberately modifying their pace to ensure that what *had* been a day's work remained a day's work) or to completing their tasks well within the allotted time and creating 'trouble' for any employers who sought to extend the working day. PoW companies subjected to such treatment were described as looking upon themselves as 'strikers' rather than soldiers.⁴¹⁸

In essence, the men were practising a form of worker resistance reminiscent of that identified by Whitston in his study of methods by which industrial labourers responded to the spread of 'Taylorist' ideas in Britain.⁴¹⁹ Although unable to materially alter the managerial procedures of the labour directorate, the companies were sufficiently powerful (and important) to force the BEF to modify the employment conditions under which they provided their labour. Despite belonging to an institution with access to its own form of physical, occasionally lethal, punishments, the senior officers of the labour directorate and the DGT were not in possession of a 'free hand' in the imposition of output rates and disciplinary measures against those unwilling to meet such targets. The withholding of rations from PoW companies considered to be

⁴¹⁶ WO 107/37 Report, p. 54.

⁴¹⁷ WO 106/33 Chinese Labour Corps, Fairfax to Gibb, 25 December 1917; WO 107/37 Report, p. 52. To help boost the morale of the Chinese labourers, and for the 'considerable effect' it would have on increasing British influence in China after the war, Fairfax suggested distributing calendars to the members of the Chinese Labour Corps at the Chinese New Year, alongside giving the labourers a day off. See WO 106/33 Suggested New Year's Gift to Chinese Labour Corps, 28 January 1918; Chinese Labour in France, p. 9.

⁴¹⁸ WO 107/37 Notes on Prisoners of War, p. 8.

⁴¹⁹ K. Whitston, 'Worker Resistance and Taylorism in Britain', *International Review of Social History*, 42:1 (1997), 1–24.

underperforming was dismissed as ineffectual on the grounds that malnourished workers would be incapable of performing as efficiently as well-fed troops.⁴²⁰ The number of inexperienced officers acting as supervisors, utilizing the ‘old methods of suasion and force’, remained a constant problem for the labour directorate throughout the war, demonstrating the limitations of scientific management.⁴²¹ For men like Fairfax, the potential benefits of the labour directorate’s attempts to coordinate and distribute the BEF’s resources in the most efficient, systematic manner were overwhelmed by the bureaucracy and ‘paper-mongering’ that their methods demanded.⁴²²

If Fairfax’s remonstrations could be dismissed as those of a ‘production-oriented traditionalist who preferred only to see the “bottom line” without dwelling on the means of reaching it’,⁴²³ the animosity displayed towards the labour directorate by the Director of Docks was quite another. The first graduate of the NER’s Traffic Apprenticeship Scheme, Ralph Wedgwood had spent his entire professional career within a company dedicated to implementing the most modern statistical and organizational methods available in the pursuit of efficiency. Yet far from taking an open-minded and sympathetic approach to the aims of the labour directorate, Wedgwood would offer ‘no encouragement’ to the Labour Corps to share their observations of working practices at the ports, despite the employment of men with ‘practical experience of dock labour in civil life’ as labour officers at the ports.⁴²⁴ The twin pressures of the unrestricted German submarine campaign and the provision of ships for the transport of American troops exacerbated a situation in which the quick turn-around of shipping at the ports was already critical to the sustenance of the Allied war effort. Ships discharging in port were effectively removed from service; the longer they remained under anchor, the less carrying capacity was available throughout the supply chain.⁴²⁵ Under such circumstances, the

⁴²⁰ WO 107/37 Notes on Prisoners of War, p. 2.

⁴²¹ Griffin, ‘Scientific Management’, p. 197. Of course, scientific management’s *raison d’être* was the elimination of these ‘archaic’ managerial methods.

⁴²² The term ‘paper-mongering’ is introduced in Higgs, p. 122 to describe the voluminous quantities of paper forms being generated by increasingly complex administrative machinery in the period 1880-1914.

⁴²³ Griffin, ‘Scientific Management’, p. 199.

⁴²⁴ WO 107/37 Report, p. 99.

⁴²⁵ Ernest Fayle, ‘Carrying-Power’, pp. 535–7.

throughput of goods at the docks, a fundamental problem for the BEF since 1914,⁴²⁶ attained an even wider significance.

Under the terms of reference issued to the labour directorate upon its foundation, labour officers were unable to directly address examples of what they considered to be inefficient working practices at the docks. Instead, they were to record their observations and submit them to representatives of Wedgwood's directorate for consideration.⁴²⁷ Despite the production of a series of scathing memoranda which recommended the consolidation of labour allocation under the control of labour officers at each of the ports, rather than allowing the docks directorate to make decisions over the numbers employed on each task, Wedgwood refused to entertain the notion of a change in policy.⁴²⁸ Consequently, 'friendly liaison' between officers of the two organizations at a subordinate level was a prerequisite for safeguarding against mutual recriminations at individual ports; the Director of Docks able to fall back upon the ready-made excuse that not enough labour was available to fill their requirements (something Lindsay ascribed in part to the 'bad competitive habits' of the 'capitalists' drawn into the BEF following Geddes' appointment),⁴²⁹ the labour organization to the 'wasteful' employment of the allocated resources by Wedgwood's men.⁴³⁰

Furthermore, the restriction of the labour directorate's jurisdiction to the administration of those troops under the banner of 'unskilled' workers meant that the skilled men employed by the DGT were not part of the labour 'pool'. Therefore, all attempts to restrict the 'hoarding' of labour within individual departments could only have a limited impact simply because vast quantities of men were beyond the jurisdiction of the labour directorate. Although the introduction of a number of unofficial 'systems of liaison' between individual officers saw skilled units being transferred from one department to another (possibly the result of the personal connections which existed between many of those populating the DGT), the procedure

⁴²⁶ It was the need to ensure a 'quick transit' of goods through Boulogne that led to Francis Dent's involvement with the BEF in late 1914. See above, chapter 2.2.

⁴²⁷ WO 107/37 Report, pp. 96-7.

⁴²⁸ Passages from two such reports are reproduced in WO 107/37 Report, pp. 99-102. The discovery of roughly ninety Chinese labourers 'lying asleep' at Havre provides a particularly stark example of inefficient labour use.

⁴²⁹ Lindsay, pp. 78-9.

⁴³⁰ WO 107/37 Report, p. 102.

was by no means universally practised. ‘To shut up this labour... in water-tight compartments’, Baines observed, ‘certainly appears to be lacking in economy’.⁴³¹ Alleviating the Director of Docks of the responsibility for ensuring the economical distribution of labour therefore seemed a reasonable suggestion, and a trial period at Havre was proposed for August 1918.⁴³²

Wedgwood blocked the proposal, agreeing only to the constitution of a committee comprising himself, Wace, a representative of the QMG (by this point the superior officer to both men) and the Principal Naval Transport Officer (responsible for the naval aspects of docking and unloading the ships). The terms of reference emphasized that no ‘fundamental changes’ to the overall policy of labour distribution, such as those recommended by Wace, would be considered. However, providing the platform for the representatives of both directorates at each of the ports to air their views, and to discuss the particular issues militating against harmonious working relations between the two departments did, in Wace’s view, lead to ‘undoubted good’ in what remained of the war.⁴³³ The committee agreed that statistics compiled by each directorate should be made available to the other (the fact that there appears to have been a degree of confidentiality attached to the circulation of statistics *within* the BEF demonstrates the continued existence of compartmentalized thinking throughout the war); the navy consented to the release of labour from ports at ‘slack’ times for employment elsewhere; and each port was ordered to hold weekly meetings at which the heads of departments could gather together and review the existing situation at their own base.⁴³⁴

The committee had made sound, intelligent recommendations designed to facilitate communication and thereby encourage better cooperation and coordination of effort at the ports. Wedgwood’s ‘demarcation’ of his own responsibilities, however, limited the effects that such a committee could have had even before its constitution. Cooperation and coordination of effort were laudable aims, but what was actually required was the consolidation of labour questions under one man, in the same way that Geddes had been required to centralize transport in the autumn of 1916. The investigations of Pearson and Baines had recommended it. Wace strove to

⁴³¹ CAB 24/58/73 Report by Baines, p. 7.

⁴³² WO 107/37 Report, pp. 103-4.

⁴³³ WO 107/37 Report, p. 104.

⁴³⁴ WO 107/37 Appendix Z, 2 October 1918.

achieve it. Wedgwood actively refused to comply. ‘Civilianization’ was not the panacea to the organizational difficulties faced by the BEF that Lloyd George would later proclaim it to have been. The treatment of individual departments as personal ‘fiefdoms’ was not an accusation which could be levelled only at professional soldiers. The civilian experts drafted in to provide technical support and direction to the logistical administration of the force were just as susceptible to being drawn into ‘boundary disputes’ over the scope of their duties as their military counterparts.

Through the application of innovative, modern approaches to management, the successive labour directorates attempted to ‘foster’ what Geddes would describe as an ‘orphan’ issue; the complex problem of directing and employing a vast and varied labour force in the final two years of the First World War.⁴³⁵ As Edward Pearson concluded in his investigation of the BEF’s labour organization in early 1918:

Viewed in the light of a wide and varied business experience, I may state that from what I have seen *this question of improved labour efficiency in the army can be broadly dealt with by the same methods as experience has shown to be successful in the majority of large business undertakings*. The matter, however, cannot be dealt with satisfactorily piecemeal.⁴³⁶

Gibb and Wace created and sustained a directorate which was ‘proficient in extracting, retrieving, analysing and storing information’ in order to develop a more intelligent application of the BEF’s manpower resources.⁴³⁷ Through the implementation of a card indexing system they created an accurate, frequently updated catalogue of the officers available for duty with the Labour Corps, allowing for the most suitably qualified men to be posted to the units in which their talents and experience could be most beneficially exploited. Similarly, the provision of performance charts and graphs became a regular, visual mechanism for simplifying a colossal amount of raw data into neat, unambiguous statements of performance.

Although these men were professional soldiers, the methods they employed did not emerge from within the supposedly insular army. They were the products of an industrialized

⁴³⁵ Labour had, according to Geddes, suffered for being ‘nobody’s child’ in the early years of the war. See CAB 24/39/101 Chinese Labour.

⁴³⁶ CAB 24/58/90 Report on Labour Organisation, p. 12. Emphasis added. The similarity in language to that of the report produced by the Dawkins committee during the South African War is striking. See above, chapter 1.1.

⁴³⁷ Black and Schiller, pp. 644–5.

society in which the complexities of large-scale administration had been addressed both by the state and by a larger number of companies than in any other European nation in the early twentieth century.⁴³⁸ The ‘nation of shopkeepers’ was not short of ‘numerical nous’, nor the tools with which to harness, manipulate and analyse complex organizational data as a foundation for policy decision-making. Turn-of-the-century Britain had embraced the ‘quantifying spirit’; the BEF’s labour directorate was, like the BEF as a whole, a reflection of British society.⁴³⁹ It engaged with the controversial and novel methods of management most famously promoted by Taylor in much the same manner as Whitston’s assessment demonstrates British firms did in the decade prior to the outbreak of the war.⁴⁴⁰ Indeed, Taylor’s most prominent post-war advocate in Britain, Lyndall Urwick, first read Taylor’s *Shop Management* in a dugout on the Western Front; not at the recommendation of a civilian, but on the advice of a ‘dugout’ Captain who had retired from the army following the South African War.⁴⁴¹ Innovation and modernity were not the sole preserve of Lloyd George and his men of ‘push and go’.

How much the improvements in efficiency and output of the Labour Corps in 1918 were simply down to the increasing proficiency of the men as they became accustomed to their work, rather than the result of Wace’s organizational changes and the widespread introduction of task work, is impossible to assess without the raw data. Certainly, as the surviving records demonstrate, the *esprit de corps* generated by posting record-breaking results could act as a boon to productivity, and the unequivocal clarity of numerical representations of ‘work done’ made the identification of inefficiency across a wide geographical area far easier. But eradicating that inefficiency proved much more difficult, and was reliant upon the honesty, accuracy and shared commitment of those tasked with providing the necessary information. In the stresses of war, such dedication was not always forthcoming. Even in the final weeks of the conflict the labour directorate was embroiled in a dispute over the ‘proper’ allocation of manpower in the docks directorate. Individual departmental concerns and self-preserving

⁴³⁸ Higgs, p. 118; Y. Cassis, ‘Big Business in Britain and France, 1890-1990’, in *Management and Business in Britain and France: The Age of the Corporate Economy*, ed. by Y. Cassis, F. Crouzet, and T.R. Gourvish (Oxford: Clarendon Press, 1995), pp. 214–26 (p. 216).

⁴³⁹ J. Thompson, ‘Printed Statistics and the Public Sphere’, pp. 135–6.

⁴⁴⁰ Whitston, ‘Reception of Scientific Management’; Kanigel.

⁴⁴¹ Urwick Papers, 8/3/2 Management Pilgrimage, p. 4; 8/4 Apprenticeship to Management, pp. 53-66.

tendencies continued – as they had done throughout – to supersede holistic considerations of the BEF’s overall priorities.

The attitude of Ralph Wedgwood, Director of Docks following the establishment of the post in October 1916, undermines Lloyd George’s ‘rhetoric that the great feats of wartime organization were achieved by civilian experts’,⁴⁴² unaided (if not actively hindered) by insular and self-preserving soldiers. Wedgwood demonstrated that civilian experts were also prone to become ‘protective’ of their working methods when faced by observations and criticisms from ‘outsiders’. Such obstructions operated on both sides of the traditionally identified fault line of civil-military relations. In the final months of the war, the position of Director-General of Transportation was officially subordinated, against Haig’s wishes, to that of the QMG. The incumbent director-general at the time, Major-General Sidney Crookshank, was a regular soldier with a Royal Engineers background including colonial service in India. The majority of his staff, however, were civilians drawn into the army by Geddes in late 1916. Geddes himself perceived the decision to subordinate the DGT to have been a ‘military conspiracy’, whilst Fay was suitably concerned by the effects of re-establishing military control over the directorate to warn that the officers and men within the DGT may become ‘mulish and difficult to handle’.⁴⁴³ With Crookshank considered by London to be incapable of handling the position, Wedgwood was proposed as a suitable replacement. He had the required experience of docks and railway operations, and had been involved with the war effort since its earliest days. However, when Fay raised the suggestion:

[Wedgwood] said he would have nothing to do with it. ‘The army got into a mess before, and were going to get into another now, let them get out of it in their own way’. He was deaf to any argument, although I urged him to reconsider.⁴⁴⁴

In the event, the European Agent for the Canadian Pacific Railway and Assistant Director-General of Military Railways, George McLaren Brown was despatched to France in order to shadow Crookshank ahead of taking over the DGT. His appearance caused a ‘commotion’ at GHQ, with Fay recounting that – echoing reports from Maxwell’s department when Geddes

⁴⁴² Grieves, ‘The Transportation Mission’, p. 74.

⁴⁴³ Fay, p. 193.

⁴⁴⁴ Fay, pp. 193–4.

arrived in 1916 – that some of the directors declared they would not work with McLaren Brown. However, on this occasion such attitudes were not merely the result of self-preserving tendencies among the military. The most vociferous critic of McLaren Brown's appointment was not a professional soldier but Brigadier-General John W. Stewart, head of the Corps of Canadian Railway Troops. Like McLaren Brown, Stewart was a railwayman by trade. To Stewart, however, McLaren Brown was 'only a ticket agent [who] knew nothing about railways'. Fay put such comments down to a personal grudge and Stewart's desire to attain the position of Director-General of Transportation for himself.⁴⁴⁵ Ultimately, the end of the war thwarted Stewart's ambitions, but the entire episode demonstrated that self-interest and faction persisted throughout the conflict. The senior command both at home and in France were unable to eradicate such issues, they could only ameliorate them.

Yet the existence of those who put 'ambition or jealousy' first, whether civilian or soldier, should not be allowed to overshadow the majority of actors on both sides for whom 'self-interest was a long way behind duty to their chiefs and their nation's need' during the First World War.⁴⁴⁶ By 1918, the armies of Western Europe

were the most efficient human machines the world has ever seen. There was less waste of effort, less friction in their working, better adaptation to the end in view, than can be discovered in any other form of human organization.⁴⁴⁷

Despite Lloyd George's post-war assertions, this process was not the result of civilian 'imposition' upon a reticent, reactionary, backward-looking army. It was in fact the consequence of a widespread acknowledgement of the applicability of contemporary business methods to the conduct of modern industrial conflict, combined with an increasing acceptance of the financial and resource implications of waging warfare on a more 'total' scale than had hitherto been understood by both soldiers and statesmen alike.

⁴⁴⁵ Fay, pp. 202–5.

⁴⁴⁶ Fay, p. 119.

⁴⁴⁷ Urwick Papers, 1/2/9 The Soldier, the Worker, and the Citizen, 1919, p. 3.

Conclusion

Whilst the acquisition of the extra resources required to improve the BEF's transport capacity owed much to Geddes' dual position; his contacts; and the increasing acknowledgement of the fundamental importance of logistics within the British Army, the effective use of those resources was influenced by working methods and practices developed outside the cauldron of war. Although he would fall foul of the specific requirements of military secrecy whilst in France,⁴⁴⁸ Geddes was able to create and install an integrated logistics organization that supplied the military needs of the BEF for the rest of the war. However, Geddes' most important achievement as Director-General of Transportation in 1916 and 1917 was, following Taylor's aphorism, to put 'the system first' rather than 'the man'.⁴⁴⁹ From October 1916 onwards logistics provision in the BEF, overseen from 'Geddesburg' near GHQ, would be dominated by a civil-military partnership which relied on the application of management systems and operating procedures rather than upon the constant presence of a dominant 'driving force'.

However, Auckland Geddes' assessment that 'until experts, with experience of the transport problems – both rail and road – of crowded industrial England, were on the spot in charge of supply movement, fully adequate provision for the fighting men had proved impossible',⁴⁵⁰ misrepresents the civil-military dynamic within the DGT and the BEF as a whole in the second half of the war. Furthermore, it underplays the importance of the evolution of Franco-British relations. Prior to the Somme, when the total extent of the necessary British contribution to the Western Front remained unclear, it was both impossible and undesirable for the 'extravagant' quantities of resources and time required to realise these large-scale engineering and transport commitments to be redirected from the immediately obvious and ever-growing demand for munitions and weapons of destruction.⁴⁵¹ Only in late 1916 did the

⁴⁴⁸ Geddes had to be reminded not to refer to the ports of Ostend and Zeebrugge by name in memoranda, in case information on potential British operations should fall into enemy hands. See Robertson Papers, 7/7/1 Robertson to Haig, 1 January 1917.

⁴⁴⁹ F.W. Taylor, *Principles of Scientific Management*, p. 7; Haig Papers, Acc.3155/113 Geddes to Haig, 15 May 1917.

⁴⁵⁰ Geddes, pp. 237–8.

⁴⁵¹ As Guy Granet noted in November 1916, there already existed a 'great shortage of steel owing to the large demands for big gun ammunition'. Until the absolute necessity for infrastructural improvements

need for railway material become so urgent that a compelling argument could be made to subordinate the supply of other items to ensure stocks of railway track were improved.⁴⁵² This was the consequence not only of the BEF's first experience of mass offensive operations, but also of the sustained effects of two years of attritional warfare upon the human and material resources of Britain's host and ally.

The military character of the Western Front, in particular the *Materialschlacht* of 1917 onwards, was a product of industrialization. Once the French relinquished overall control of transportation and British experts became entwined in the logistics network underpinning this type of warfare, the quality of British transport management came to have a significant impact upon the type of war the BEF could fight on the Western Front. War had, in the words of one contemporary American theorist, 'become a business... vast and comprehending many departments' of army and state.⁴⁵³ The Allied victories of late summer and autumn 1918 demonstrated the by then irresistible difference in the opposing sides' resource bases, and the ability of the Allies to direct adequate quantities of materiel to the battlefield over a long enough period of time to erode the capacity and spirit of the German Army. In understanding and harnessing their human and material assets, and directing them to their destinations with an efficiency that was – at the very least – 'good enough' to bring the war to a successful conclusion in 1918, the civilian experts drawn from British industry played a crucial role.⁴⁵⁴ This was not a role performed in isolation, or in opposition to a recalcitrant military leadership as Lloyd George would later claim, but in combination with an army which had fostered, encouraged and developed working partnerships with industry both in war and peace.

was made abundantly clear during the latter months of 1916, there were insufficient calls for transportation to be adequately considered in the division of materials. See Lloyd George Papers, LG/E/6/1/5(A) Wagon Supply in France, 7 November 1916, p. 3.

⁴⁵² Robertson Papers, 7/6/98 Haig to Robertson, 26 December 1916.

⁴⁵³ G.C. Thorpe, *Pure Logistics: The Science of War Preparation* (Washington, DC: National Defense University Press, 1986), p. 5.

⁴⁵⁴ WO 107/296 Report, p. 8.

Conclusion

*The armies have outgrown the brains of the people who direct them. I do not believe that there is any man living big enough to control these millions. They will stumble about, and then sit down helplessly in front of each other thinking only of their means of communication to supply these vast hordes who must eat.*¹

Major-General Ferdinand Foch

*War is too serious a matter to leave to soldiers.*²

Georges Clemenceau

Throughout the First World War, the trade press of the railway industry acknowledged and recorded the scale of the conflict, and the railways' contribution to its continuation. In the opening months, as men streamed to the Colours, the numbers enlisting from each of Britain's railway companies were recorded in league tables denoting the proportions of each workforce that had answered Kitchener's call.³ As the war expanded, the increasing responsibilities and official recognitions of men like Francis Dent and Eric Geddes were reported on with familial pride.⁴ After the fighting had ceased, the *Railway Gazette* marked the occasion with a special issue, exclaiming that although 'transport has always been an important factor in war... never in the history of the world has it played such a great part as in the war now terminated'.⁵ The combination of colossal numbers of men, the global spread of operations, and the ability of modern armies to consume materiel at 'staggering rates, [had] placed unparalleled challenges in front of the logisticians of all nation-states' during the First World War.⁶ Unfortunately however, the belief of *NER Magazine* in February 1916, that 'when the history of the present war is written it would be found that our railways and railwaymen had taken a very large share in the operations', has not proven to be the case.⁷ In this, as in so much of the popular memory of the First World War, the influence of Lloyd George's *War Memoirs* continues to be felt.

¹ Quoted in Seely, p. 150.

² Quoted in S. Förster, 'Civil-Military Relations', in *The Cambridge History*, ed. by Winter, II, 91–125 (p. 91).

³ ZPER 9/19 'Railwaymen and the War', *Railway Gazette*, 6 November 1914, pp. 493-7.

⁴ TNA: PRO ZPER 39/38 'Another Railway Knighthood. A New Year Honour for the South-Eastern and Chatham General Manager', *Railway Magazine*, 38 (1916), p. 105; ZPER 39/41 'British Railway Service', *Railway Magazine*, p. 123.

⁵ 'The Organization of War Transportation', *Railway Gazette: Special War Transportation Number*, 21 September 1920, p. 1.

⁶ Brown, II, p. 222.

⁷ 'The Romance of Railways in Peace and War', *North-Eastern Railway Magazine*, 6 (1916), p. 38.

In order to bring together the unprecedented quantities of combatants, non-combatants, animals, machines, fuel, and fodder required to engage with and defeat their opponents, the armies of the Western Front were dependent upon organization and management systems on a scale not encountered in previous wars.⁸ However, the contribution of Britain's transportation experts to the establishment of these processes and procedures has been largely airbrushed from the historical record. Although the 20,000 employees from within the railway industry who died during the conflict have merited commemoration,⁹ only Sir Eric Geddes has been the beneficiary of significant historical study. The work of Geddes, prominent in both Lloyd George's own memoirs and in general accounts of the war, has all too frequently been referred to in the historiography of the Western Front within a vacuum.¹⁰ Such a tendency has implicitly reinforced Lloyd George's assertion that the Geddes mission was pioneering. This thesis has challenged this trend, by placing Geddes' transportation mission in late 1916 within the wider narrative of logistical developments in France and Britain both before and during the war. This thesis has argued that the creation of the DGT and DGMR should not be considered, as is the case in Lloyd George's memoirs, as the triumph of civilian ingenuity and innovation over hidebound military insularity and intransigence. Instead, it has demonstrated that Geddes' work must be placed within two contexts: that of a pre-existing professional relationship between the army, the government, and the technical experts prevalent in Edwardian Britain's largest companies; and that of a growing comprehension of the logistical necessities of the evolving business arrangement between Britain and France, one in which the British were required to shoulder a far more substantial proportion of the burden of supplying the BEF than had been prepared for prior to the outbreak of war. The transportation mission was part of an established process of consultation and experimentation as the nature of the war, and the scale of effort required to win it, slowly revealed itself to the belligerents. The nuanced picture of logistical

⁸ W. Funnell and S.P. Walker, 'Accounting for Victory', *Accounting History Review*, 24:2-3 (2014), 57–60 (p. 57).

⁹ J. Higgins, *Great War Railwaymen: Britain's Railway Company Workers at War 1914-1918* (London: Uniform Press, 2014).

¹⁰ Stevenson, *1914-1918*, p. 330; W. Philpott, *Attrition: Fighting the First World War* (London: Little, Brown, 2014), p. 245; G. Corrigan, *Mud, Blood and Poppycock: Britain and the First World War* (London: Cassell, 2004), pp. 316–18; R. Holmes, *The Western Front* (London: BBC Books, 1999), pp. 167–8; Sheffield, *Forgotten Victory*, p. 207; Sheffield, *The Chief*, pp. 149–50; Foley, pp. 293–6.

developments presented above, both prior to and following Geddes' involvement, are a fundamental component of understanding how the BEF functioned within the Allied coalition – too often overlooked as a factor in 'learning curve' interpretations of the First World War – and how the French and British interpreted and re-interpreted their roles, and responsibilities to each other, as the conflict developed.

The longstanding association of the army, government and railway companies underpinned Britain's preparations for the First World War. Logistics were a thoroughly recognized factor in pre-war discussions, acting in concert with political, diplomatic and purely military considerations to guide and shape British strategic decision-making towards the 'W.F.' scheme. The continuation of the ERSC following Haldane's reforms, where moribund formations were eliminated in the Secretary of State for War's quest for efficiency, coupled with the creation of the REC to centralize army-state-railway connections, solidified the organizational links between these groups that stretched back to the very dawn of the railways themselves. The senior managers of Britain's railway companies were an important element of Britain's imperial preparations which culminated in the production of the War Book. At a more practical level, the railways provided the rolling stock and engine crews that allowed the military to rehearse mobilization procedures when on manoeuvres, whilst the timetabling experts of the largest railways grappled with the complexities inherent in the movement of a modern, well-equipped army to the coast. It was not as a result of the personal 'drive' of any figure, political or military, that the BEF was harmoniously propelled to the continent in the opening weeks of the conflict, but the culmination of a multitude of plans and preparations (many of which were ongoing when the July crisis began to sweep across Europe) involving both technical and military experts.

The 'Lloyd Georgian' image of the insular army, unwilling to countenance outside 'interference', and dedicated to outdated, narrow-minded traditions suited only to defeating poorly armed colonial opposition, cannot survive detailed examination. Before the war began, and throughout the conflict itself, the language of 'big business' was used to conceptualize the work and structure of the British Army. From Esher's championing of a 'Board of Directors' in the War Office to Mackinder's equivalence of 'profits' and 'power', the structures of large,

complex institutions were utilized as a model upon which the organization of the pre-war army was based. Far from being resisted by military figures, the languages and concepts of civilian industry were embraced. Lieutenant-Colonel Edward May's observations which open part one of this thesis demonstrate how military figures conceptualized the challenges facing the British Army in 'business terms', whilst Douglas Haig's diaries from his period as Inspector-General of Cavalry illustrate the extent to which 'efficiency' and 'economy' had been imbued by the future C-in-C of the BEF.¹¹ As the syllabus of the administrative course at the LSE set up in 1907 demonstrates, the future leaders of the BEF's supply echelons were being taught the skills required to operate a large, data-intensive business rather than a colonial police force.¹² Such concepts were not resisted. As a review of the course noted approvingly, in direct contradiction to Lloyd George's later condemnation of the narrowness of vision in the British Army, it was 'widening the field of view' of the soldiers who participated.¹³ Unfortunately, however, only less than 250 officers had passed through the course before the war began. The conflict intervened before the lessons of 'big business' could be diffused more widely throughout the army, and the officers who had gained their 'e' in the Army List would, by necessity in a global war, be diluted to such an extent that, in conjunction to their comparative lack of seniority, they were unable to exert pronounced influence over the direction of the BEF's administrative development.

However, as the BEF grew, and became more and more reflective of the society it was formed to protect, practices familiar to the British workman manifested themselves. By late 1916, after Geddes had created the DGT, Lord Northcliffe reflected that 'a considerable portion of industrial England' had crossed to France.¹⁴ Their methods came with them. Whilst Bourne's essay has previously demonstrated how the overwhelmingly working class soldiers of the BEF

¹¹ 'Efficiency for war must be the standard... It is perfectly certain that by a well-thought out system and methodical employment of time the highest standard of efficiency will be reached by the time of the inspection. But time must be economized'. See Haig Papers, Acc.3155/2C Notes on Inspection, 1903.

¹² For example, the lectures given by Arthur Bowley on statistical methods 'covered methods of collecting statistics; their uses and limitations when collected; the presentation of statistics in tabular and diagrammatic form; the drafting and arrangement of statistical forms; [and] the danger of false deductions, with explanations of common errors'. See Gwynn, p. 233.

¹³ Gwynn, p. 234.

¹⁴ Quoted in Grieves, 'The Transportation Mission', p. 68.

adapted industrial practices to their military existences,¹⁵ those with pre-war experience of the railway industry also remarked on the manner in which the support systems behind the army resembled peacetime transport operations. W.J. Hill, employed by the LNWR prior to the conflict, noted how much Fosseux resembled ‘an English railway yard... on, of course, a small scale’ by the end of 1917.¹⁶ The yard contained locomotive and wagon sheds for the repair and maintenance of equipment, and the drivers were detailed for duty through a time office ‘by similar methods as adopted by the English railway companies’.¹⁷ The similarities went even further; the BEF’s light railway network, a core component of the transport infrastructure powering the *Materialschlacht*, was operated by a train control system developed to improve punctuality on the Midland Railway. It was adapted to create flexibility in the space between the railheads and the front line, whilst the same principles were used to monitor the whereabouts of the BEF’s increasing IWT capacity. Although he would institute the necessary organizational reforms during his time as Director-General of Transportation, this thesis has demonstrated that Sir Eric Geddes was not solely responsible for introducing this ‘science of transportation’ to the BEF. The recalibration of Franco-British relations as the war developed was also crucial.

Despite sharing the same strategic goal, reluctance to formalize the hypothetical agreements developed over the preceding decade meant that Britain and France went into coalition in August 1914 without an adequate managerial framework to ensure that national initiatives were subordinated to the shared aim of expelling German forces from invaded soil. The pre-war agreement was not suited to the provision of a BEF numbering over two million men. The absence of a centralized, inter-Allied command structure manifested itself at the outset in the relegation of British logistical requirements to those of the larger French Army. Until the Somme (or more broadly speaking the cumulative effects of the fighting in the first half of the war), the French were the dominant partner in an unequal coalition on the Western Front. France took on the lion’s share of the organizational and coordinating responsibilities for both Allied forces. During 1915, Francis Dent and Gerald Holland found their contributions to the expanding British war effort constrained by the limitations of British authority over the

¹⁵ Bourne, ‘The British Working Man’.

¹⁶ Hill Papers, LIDDLE/WW1/GS0767 Recollections of France, p. 22.

¹⁷ Hill Papers, LIDDLE/WW1/GS0767 Recollections of France, pp. 32-3.

logistical infrastructure in existence on French territory. As hosts, senior partners, and the suppliers of the vast majority of the machinery and personnel required to operate the interlocking transport networks behind the armies, the wholly understandable desire for the French army and state to retain overall control of the supply apparatus overrode all other considerations. In attempting to install a bespoke telephone communications system, or in pressing to open up a new route for waterborne traffic, Dent and Holland bumped up against the limits of what French hospitality was, at that stage in the war, willing to offer. Even after the vast battles of 1916 when the pre-war agreement was acknowledged to be unsustainable, the French were reluctant to relinquish control to their partners (as Geddes himself discovered at Calais).

However, it was not merely French reluctance that acted to impair the effectiveness of ‘civilianization’ in the BEF prior to autumn 1916. It was not until 1916, when the Battle of the Somme underscored the sheer scale of effort that would be required to remove the Germans from their trenches, that the implications of organizational decisions taken at the onset of trench warfare would make their presence felt within the upper reaches of the BEF. The decentralization of responsibility within the administrative services, followed as a result of the unprecedented expansion of the force, helped to prevent the development of a coherent, integrated transport network in rear of the British troops. Logisticians were compartmentalized, sealed off in watertight departments and only able to make adjustments to their own link in an increasingly complex supply chain. The civilian experts engaged at this point in the war, and their military counterparts, were effectively trying to solve Rubik’s cube whilst only able to view one face. Within this restricted organizational structure, the contributions of transport experts such as Francis Dent and Gerald Holland could by necessity only be peripheral. This, however, does not mean that they should be overlooked. The establishment of the ‘civilianized’ Directorate of IWT in particular illustrates that the BEF was not resistant to the input of outsiders. The manner in which Francis Dent’s suggested improvements to the working procedures employed at the Bassin Loubet were discussed by the BEF’s senior administrative officers, indicates an army willing to interact with, and obtain the advice of, those with

recognized experience in dealing with the complexities of large-scale distribution services. The BEF was learning to make modern war long before 1 July 1916.

The irony of Lloyd George's claims of individual infallibility, which run throughout the *War Memoirs*, is that the many avenues in which the Prime Minister's claims can be discredited overshadow the area in which his foresight was proven to be absolutely correct.¹⁸ In September 1915, it was Lloyd George who raised doubts as to the ability of the extant French railway network to keep pace with the intensifying production effort in Britain. The Somme illustrated comprehensively that Lloyd George had been right in his misgivings. Too much had been asked of a transport network incapable of sustaining the intensity of supply required in order to fight a successful offensive against a well-trained, highly motivated enemy. French desires to retain overall control of the logistical infrastructure that both armies depended upon reduced the level of priority given to the development of transport projects within the BEF. The Somme demonstrated the unsuitability of Britain's hitherto uncoordinated response to the war as it developed in Europe, and the fundamental need for long-term planning to supersede the reactive, ad hoc policies of 1914-1916. Until this lesson had been understood, Geddes' mission could not have succeeded.

The resistance of officers such as Clayton, Maxwell, and Stuart-Wortley, prevalent in historical accounts of the 'civilianization' process, demonstrates that this lesson took time to filter through. However, previous assessments which have stressed the individualistic, self-preserving tendencies of certain prominent figures on the military side, have created an imbalance in representations of the civil-military relationship at play within the BEF. The technical experts were not immune to the temptations of 'boundary disputes', nor did they entirely embrace the customs of the military machine. Ralph Wedgwood's antagonism of the various labour directorates, whilst not directly causing inefficiencies at the docks, did nothing to alleviate existing problems either. Thus, Lloyd George's presentation of obstinacy as an almost uniquely 'military' trait that prolonged the war and reduced the effectiveness of altruistic civilian interventions deserves to be refined in light of the evidence. Furthermore, this study has argued that the adversarial tone of such comments requires substantial amendment.

¹⁸ Suttie, pp. 198–200.

To conclude, this thesis has stressed the key role played by British technical experts in the evolution of the BEF's transportation system during the First World War. It has demonstrated that the 'flower of British youth' was not, as Lloyd George would claim, 'mown down' as a result of the 'professional rigidity, narrowness and lack of vision' of the British Army.¹⁹ In fact, it has argued that the BEF was a reflection of the rapidly evolving society from which it came. It was an industrial machine forged from an industrialized society and sustained by many of the same techniques, methods and expertise that powered a world-leading economy, temporarily harnessed and adapted away from the pursuit of profits towards the production of military power. From the very outset, and indeed for over a decade before the war broke out, the army sought out and actively engaged with civilian experts to ameliorate the logistical challenges to be addressed in the prosecution of a modern conflict. Between them they planned for war, enlarged the scope and scale of the BEF's operations on the European mainland, and, ultimately, sustained the full implications of modern, material-intensive warfare on the Western Front at sufficient intensity and with enough efficiency to secure victory. Far from being the result of having unwanted civilian experts 'forced' upon an obstinate military, the Armageddon fought by Britain during the First World War was the outcome of conscious choices to contribute and cooperate made on both sides of the civil-military divide.

¹⁹ Lloyd George, I, p. 215.

Appendix 1: List of officers holding commissions in the Engineer and Railway Staff Corps, August 1914

Name	Railway or Dock Company*	Occupation	Date Commissioned†
A. Ross	Great Northern Railway	Railway Engineer	16/06/1897
A.J. Barry		Engineer	11/08/1897
Sir R. Turnbull	London and North- Western Railway	Railway Operator	04/11/1899
Sir W. Forbes	London, Brighton and South Coast Railway	Railway Manager	04/11/1899
W.B. Worthington	Lancashire and Yorkshire Railway	Railway Engineer	18/04/1900
Sir W.D. Pearson (Viscount Cowdray)		Contractor	11/07/1900
D.A. Matheson	Caledonian Railway	Railway Engineer	18/07/1900
C.A. Harrison	North-Eastern Railway	Railway Engineer	11/08/1900
Sir J.A.F. Aspinall	Lancashire and Yorkshire Railway	Railway Manager	11/08/1900
H.W. Williams	London and India Docks	Dock Manager	15/09/1900
H.C. Baggallay		Engineer	28/11/1900
Sir P.C. Tempest	South-Eastern and Chatham Railway	Railway Engineer	26/02/1902
B.H. Blyth		Engineer	23/04/1902
Sir G.L. Eyles		Engineer	28/05/1902
Sir S. Fay	Great Central Railway	Railway Manager	04/06/1902
Sir A.C. Lucas		Contractor	25/06/1902
A.G. Lyster		Engineer	16/07/1902
Sir J. Aird		Contractor	13/09/1902
C.B.H. Dent	Great Southern and Western Railway	Railway Manager	14/05/1904
O. Hawkshaw		Engineer	01/05/1905
D.C. Rattray	Lancashire and Yorkshire Railway	Railway Engineer	21/08/1905
Sir W.G. Granet	Midland Railway	Railway Manager	29/10/1906
C.S. Dennis	Cambrian Railway	Railway Manager	09/01/1907
Sir E.D. Jones		Contractor	16/10/1907
Sir M. Fitzmaurice		Engineer	01/04/1908
H. Holmes	London and South- Western Railway	Railway Operator	01/02/1909
F.F. Scott	London, Brighton and South Coast Railway	Railway Operator	10/07/1909
W.J. Grinling	Great Northern Railway	Railway Operator	10/07/1909
E.F.C. Trench	London and North- Western Railway	Railway Engineer	01/01/1910

Name	Railway or Dock Company*	Occupation	Date Commissioned†
H. Jones	Great Eastern Railway	Railway Engineer	16/03/1910
H.S. Wainwright	South-Eastern and Chatham Railway	Railway Engineer	07/05/1910
W. Clow	Great Central Railway	Railway Operator	17/09/1910
W.A. Paterson	Caledonian Railway	Railway Engineer	13/10/1910
L.P. Nott		Contractor	26/10/1910
M.F. Wilson		Engineer	27/10/1910
F.G. Randall	Great Eastern Railway	Railway Operator	17/01/1911
C. Aldington	Great Western Railway	Railway Operator	12/05/1911
Sir F.H. Dent	South-Eastern and Chatham Railway	Railway Manager	05/07/1911
E.C. Cox	South-Eastern and Chatham Railway	Railway Operator	25/10/1911
J.P. Bagwell	Great Northern of Ireland	Railway Manager	03/02/1912
Sir J.B. Ball	Great Central Railway	Railway Engineer	24/02/1912
Sir H.A. Walker	London and South-Western Railway	Railway Manager	28/02/1912
F. Potter	Great Western Railway	Railway Manager	06/03/1912
W.W. Grierson	Great Western Railway	Railway Engineer	09/10/1912
Sir C.L. Morgan	London, Brighton and South Coast Railway	Railway Engineer	05/11/1912
Sir E.C. Geddes	North-Eastern Railway	Railway Manager	27/01/1913
E.A. Neale	Great Southern and Western Railway	Railway Manager	06/03/1913
C.J. Brown	Great Northern Railway	Railway Engineer	10/12/1913
A.W. Szlumper	London and South-Western Railway	Railway Engineer	02/04/1914
Sir F. Palmer		Engineer	11/05/1914
S. Williamson	Cambrian Railway	Railway Manager	19/05/1914

Notes:

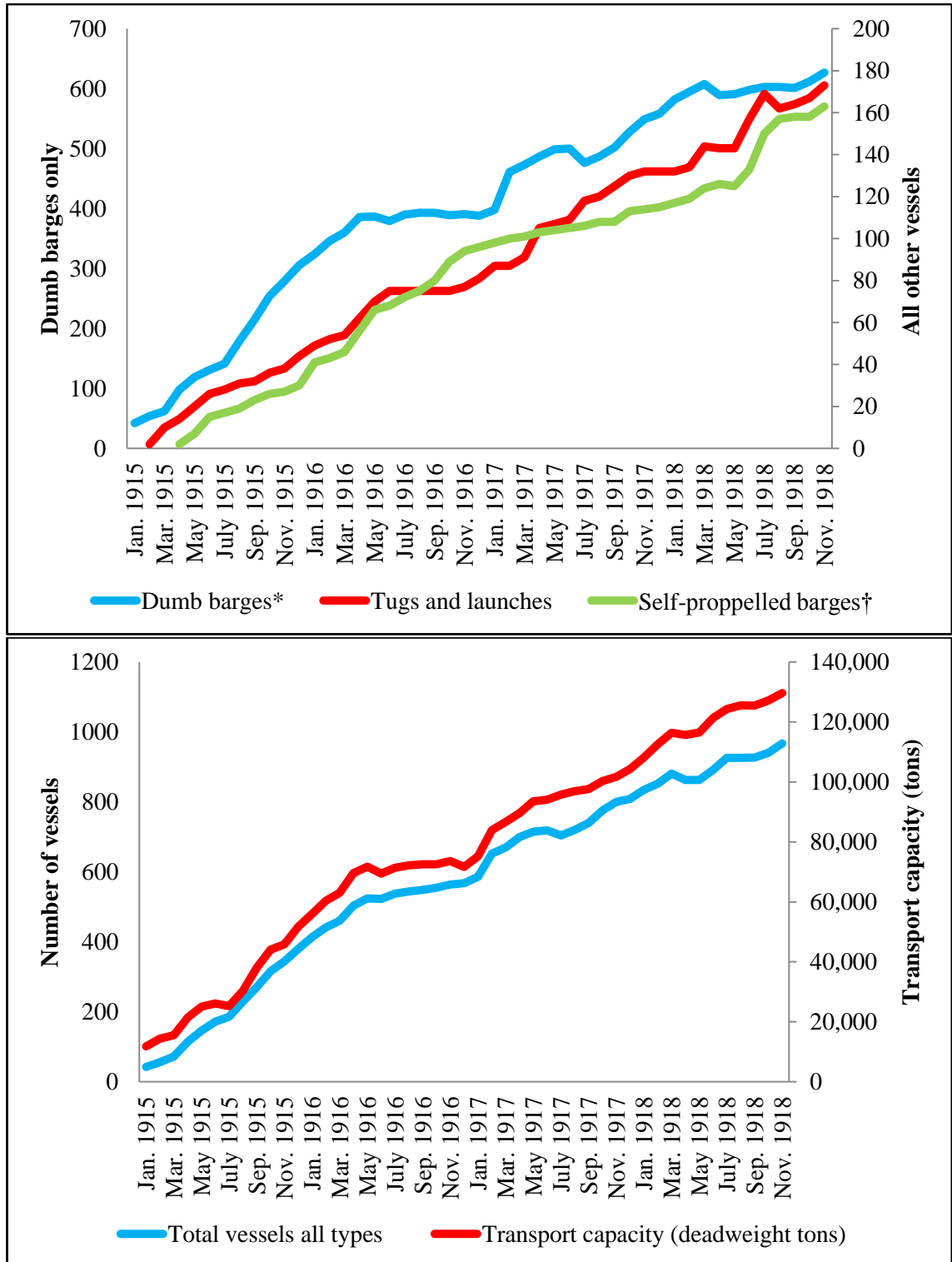
* Indicates employer on date of commission, not as of 4 August 1914.

† Indicates date of first commission, not promotion to rank as of 4 August 1914.

■ Indicates officer commissioned to represent the General Manager's office.

Source: C.E.C. Townsend, *All Rank and No File: A History of the Engineer and Railway Staff Corps RE, 1865-1965* (London: The Engineer and Railway Staff Corps RE TAVR, 1969).

Appendix 2: The Development of Inland Water Transport Resources, 1915-1918



* Dumb barges contained no engine and required a tug for propulsion.

† Self-propelled barges possessed engines in addition to space for cargo.

Source: TNA: PRO WO 158/851 Director General of Transport: History of Inland Water Transport, Appendix B2: Schedule showing development of inland water transport resources in France month by month, 1915-1918.

Appendix 3: Map of railways behind the British front, 1916

This image has been removed by the author of this thesis for copyright reasons.

Source: J.E. Edmonds, *History of the Great War. Military Operations, France and Belgium, 1916*, 2 vols. (London: Macmillan, 1932), I, p. 270.

Appendix 4: British Railway lines in the Somme Battle Area, 1916

This image has been removed by the author of this thesis for copyright reasons.

Source: J.E. Edmonds, *History of the Great War. Military Operations, France and Belgium, 1916*, 2 vols. (London: Macmillan, 1932).

Appendix 5: Britain's largest employers, 1907

Rank	Employer	Employees
1	General Post Office	212,310
2	London and North-Western Railway	77,662
3	Great Western Railway	70,014
4	Midland Railway	66,839
5	North-Eastern Railway	47,980
6	Lancashire and Yorkshire Railway	34,900
7	Great Northern Railway	32,422
8	Fine Cotton Spinners and Doublers	30,000
9	Great Eastern Railway	29,289
10	Royal Dockyards	25,580
11	Great Central Railway	25,469
12	Armstrong (Sir W.G.) Whitworth & Company	25,000
13	North British Railway	24,063
14	Vickers Sons & Maxim	22,500
15	Guest, Keen & Nettlefolds	21,710
16	Caledonian Railway	21,545
17	Calico Printers Association	20,500
18	Brown (John) & Company	20,000
19	South-Eastern and Chatham Railway	18,837
20	Bolckow, Vaughan & Company	18,000
21	Co-operative Wholesale Society	16,982
22	United Collieries	16,000
23	Royal Ordnance Factories	15,651
24	London, Brighton and South-Coast Railway	15,095
25	Gas Light & Coke Company	15,000

■ Indicates railway companies

Source: D.J. Jeremy, 'The Hundred Largest Employers in the United Kingdom in Manufacturing and Non-Manufacturing Industries, in 1907, 1935 and 1955', in *The Rise of Big Business*, ed. by B.E. Supple (Aldershot: Edward Elgar, 1992), pp. 414–35 (pp. 417-8).

Appendix 6: Information requested from the transportation mission, August 1916

Requirement Statistics

The following information to be obtained in quantities per week for each month up to 30 June 1917, in respect of the details set out below.

Tonnage and numbers to be conveyed, and number of railway, road, and canal vehicles or craft of various kinds required:

From point of origin to home ports and vice versa

From French ports, and vice versa

From ports in other theatres of war, and vice versa, for:

- | | | |
|---|-------------------------------|-------------------------------------|
| • Officers and men | • Sick, wounded and leave men | • Horses and mules |
| • Motor vehicles | • Horse-drawn vehicles | • Spare parts for vehicles and guns |
| • Numbers of guns and weights | • Gun ammunition | • Machine-guns |
| • Rifles | • Small arms ammunition | • Bicycles |
| • Trench warfare ammunition (including gas cylinders) | • Salvage | • Food supply |
| • Clothing, boots and other equipment | • Harness | • Petrol |
| • Mails, parcels and private consignments | • General stores | • Railway material |
| • Building material | • Other RE stores | • Medical supplies |
| • Munitions and raw materials for French government | • Fuel | • Voluntary Aid Detachments |
| • Red Cross | • YMCA | • Blue Cross |
| • Church Army | • Any other large traffics | |

Units of requirement of each item, e.g., per Corps, or per Division, per 1,000 men etc. where possible.

Provisions for strategic reasons and to meet requirements about today's railhead

Construction, repair etc. of:

- | | | |
|------------|---------|-------------------|
| • Railways | • Docks | • Canals or roads |
|------------|---------|-------------------|

Necessary in the event of an advance, for the movement of troops, ammunition, stores etc., or to feed civil population

Provision of:

- | | | |
|---|----------------------------------|-------------------|
| • Railway material | • Girders | • Dock equipment: |
| • Locomotives | • Road material | ○ Gates |
| • Carriages and wagons | • Road transport vehicles | ○ Power |
| • Barges | • Material for repairs of canals | ○ Cranes |
| • Labour (repair, maintenance, operating and workshops) | • Fuel | ○ Rails |
| • Stores | | ○ Dredgers |

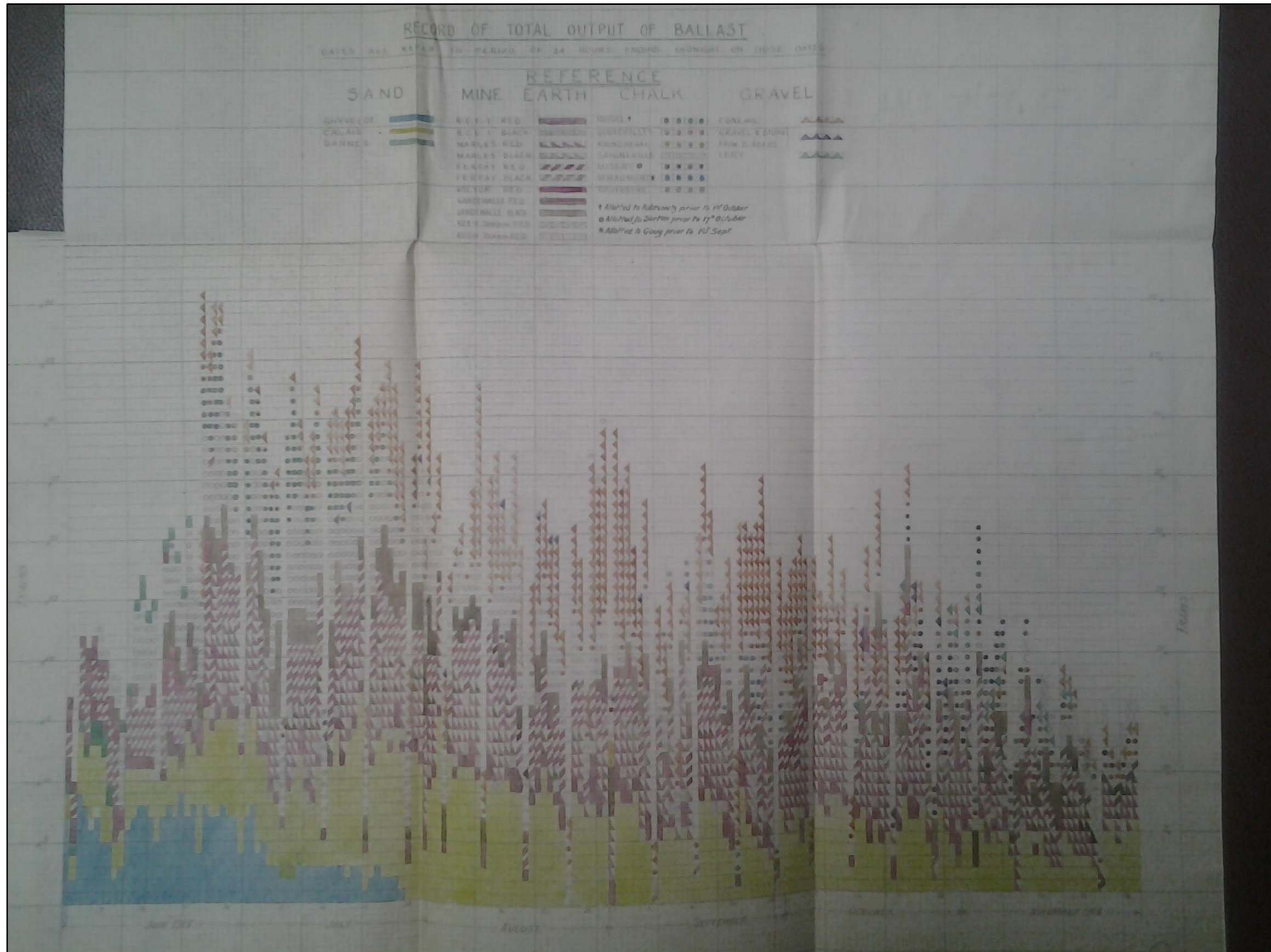
Special Memoranda required on:

1	Existing organisation in this country
2	Existing organisation in France
3	French organisation and arrangements for working BEF traffic, including relationship with French government Authorities and railway, dock or canal officials.
4	Relation of British military traffic to French traffic (military and/or civilian)
5	Relation with Belgian government qua Railways and ports in the future
6	Present position of Belgian railways rolling stock
7	Repairing facilities for locomotives and rolling stock in France and Belgium, including supply of labour and material
8	Proposals in hand or contemplated for provision of additional lines in France or arrangements with French railways
9	Relations with REC, with any existing memorandum on the subject
10	Relations and procedure with Admiralty in France, on the sea, in England, and in other theatres of war.
11	Relations with Admiralty – Army Medical Service, etc., as to the evacuation of sick and wounded
12	Reports made or any special instructions issued during the period of the war a. Labour at home or abroad b. Dock facilities at home or abroad c. Rail facilities at home or abroad d. Canal facilities at home or abroad e. Road transport at home or abroad f. Evacuation of sick and wounded
13	Position as regards a. Railways b. Sea Transport c. Docks d. Canals e. Roads in France With maps and plans where available. Memorandum to give details as to all difficulties which are being experienced: all probable tight places being specially marked on the maps and plans. Details of steps in progress or in contemplation to counteract the difficulties.
14	General flow of traffic at home and abroad, through various ports and by the different routes. Descriptions of traffic generally forwarded by rail, canal and road.
15	Storage depots in France and in this country so far as transport questions are affected.
16	Requirements of special capacity wagons and numbers available
17	Armoured trains
18	All special regulations as to despatch and storage or loading on railways of mixed cargoes, ammunition, guns, men. Any restrictions against bulk cargoes of any kind.
19	Memorandum with specimen forms of all traffic returns submitted to WO or IGC
20	Statement of all railway, dock or canal works, rolling stock, craft accommodation and equipment generally provided by the British government in France.

21	Extent to which railway telegraphs and telephone circuits are used for the business of other departments.
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Source: TNA: PRO WO 32/5164 Travelling and Transport: General (Code 9(A)): Facilities and arrangements for Sir E. Geddes in conducting his investigation on transport arrangements in connection with the British Expeditionary Force at home and overseas, 9 August 1916.

Appendix 7: Record of Total Output of Ballast, July to November 1918



Source: REMLA, MO 678 Ballast History, 1914-1919.

Appendix 8: Examples of Increased Output at Workshops due to Scientific Management by Labour

Article	Previous best per man (per day unless otherwise stated)	Output at time of new task	Tasks per man set to get off			Output secured on new basis
			5pm	4pm	3pm	
<u>Army Ordnance Department Workshop</u>						
Studs Fire Boxes	15	15	30	35	40	40 per man
Ashbin Handles	27/28	27/28	50	55	60	60 per man
Dixie Handles	45/50	45/50	100	110	120	120 per man
Ring Nuts (Pumps)	20	20	40	44	48	48 per man
Shackles	25	25	36	40	44	44 per man
Eyebolts	30/40	30/40	60	66	70	70 per man
<u>Boot Shop</u>						
Hobnailing (pairs)		9.5/10	13	14	15	14 per man
<u>Carpenters Shop</u>						
Stretchers	6	6	17	19	20	20 per man
Shovel handles	360	360	1,100	1,200	1,300	1,300 per man
Shovel handles (repairing)	18	18	44	48	52	52 per man
<u>Drum Shop</u>						
Food containers (soldering)	4	4	66	72	76	66 per man
Petrol cans (soldering)	20	20	300	330	360	300 per man
Food containers (greasing)	6	6	132	144	156	132 per man
Petrol cans (testing)	150	150	550	600	650	550 per man
<u>Paint Shop</u>						
4.5" Howitzer carriage (per 2 men)	6 (per week)					10 per week (to get off Saturday afternoon)
13, 15 and 18 Pdrs. Carriage (per 2 men)	6 (per week)					10 per week (to get off Saturday afternoon)
60 Pdr. Carriage (per 4 men)	6 (per week)					10 per week (to get off Saturday afternoon)
8" Howitzer carriage (per 4 men)	6 (per week)					9 per week (to get off Saturday afternoon)
Field Kitchens	1		3			3 per man
Water carts	1		3			3 per man
Running posts	30		36	44	48	44 per man
<u>Tinning Shop</u>						
Camp Kettles	30	10	39	43	46	46 per man
Travel boilers	25	10	33	36	39	92 per man
Mess Tins	250	110	275	300	325	325 per man

Source: TNA: PRO WO 107/37 Work of the labour force during the war, Report, Appendix Y, 1919.

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