

This electronic thesis or dissertation has been downloaded from the King's Research Portal at <https://kclpure.kcl.ac.uk/portal/>



**The transformation of the British expeditionary force on the western front 1914-1918, via a process of learning - lessons, doctrine, and training**

Cook, James

*Awarding institution:*  
King's College London

The copyright of this thesis rests with the author and no quotation from it or information derived from it may be published without proper acknowledgement.

**END USER LICENCE AGREEMENT**



**Unless another licence is stated on the immediately following page** this work is licensed

under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International

licence. <https://creativecommons.org/licenses/by-nc-nd/4.0/>

You are free to copy, distribute and transmit the work

Under the following conditions:

- Attribution: You must attribute the work in the manner specified by the author (but not in any way that suggests that they endorse you or your use of the work).
- Non Commercial: You may not use this work for commercial purposes.
- No Derivative Works - You may not alter, transform, or build upon this work.

Any of these conditions can be waived if you receive permission from the author. Your fair dealings and other rights are in no way affected by the above.

**Take down policy**

If you believe that this document breaches copyright please contact [librarypure@kcl.ac.uk](mailto:librarypure@kcl.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.

# INSTRUCTIONS FOR THE TRAINING OF PLATOONS FOR OFFENSIVE ACTION, 1917.

Part I.—Organisation and Tactics.  
Part II.—Training.  
Part III.—General.  
Appendices.

ISSUED BY THE GENERAL STAFF.

February, 1917.

## THE TRANSFORMATION OF THE BRITISH EXPEDITIONARY FORCE ON THE WESTERN FRONT 1914-1918, VIA A PROCESS OF LEARNING; LESSONS, DOCTRINE, AND TRAINING

Brigadier James Peter Cook OBE

FOR OFFICIAL USE ONLY.

NOT TO BE TAKEN INTO THE FRONT LINE TRENCHES.

# INSTRUCTIONS FOR THE TRAINING OF DIVISIONS FOR OFFENSIVE ACTION.

Issued by the General Staff.

The "Preliminary Notes of the Tactical Lessons of Recent Operations" (S.S. 119, July, 1916), are in amplification of the principles already laid down; they are intended to assist Commanders of Divisions in training their troops when they are to be taken by a Division for an Attack from Trenches" and "Instructions for Contact Patrol Work by Aeroplanes" are cancelled.

December, 1910.



LONDON  
HARRISON & SONS, ST. MARTIN'S LANE, W.G.  
PRINTERS IN ORDINARY TO HIS MAJESTY.

FOR OFFICIAL USE ONLY.

THIS Document is the property of H.B.M. Government, and the information in it is not to be communicated, either directly or indirectly, to the Press or any person not holding an official position in His Majesty's Service.

# THE TRAINING AND EMPLOYMENT OF PLATOONS 1918

ISSUED BY THE GENERAL STAFF.

This publication cancels:—

The original edition of S.S. 143, "Instructions for the Training of Platoons for Offensive Action, 1917" (February, 1917).

"The Organization of an Infantry Battalion", (O.B./1919: dated 7.2.17) and "The Normal Formation for the Attack" (S.S. 144, February, 1917)—both issued together in April, 1917, under 40/W.O./3995.

February, 1918.

Thesis submitted for the Degree of Doctor of Philosophy

September 2020

King's College London

Issued down to { Battalion Commanders.  
Battery Commanders.  
Regimental Commanders.

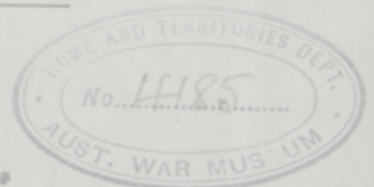
# INSTRUCTIONS FOR THE TRAINING OF THE BRITISH ARMIES IN FRANCE.

(PROVISIONAL.)

0120001417

(Issued by the General Staff.)

June, 1917.



Printed under the authority of His Majesty's Stationery Office  
By DARLING AND SON, LIMITED, BACON STREET, E.2.

<b>Contents</b>	<b>Page</b>
Abstract	1
Acknowledgements	2
Abbreviations	3
List of Figures	4
<b>Chapter 1 – Introduction</b>	<b>5</b>
• The broader literature pertaining to transformation in the BEF	9
• The wider transformation lexicon	25
• The process of learning	29
• Doctrine	31
• Training	34
• Technology, leadership, and alliances	36
• Methodology	39
• Conclusion	42
<b>Chapter 2 – Learning</b>	<b>44</b>
• Context	47
• A learning framework	49
• Doctrine	52
• Tactics	56
• Training, learning and education	57
• Lessons learnt	58
• Explicit and tacit knowledge	59
• Fighting power	60
• Transformation	62
• Broader change	65
• Learning factors	69
• The broader process of learning	70
• New ideas	71
• Was it a learning curve?	74
• Conclusion	77
<b>Chapter 3 – From Boer War to First World War</b>	<b>79</b>
• Reform and the commissions	83
• The Elgin Commission	84
• The Norfolk Commission	87
• The Esher Commission	88
• The Commission findings	88
• Lord Richard Haldane, Secretary of State for War	89
• Anti-intellectualism: challenging reform	92
• Tactics and leadership: the cult of the offensive	94
• The Infantry	96
• The Cavalry	99
• The Artillery	100
• Staffs	102

• Conclusion	103
<b>Chapter 4 - Lessons</b>	<b>106</b>
• The context of learning on the Western Front	109
• What had the British Army learnt pre-First World War?	113
• Early lessons from the First World War	116
• Learning lessons	118
• War diaries	120
• Formal battle reports	123
• Informal reports by senior officers	130
• Formal SS 'Notes on Recent Fighting' publications	132
• Dissemination of lessons	133
• Conclusion	135
<b>Chapter 5 - Doctrine</b>	<b>138</b>
• Doctrinal development up to August 1914	143
• The Training Directorate - creating doctrine	148
• Brigadier-General Arthur Solly Flood	149
• New doctrinal ideas	150
• French and German influence	151
• The Inspectorate of Training and Lieutenant-Colonel Sir Ivor Maxse	155
• Writing doctrine - Gorell, Grigg and Headlam	158
• Pre-Somme publications	161
• Post-Somme publications	165
• SS 135	166
• SS 143	169
• SS 152	171
• Other SS pamphlets	173
• Unofficial doctrine publications	176
• Conclusion	177
<b>Chapter 6 – SS 198 Tactical Instructions for the Offensive of 1918</b>	<b>181</b>
• The doctrinal solution	183
• Staffing and context	184
• Chapter I – Notes on Major Tactics in the Present stage of the War	185
• Countering German defence in depth	189
• Chapter II - The Infantry Plan	195
• Chapter III - Artillery Integration	202
• Chapter IV - The Royal Flying Corps plan	206
• SS 135 born of SS 198	209
• Conclusion	212
<b>Chapter 7 – Training and the schools' system</b>	<b>215</b>
• Training in the UK – civilian to soldier	221
• Officer training	224
• Designing the schools' system in France	226
• The Training Directorate	230
• The Inspectorate of Training	235



• Subsequent training	239
• Conclusion	245
<b>Chapter 8 – Doctrine – Did it change the War?</b>	<b>248</b>
• War diaries	249
• Operation orders	251
• Wider divisional comparison	260
• 8 <sup>th</sup> Infantry Division	261
• 12 <sup>th</sup> Eastern Division	264
• 32 <sup>nd</sup> Infantry Division	266
• 51 <sup>st</sup> Highland Division	268
• Conclusion	269
<b>Chapter 9 – Conclusion</b>	<b>271</b>
• Learning	273
• Boer War to First World War	276
• Lessons	278
• Doctrine	279
• SS 198	280
• Training	282
• Doctrine for new warfare	283
• Further research	283
• Victory born from learning	285
<b>Bibliography</b>	<b>287</b>
Appendix	
1. Stationery Service and Central Distribution Section Publications	<b>314</b>

### **A note about military rank**

Every effort has been made to use the rank associated with the individual at the time of event, noting that many officers continued to be selected for promotion throughout the campaign and post hostilities. Douglas Haig is a case in point. Mentioned as Director of Military Training as a Major-General in 1908, prior to entering the First World War as a Lieutenant-General in command of 1<sup>st</sup> Corps, having been promoted in November 1910. Further promoted to General in 1915 when he took command of 1<sup>st</sup> Army and then Field Marshal on 1<sup>st</sup> January 1917.

## Abstract

The Western Front presented challenges in terms of firepower, mechanisation and lethality that were beyond the doctrine of the day. Success for the BEF on the Western Front was derived from technology, leadership, national economic power, tactics, alliances, and a raft of other factors. The leadership of the BEF had to harness all the attributes of their Army so that it could fight to the best of its ability. That fighting capability was articulated in its doctrine, which then formed the basis for the training of the forces. The process started with the capturing of lessons, their selection and codification into doctrine, followed by their dissemination through the school's system. In this way, the BEF transformed through its formal process of learning and allowed the BEF to deliver more combat power, more of the time; which ultimately unhinged the enemy.

At the heart of the process of learning was the creation of new doctrine. The BEF accelerated its production with the initiation of the Inspectorate of Training in Spring 1917, moving from informal to formal means of doctrine creation and training. Born of the failure on the Somme and difficulties in the Third Ypres offensive, the motivation was right to formalise BEF transformation. Doctrine did not win the War, but it was well placed to be part of the foundation of victory.

The potential zenith of BEF doctrine may have been *SS 198, Tactical Instructions for the Offensive of 1918*. Although it was never published, it did codify a new way of warfare, of higher integration and cooperation, that might have been the combined arms warfare next seen in the Second World War.

Hence, this thesis proposes that the lessons process, that drove doctrinal evolution and a comprehensive training system, was at the heart of BEF transformation. In doing so it enabled better leadership, the integration of better technology, and a transformed fighting force, that would ultimately be victorious in November 1918.

## Acknowledgements

This thesis has benefited from many individuals. First and foremost, I would like to thank my supervisor at the Joint Services Command and Staff College Shrivenham, Doctor Helen McCartney, who not only convinced me to start this PhD journey, but has maintained her confidence in me when occasionally I have been less than the ideal student. Secondly, I must thank the British Army for allowing me the time to study, think and write this thesis. Thirdly, I would like to thank Doctor Nicola Rance, who has been a steady guiding hand in the latter stages of writing; her wisdom and patience have been above and beyond. Lastly, to Doctor Jim Beach for his discovery of the lost *SS 198, Tactical Instructions for the Offensive of 1918*, in the Gorell papers, Bodleian Library, Oxford, which forms the cornerstone of this thesis.

I should point out the bias I have shown in the units studied in this thesis. Observant readers will notice the focus on the Royal Artillery and the 51<sup>st</sup> (Highland) Division. As a serving Royal Artillery officer, the former is obvious, but I have also served in the 51<sup>st</sup> Division's direct antecedent, the 51<sup>st</sup> Scottish Brigade, and commanded a Regiment that served in the First World War that features in this work. The relation between history and the serving Army today is poignant and important to me.

I would also like to acknowledge the assistance provided by the unsung heroes of academia who look after our libraries, archives, and electronic resources. Their unstinting help and patience allowed me to blunder through my research unscathed.

Finally, to my understanding, caring and patient wife, Lieutenant Colonel Helen Cook RLC, who has been a source of love, inspiration, and positivity. She has lived every moment of this thesis with me and now knows far more than she ever thought she would about the First World War. Her unstinting support and pragmatism got me through the long nights, long books, and long corrections. Her love for me allowed this to happen; I am eternally grateful to her for giving me the time to complete this endeavour.

## Abbreviations

BEF	British Expeditionary Force
BGGS	Brigadier-General, General Staff
BGRA	Brigadier-General, Royal Artillery
BOL	Bodleian Library, Oxford
CDS	Central Distribution Section
CO	Commanding Officer
DHQ	Divisional Headquarters
FSR	Field Service Regulations
GHQ	General Headquarters
GOC	General Officer Commanding
GSO	General Staff Officer
IGT	Inspector General of Training
IWM	Imperial War Museum, London
LHCMA	Liddell Hart Centre for Military Archives, King's College London
MGGS	Major-General, General Staff
MGRA	Major-General, Royal Artillery
NAM	National Army Museum
NCO	Non-commissioned Officer
NLS	National Library of Scotland
RFA	Royal Field Artillery
RGA	Royal Garrison Artillery
SS	Stationery Service
TNA	The National Archives

## List of Figures

1	New doctrine in the BEF by Pamphlet.	46
2	New doctrine pamphlets in the BEF 1914-1918.	142
3	War diary of 35 Brigade Headquarter, part of 12 Division, 1-5 February 1918.	249
4	12 <sup>th</sup> Division advance for August 1918 near Somain.	250
5	57 <sup>th</sup> Infantry Brigade Order No. 234.	252
6	57 <sup>th</sup> Infantry Brigade Order No. 234.	253
7	Figure 7: 61 <sup>st</sup> Infantry Brigade Order No. 38, 6 October 1918.	254
8	4 <sup>th</sup> Tank Battalion Operation Order 20 August 1918.	256
9	25 <sup>th</sup> Division Artillery Order no. 274 for 20 August 1918.	257
10	25 <sup>th</sup> Division Artillery Order no. 274 for 20 August 1918.	258
11	25 <sup>th</sup> Division Artillery Order no. 274 for 20 August 1918.	259
12	8 <sup>th</sup> Infantry Divisions comparative casualties through the War.	263



## Chapter 1 – Introduction

In 1914, the British Expeditionary Force (BEF) discovered that its reliance upon massed direct artillery fire and lines of infantry was no longer an appropriate tactical response to the modern firepower of the German Army on the Western Front.<sup>1</sup> This thesis argues that a small but significant part of the BEF's success was due to a better process of learning, built upon improving doctrine and enacted through better training. It did not win the war, but this thesis will show that it made a meaningful contribution that facilitated other factors, such as technology and leadership, that may have done. In doing so, it allowed the BEF to transform from a small professional force into a vast multifarious collective of military power that eventually defeated the German Army and her allies.<sup>2</sup>

The existential problem for the belligerents of the First World War was the lethality of new technology and the consequent advantage given to the defender.<sup>3</sup> Any triumph in capturing an enemy trench system was usually undone by the difficulty in reinforcing success. The attackers had to move their reinforcements and supplies over the churned ground while the defender could rely upon established logistics to move their reinforcements and stores.<sup>4</sup> Once opposing trench systems were established in late 1914, the cost of crossing no man's land became prohibitively expensive and seemingly beyond the doctrine of the British and German Armies.<sup>5</sup>

Both sides sought out an advantage in new technology and ever-expanding forces. As the armies expanded, they used simple methods to attack during a stage of war when new soldiers only had the essentials of training.<sup>6</sup> The expansion of the BEF was a problem in itself;<sup>7</sup> of the twenty-three GOsC on the Somme in July

---

1 Gary Sheffield, *The Chief: Douglas Haig and the British Army* (London: Aurum, 2011), 100, and see Lieutenant-Colonel von Lindenau, "What has the Boer War to teach us, as regards infantry attack?" *Journal of the Royal United Service Institute*, 47 (January- June 1903): 55.

2 Peter Simkins, *Kitchener's Army: The Raising of the New Armies 1914-1916* (Manchester: Manchester University Press, 1988), 18-20.

3 Shelford Bidwell and Dominick Graham, *Firepower: The British Army Weapons and Theories of War 1904 – 1945* (London: George Allen and Unwin, 1982), 47.

4 Sheffield, *The Chief*, 101.

5 Desmond Morton, "Changing Operational Doctrine in the Canadian Corps, 1916-17," *The Army Doctrine and Training Bulletin* 2, no. 4 (Winter 1999): 35.

6 Martin Samuels, *Doctrine and Dogma: German and British Infantry Tactics in the First World War* (New York: Greenwood Press, 1992), 151.

7 Simkins, *Kitchener's Army*, includes a detailed account of the raising of the new armies.

1916, only three had commanded at brigade level before the war, while only two of the eighteen corps commanders had commanded a division.<sup>8</sup>

As the war progressed the approach changed. Initially, success was synonymous with trying to break through the enemy front line so that more mobile forces could exploit beyond.<sup>9</sup> This proved too costly in men and equipment, and by late 1916 another doctrine of bite and hold had fallen into favour.<sup>10</sup> The tactical problem was not just the capturing of the enemy lines but of exploiting beyond.<sup>11</sup> However, neither tactical approach was successful, achieving little other than temporary gains and a degree of attrition. In response, the defensive systems matured and became less rigid, requiring fewer defenders and more attackers, hence the tactical advantage remained firmly with the defender.<sup>12</sup>

Part of the eventual solution was akin to what Marshal Ferdinand Foch described as the *bataille générale*, whereby numerous smaller incursions, that could be reinforced, expanded in breadth as well as in-depth.<sup>13</sup> They were able to consolidate and thus challenge the enemy counterattack sufficiently to maintain their position. Once substantiated, the small incursions could be linked together to establish large tracts of new line. In many respects, the BEF approach in the later stages of the war was a new way. Jonathan Boff described it as a 'campaign of rolling attrition ... a style of warfare halfway between the war of position of 1915-1917 and 1939-1941's blitzkrieg'.<sup>14</sup> This thesis proposes that it was the culmination of this process of learning that was articulated in new doctrine, taught in the schools and cohered throughout the BEF and her allies that facilitated victory in November 1918.

---

8 John Terraine, *The Smoke and the Fire: Myths and Anti-myths of War: 1861-1945* (London: L Cooper, 1992), 114-115.

9 Stephen Badsey, "Cavalry and the Development of Breakthrough Doctrine" in *British Fighting Methods in the Great War*, ed. Paddy Griffith (London: Routledge, 1996), 138-174.

10 The articulation of the combination of bite and hold and breakthrough is considered in Gary Sheffield's work in Haig's Diaries; see Sheffield, *The Chief*, 109-111, and see Paul Harris and Sanders Marble, "The 'Step-by-Step' Approach: British Military Thought and Operational Method on the Western Front, 1915-1917," *War in History* 15, no. 1 (2008), 18-31.

11 Sheffield, *The Chief*, 101.

12 William Philpott, "Warfare 1914-1918," *International Encyclopaedia of the First World War, 1914-1918*, 2, accessed May 12, 2019, <https://www.encyclopedia.1914-1918-online.net>

13 *Bataille générale* translates into general battle. For an understanding of General Foch's *bataille générale*, see William Philpott, "Marshal Foch and Allied Victory," in *Leadership in Conflict 1914-1918*, ed. Matthew Hughes and Matthew Seligman (Barnsley: Leo Cooper, 2000), 38-53.

14 Jonathan Boff, "British Third Army, the Application of Modern War, and the Defeat of the German Army, August-November 1918" (PhD diss., Kings College London, 2010), 290.

This new style of warfare was outlined in an unpublished pamphlet, forgotten by history, called *Stationery Service 198, Tactical Instructions for the Offensive in 1918*.<sup>15</sup> Discovered by Jim Beach in the Bodleian Library, Oxford, it describes a style of warfare in response to the losses in 1916 on the Somme and in 1917 around Ypres in the Battle of Passchendaele. It inculcates greater cooperation and integration and seemingly answers the main tactical questions of the war; how to cross no man's land and continue the assault. However, *SS 198, Tactical Instructions for the Offensive of 1918* was never published, and the endpoint of the BEF doctrinal evolution was only seen in a very late publication of *SS 135, The Division in the Attack* in November 1918.<sup>16</sup>

Regardless of *SS 198*, the evolving doctrine of the First World War focused on greater integration of the effects of each part of the BEF and coordinating their efforts in what would become known as combined arms warfare. This new doctrine would direct how to organise an army, how it would train, what equipment it would employ, and how it would fight, using all three physical dimensions and a degree of manoeuvre and integration not seen before.<sup>17</sup> It should be noted that within this thesis, manoeuvre is used as a doctrinal term to mean fire and movement, i.e., the process by which a force moves forward while pinning the enemy down. One element fires, while the others moves. In total, this is known as manoeuvre.<sup>18</sup>

With the primacy of the defender, the challenge for the commanders of the BEF was to transform quicker than the adversary, while husbanding their forces, maintaining political will, and not losing too many tactical engagements.

Transformation is an often misconstrued word. In this thesis, it is used to mean a notable change across all three components of fighting power. Fighting power is a contemporary model that describes the outputs of

---

15 GHQ, *SS 198 Tactical Instructions for the Offensive of 1918* (HMSO: November 1917, not published).

16 GHQ, *SS 135 Instructions for the Training of Divisions for Offensive Action* (HMSO: December 1916) and renamed *The Division in the Attack* in 1918, was published four times in the First World War, see Appendix 1 for all versions.

17 The third dimension, above the battlefield, was exploited by the RFC and later the RAF in the First World War in a way that no previous war had, see Jonathan Bailey, *"Artillery and Warfare 1945-2025"* (PhD diss., Cranfield University, 2003), 22.

18 A manoeuvre unit refers to any formation or battalion that can conduct manoeuvre, i.e. infantry brigades, cavalry regiments, or artillery brigades as they can all contribute to overall manoeuvre. However, it is primarily used for infantry and cavalry battalions, regiments, brigades and divisions as a colloquial term. See Army Doctrine Publications. *Land Operations, AC 71940* (London, HMSO, March 2017), 8-6 for a definition of manoeuvre. Henceforth known as ADP, *Land Ops*.

a military force. It contends that all parts of a military force contribute to a moral, conceptual, or physical manifestation. In this thesis, transformation requires a change in all three components, any less is not transformation but another form of change such as adaption or modernisation which is covered in chapter 2.<sup>19</sup>

This thesis proposes that the BEF's success in 1918, and ultimate transformation, had a small but significant foundation based upon the formulation and dissemination of new doctrine which represents the conceptual component of fighting power.<sup>20</sup> Doctrine was itself based on an improving lessons-learnt process, and which supported a more effective training system.

The doctrinal change acted as the fulcrum around which the moral and physical components changed and, overall, generated transformation. With the doctrinal foundation, the new technology of the BEF, better leadership and changing ethos meant that the BEF change was indeed a transformation.<sup>21</sup> These elements were important to the BEF's overall process of learning, and remain an under-appreciated aspect of BEF success as a primary contributor to victory.

Fully engaging with such a complex historical topic could easily lead to a social science thesis with a subsidiary historical narrative, but in this thesis the emphasis will be upon the historical themes with a subsidiary social science element. As such, this study focuses on the three constituent parts of the BEF's process of learning - namely, learning lessons, creating doctrine and imparting that doctrine through the schools, with a specific emphasis on the under-appreciated importance of doctrine. By focusing broadly on the doctrinal change within the BEF, it is anticipated that this thesis will contribute to, and help shape, the military learning literature upon which much of the evidence in this thesis is drawn.

---

<sup>19</sup> See ADP, *Land Ops*, annexe 3-1, for an explanation of the components of fighting power.

<sup>20</sup> The term 'BEF' is used to refer to all British Empire troops serving within the British Army chain of command, not just those from the British Isles.

<sup>21</sup> Transformation requires change, albeit minimal, in the moral, conceptual, and physical components of fighting power.

Doctrinal change in the First World War was captured initially in the Central Distribution Section (CDS) and latterly in the Stationery Service (SS) pamphlets. In recent years, these publications have been analysed in isolation by the likes of Chris Pugsley, Jim Beach and Dave Molineux.<sup>22</sup> But they have yet to be considered as part of an overall process of learning that enabled other elements of the overall transformation.

In contrast, this thesis places the SS pamphlets at the very centre of change and proposes that they acted as a key agent of transformation, one that allowed the BEF to execute a superior tactical approach to warfare in the last months of the First World War.

It is thus the overarching premise of this thesis that, throughout the First World War, the BEF transformed. It changed its warfighting approach, changed its equipment, training, sustainment, leadership, and overall doctrine, while also adapting its motivation and ethical foundation. It will be further proposed that it did this as the level of formality in its learning and associated processes changed from informal and inconsistent, to a more formal and reliable system. Additionally, what was achieved was truly transformational and ‘a profound military change’ because it affected all three components of fighting power, namely the doctrinal foundation of the conceptual component, the equipment and training contribution to the physical component, and the ethos and culture that contributed to the moral component.<sup>23</sup>

### **The broader literature pertaining to transformation in the BEF**

The historiography of the First World War has a breadth and degree of detail that other areas of modern historical investigation cannot match. From primary records to secondary analysis, it is based upon such a myriad of sources and academic examination that leaves few issues untouched.

---

<sup>22</sup> Christopher Pugsley, “We Have Been Here Before: The Evolution of the Doctrine of Decentralised Command in the British Army 1905-1989.” *Sandhurst Occasional Papers* 9 (2011): 7-27; Jim Beach, “Issued by the General Staff: Doctrine Writing at British GHQ, 1917–1918,” *War in History* 19, no. 4 (November, 2012): 464-491; Dave Molineux, “The Effect of Platoon Structure on Tactical Development in the BEF: June to November 1918” (MA diss., University of Birmingham, 2009).

<sup>23</sup> Paul Davis, “Military Transformation, Which Transformation and What Lies Ahead,” in *The George W Bush Defence Program: Policy, Strategy and War*, ed. Stephen J Cimbala (Dulles, VA: Potomac Books, 2010), 11.



Academic investigation into the First World War can be broadly attributed to five core themes. The study of units, formations, and armies, such as Helen McCartney's, *Citizen Soldiers, The Liverpool Territorials in the First World War*.<sup>24</sup> Individual personalities and leaders, such as Gary Sheffield's study of Sir Douglas Haig.<sup>25</sup> Those that focus on the technological developments often couched as elements of a revolution in military affairs, such as Jonathan Bailey's *Birth of Modern Warfare*.<sup>26</sup> Fourthly, there are a plethora of studies into the tactical approach, such as Tim Travers, *How the War was Won*.<sup>27</sup> Lastly, some focus on specific battles or campaigns, such as Bill Philpott's study on *Bloody Victory*.<sup>28</sup>

But consideration is rarely given across these themes to establishing the potential links that confer an advantage. A compelling example of an investigation without context is that of the technological developments in the First World War that changed how the BEF delivered tactical effect. The most famous, and often erroneously discussed, is that of the birth of the tank.<sup>29</sup> Undoubtedly a success in many ways, its evolution from mobility capability that was designed to crush wire, into a fire support platform was a reflection of its employment in battle.<sup>30</sup> However, its success in the last few months of 1918 was also a reflection of how the doctrine evolved so that it cooperated better with the infantry, artillery and Royal Air Force.<sup>31</sup> Hence, this thesis will show that it was the doctrinal change that facilitated the physical component of fighting power, such as the tank, to reach their true warfighting capabilities, as part of a combined arms approach, rather than an individual capability.<sup>32</sup>

This thesis will also look across the personalities that engendered change by developing a better doctrinal, and to a degree tactical, approach so that the formations and armies could succeed. In this way, the doctrinal

---

24 Helen McCartney, *Citizen Soldiers: The Liverpool Territorials in the First World War* (Cambridge: Cambridge University Press, 2005).

25 Sheffield, *The Chief*.

26 Jonathan Bailey, *The First World War, and the Birth of the Modern Style of Warfare*. (Cambridge: Cambridge University Press, 2001).

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

28 William Philpott, *Bloody Victory: The Sacrifice on the Somme and the Making of the Twentieth Century* (London: Little Brown, 2009).

29 Stephen Rosen, *Winning the Next War, Innovation, and the Modern Military* (London: Cornell University Press, 1991), 20-21, 913-916.

30 Hew Strachan, *The First World War* (London: Schuster, 2003), 305-306.

31 GHQ, *SS 214, Tanks, and their Employment in Co-operation with Other Arms* (HMSO: August 1918).

32 Paul Harris, *Men, Ideas, and Tanks: British Military Thought and Armoured Forces, 1903-39* (Manchester: Manchester University Press, 2015), 166-71, 180-2.

change is set against the changes in personalities that drove it, the technology that it enabled, and the battles and campaigns that simultaneously gave birth to a new way of warfare.

To achieve this the literature has been studied to establish how doctrine facilitated the wider BEF transformation. From both the primary and the secondary literature, it became evident that how the BEF approached its doctrinal change would underpin the wider transformation. To establish this the three sub-strands, of learning, doctrine and training, were investigated in both the contemporary and historical literature of the last 100 years.

At the turn of this millennium a revised style of history emerged that was firmly based on primary research material held within The National Archives. It is now well known that Gary Sheffield and John Bourne pronounced it a 'new era of scholarship', focused not on 'butchers and bunglers' but on the British Army as an institution.<sup>33</sup> By focusing on primary evidence, this thesis hopes to add to the understanding of the BEF process of learning and the broader BEF literature.

Systematic studies of the nature of the BEF victory are rare but have been significantly improved by the works of Jonathan Boff et al. One that considers most of the war is JP Harris and Niall Barr's *Amiens to the Armistice*, but it is, as Harris acknowledges, 'a fairly short book on a noticeably big campaign'.<sup>34</sup> What the book does not cover are the consequences of the actions it portrays, nor does it make any linkages to the overall direction the war took in terms of tactical and operational advances. It also struggles to link new tactics with how the advances were made, i.e., what was the process? Similarly, Tim Travers' *How the War Was Won* attempts to survey the whole final year of the war and ascertain what had changed in command terms.<sup>35</sup> However, most of the analysis focuses on the Canadian Corps during the Hundred Days at the expense of the remainder of the British Forces and cannot, therefore, be taken as a true reflection of the BEF or its learning. Travers may be accused of using a very narrow evidential base from which to form these views.

---

<sup>33</sup> Gary Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters 1914-1918* (London: Phoenix, 2006), 1.

<sup>34</sup> JP Harris and Niall Barr, *Amiens to the Armistice: The BEF in the Hundred Days Campaign, 8 August-11 November 1918* (London: Brassey's, 1999).

<sup>35</sup> Travers, *How the War was won*, 145-154.

To address these two common faults this thesis draws on some secondary sources but focuses on the primary evidence in formal resources – reports, unit war diaries, memoranda, conference minutes, orders and the surviving briefing documents from corps, army, and GHQ. It specifically focuses on the divisional level as this is where record-keeping was consistent and had a useful level of tactical detail.

In addition to the primary literature, and the official histories of the main combat arms of the BEF, this thesis also draws upon the regimental histories found in the journals of the day, as well as the many divisional and corps accounts written after the war. Of the hundreds of unit war diaries held in WO 95 at The National Archives, this thesis has focused upon those that are complete throughout the First World War and which thereby allow the tracking of their transformation. Formations such as 8<sup>th</sup> Infantry, 12<sup>th</sup> Eastern, 32<sup>nd</sup> Infantry and 51<sup>st</sup> (Highland) Divisions are representative of the different types of division within the BEF and took part in similar campaigns, so that comparisons may be drawn. These are substantiated by the actions mentioned in the papers of the more senior commanders, such as Lieutenant-General Sir Ivor Maxse and General, later Field Marshal, Sir Archibald Montgomery, whose diaries are held in file 7/34 within the Liddell Hart Centre for Military Archives (LHCMA); all of which provide excellent accounts of the fighting, tactics and structures of the units involved.

However, there is a balance to be struck between the value of the accounts written at the time and those written after the First World War. The accounts written at the time, or very soon after, offered an almost simplistic and often very personal view of the actions and context. In the war diaries of the 51<sup>st</sup> (Highland) Division the bias of the GOC, Major-General George Harper, is obvious.<sup>36</sup> An example of this is his reporting of the 'relative success of the advance' towards Festubert in May 1915 which earned him the nickname of 'Duds' Harper after what the Official History records as a 'bloody affair with high casualties'.<sup>37</sup>

---

36 Major-General George Harper expressed his dismay at the rate of artillery bombardment advance at the battle of the Ancre in which his troops suffered from their artillery. The full incident is outlined in Andy Simpson, *Directing Operations: British Corps Command on the Western Front 1914-18* (Stroud: Spellmount, 2006), 48-49.

37 Sir J Edmonds, *Official History of the War: Military Operations, France, and Belgium 1914-1918*, 14 Volumes (HMSO & Macmillan, 1922-1949). Brigadier-General James Edmonds CB, CMG (1861–1956) late Royal Engineer, was responsible for the post-war compilation of the 28 volume History of the First World War. Edmonds himself wrote half the volumes, including 11 of the 14 volumes dealing with the Western Front. His task was not completed until 1949; Commentary on the Training Directorate and the schools' system is confined to just two footnotes. Afterwards cited as Edmonds, British Official History.

Major-General Harper had an overtly positive outlook, even after defeat and minor disaster in attack, yet his reflections on combat seem to gloss over the difficulties and focus upon the small positives from the assault. In this way, while the official diary does indeed record the activity, it is perhaps overly positive. However, it may be the case that other divisional diaries were negative in their reporting and that there is a degree of balancing out. Nonetheless, without formal statistical analyses, all that can be confirmed is that there was a degree of local bias from the author that can distort the reality.

The greatest omission from this thesis is the lack of a personal diary from Brigadier-General Arthur Solly-Flood. His appointment in 1917 as the first Director of Training had a significant effect on the doctrinal change of the BEF due to his leadership. However, most of his achievements are only known due to his peers and the letters written about him because extraordinarily little was written by Solly-Flood himself.

Primary records, such as the diary of Lieutenant-General Sir Ivor Maxse, suggest that Solly-Flood directed the doctrinal changes and set up the staff engine room to create and write doctrine.<sup>38</sup> However, it is possible that he may not have been the driving force history now believes him to be, but a mere proxy for a better writer and staff officer either senior or junior to him. The lack of a personal account does, however, mean that bias in secondary accounts cannot be ruled out, and there is no proof that Solly-Flood had a degree of genius and appreciated what others had missed. It also means it is not possible to rule out the idea that he was simply the man selected at the time and that many others would have taken the same opportunity.

The official history in the CAB 45 series is useful, but since it was produced some time after the events it must be treated with some caution. The published and unpublished letters, diaries and papers held in the Imperial War Museum (IWM), LHCMA, and the National Library of Scotland (NLS) reflect the personal feelings of the authors, some of whom were fundamental to the BEF transformation, and are thus highly informative. Furthermore, they give depth and credibility to the suggestion that they were written without prejudice at the time of events. Of interest are the Gorell papers in the Bodleian Library, Oxford as they contain the early

---

<sup>38</sup> IWM, Maxse Papers 69/53/13, Discusses the position of Brigadier-General Solly-Flood in the Training Directorate, File 53/1, November 1917.

draft of *SS 198, Tactical Instructions for the Offensive of 1918*, which provides an insight into the style of warfare that the BEF may have delivered in 1919.

However, the most important and credible information for this thesis is found within the Stationery Service (SS) pamphlets that underpin this thesis's view of the doctrinal foundations of the BEF transformation.<sup>39</sup> The SS pamphlets are also augmented with other unofficial documents and other learning précis that were available on the Western Front at the time, such as Baden Powell's *Quick Training for War*.<sup>40</sup>

Tracking the doctrinal evolution of the BEF from *Field Service Regulations Part I and II 1909* to the eventual writing of *SS 198, Tactical Instructions for the Offensive of 1918*, provides a detailed map of the BEF's transformation.<sup>41</sup> It tracks the changes in tactical approach, unit organisation, and equipment that formed the building blocks of BEF transformation. How the infantry, artillery and cavalry adopted new doctrine is a definitive account of the transformation of the BEF throughout the First World War. That other authors have not considered the SS pamphlets in depth, and in the wider context to the BEF's fighting improvement, is a gap this thesis aims to fill. The SS pamphlets cover all three components of fighting power and reflect the sentiments of the day and GHQ change priorities.

Until recently, almost all First World War academic literature ignored learning, doctrine and training as significant parts of an overall process of learning, choosing to discuss the 'learning curve' thesis and comment upon its theoretical shape instead.<sup>42</sup> Contemporary academic studies agree that the BEF was a learning organisation but have not made the causal link to an overall process of learning; instead, they have solely

---

<sup>39</sup> A full list of all SS and CDS pamphlets is in Appendix 1.

<sup>40</sup> Lieutenant-General Sir Robert Baden-Powell, *Quick Training for War, 1914* (Conway: London 1914).

<sup>41</sup> General Staff, War Office, *Field Service Regulations, Part I: Operations* (HMSO: 1909), Reprinted with Amendments 1914, 2. *Part 2 - Organisation and Administration. 1909* (HMSO: 1909), hereafter known as *FSR I and II*.

<sup>42</sup> See studies such as, Alun Thomas, "British 8th Division on the Western Front 1914-1918" (PhD diss., University of Birmingham, 2010), 1-4, 12-14; and Patrick James Emir Watt, "Managing Deadlock: Organisational Development in the British First Army, 1915" (PhD diss., University of Edinburgh, 2017), 25-33 that all have a focus on the learning curve which they conflate as a study on learning.



focused on individual elements.<sup>43</sup> This may be due to the lack of easily accessible archival sources as the records of the Training Directorate have not been preserved in The National Archives. Sir James Edmonds, for example, devoted very little space in the Official History to the Training Directorate, to doctrine, training pamphlets, learning or the school's system.<sup>44</sup> It is as though he believed that almost all learning was 'on the job, and infers that it was informal in nature' and consequently of little consequence.<sup>45</sup>

By contrast, this thesis argues that a significant amount of work was done in classrooms and offices, where doctrine and lessons were collated and passed to commanders to implement formally. It is the basis of this thesis that, without comprehensive learning based on sound training and derived from coherent doctrine, in a mix of formal and informal processes, the BEF would not have transformed enough over the five years of campaigning, and would have been far more vulnerable to German aggression in the spring of 1918.

Most learning analysis of the BEF in the last thirty-five years has referenced the learning curve theory which centred around the Royal Military Academy Sandhurst in the 1980s, with authorship derived from Paddy Griffith, Paul Harris and Gary Sheffield. In 1999, Brian Bond wrote in the introduction to a volume of essays on the First World War, that 'our contributors broadly incline to the positive interpretation of the British Army's role, and are more concerned with apportioning credit for the learning curve rather than denying its existence.' In doing so, Bond cemented the broader credibility of the learning curve theory.<sup>46</sup>

But, while the euphemistic learning curve paints a positive and describable metaphor, it does not have an academic foundation commensurate with its appealing nature. Hence, this thesis looks beyond the learning curve to see what foundation it was built upon and what processes it required to succeed. It does not try and

---

43 For example, Simpson, *Directing Operations*, focuses on how Corps Headquarters tried to cohere their divisional training; while Sanders Marble, *British Artillery on the Western Front in the First World War: The Infantry cannot do with a gun less* (Farnham: Ashgate, 2013) outlines how the artillery switched its focus to integrating its fire with the advancing infantry.

44 Edmonds, *British Official History*. Commentary on the Training Directorate and the schools' system is confined to just two footnotes.

45 Tim Travers, *The Killing Ground: The British Army, the Western Front, and the Emergence of Modern Warfare 1900-1918* (Barnsley: Pen and Sword, 2003), 143.

46 Brian Bond (ed), *Look to Your Front: Studies in the First World War by the British Commission for Military History* (Staplehurst: Spellmount, 1999), 18, 21-23, and 76.

justify or deny the learning curve, but rather investigate the constituent parts of learning that allowed the BEF to succeed in 1918; an area of investigation that has so far been minimal and not systematic.

John Terraine specifically suggested that the learning curve promotes the idea that the BEF learnt from its mistakes and, in doing so, progressed up a learning curve towards becoming a more tactically astute fighting force.<sup>47</sup> More recently, Aimee Fox, suggests that the BEF 'learned from its experience' through its adoption of new tactics and weaponry.<sup>48</sup> But, neither consider the constituent parts of the learning curve, rather reflecting on outcomes instead of inputs.

Thankfully, the learning curve has been reconsidered in the last fifteen years by Hew Strachan, Paddy Griffith and Gary Sheffield. It remains credible yet there is a softening of the curve and a welcome change into a 'process of learning', which this thesis has adopted and reflects as it points to the nuances of learning and the lack of what was seen as a faultless and mathematical, almost exponential, curve.<sup>49</sup>

Of the contemporary learning historiography, much of it is related to the key work of Robert Foley in his "Dumb Donkeys or Cunning Foxes".<sup>50</sup> Often quoted, this important work sets the tone for how a military learns, and, more importantly, how it covers the intrinsic areas such as patronage, culture, information flow, innovation and adaptation. Foley's central premise describes the difference between formal and informal methods of learning and how culture impacted on these means. His key finding, which relates to this thesis, is the belief that innovation as a means of change is reliant upon organisational culture and how an organisation adapts.<sup>51</sup> This thesis broadly agrees, yet sees innovation as just one way to evoke change in an organisation.

---

47 John Terraine, *White Heat: The New Warfare 1914-1918* (London: Sidgwick and Jackson, 1982).

48 Aimee Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918* (Cambridge: Cambridge University Press, 2017), 81.

49 See specifically Hew Strachan, "Memorial differences," *Times Literary Supplement* no. 5510 (7 Nov 2008): 11.

50 Robert Foley, "Dumb Donkeys or Cunning Foxes? Learning in the British and German Armies during the First World War," *International Affairs* 90, no.2 (March, 2014): 279-298.

51 *Ibid.*, 297.

Most recently Emir Watt, in his 2017 PhD thesis, proposed the concept of 'Organisational Development' as a new way of demonstrating how institutional learning occurred in the BEF in the First World War; specifically looking at the 1<sup>st</sup> Army.<sup>52</sup> He suggests that rather than being a linear process of continuous improvement, as the learning curve concept suggests, it reflects a series of peaks and troughs in terms of operational performance. It is therefore not a curve but is very much part of an overall 'process of learning'. Thus, the Organisational Development Model suggests a more nuanced approach to understanding the nature of institutional change on the Western Front and aligns well with this thesis.

Analysis of the secondary literature indicates that there were three broad ways in which this happened. Richard Downie's institutional learning cycle suggests that after new knowledge is acquired lessons are institutionalised in formal military doctrine through the creation and dissemination of official publications.<sup>53</sup> Victoria Nolan proposed a different approach and suggested that lessons are transmitted and embedded through an institution's practical and academic teaching.<sup>54</sup> This corresponds with Sergio Catignani's idea that lessons learned are institutionalised through the delivery of learning programmes in training and education.<sup>55</sup> Aimee Fox-Godden identified a further means through which new knowledge was disseminated across the BEF, arguing that the British Army's organisational culture and mistrust of formal doctrine meant that it encouraged informal dissemination of lessons through mentoring, secondments and exploiting existing social networks.<sup>56</sup>

The informal 'people-to-people' means of information sharing represents more of an ad hoc approach to organisational learning in which information is transferred between individuals on a more limited basis. Fox's classification is useful in understanding the dissemination of information across the various theatres in the later period of the war, however, for the 1915 campaign, the methods of information dissemination do not

---

52 Emir Watt, "Managing Deadlock,".

53 Richard Downie, *Learning from Conflict: The US Military in Vietnam, El Salvador, and the Drug War* (Westport, CT: Praeger, 1998), 38.

54 Victoria Nolan, *Military Leadership and Counterinsurgency, The British Army and Small War Strategy Since World War II (International Library of Security Studies)*. (London: IB Tauris, 2011), 97.

55 Sergio Catignani, "Coping with Knowledge: Organizational Learning in the British Army?" *Journal of Strategic Studies* 37, no. 1 (2013): 32.

56 Aimee Fox-Godden, "Beyond the Western Front: The Practice of Inter-Theatre Learning in the British Army during the First World War," *War in History* 23, no. 2 (April, 2016): 190-209. Aimee Fox-Godden is known as Aimee Fox in her later works.

fit neatly into these categories. There are two main reasons for this. First, while the dissemination of official publications was an important means of knowledge transfer, by focusing on the creation and spread of doctrinal publications in the CDS and SS series, Fox-Godden's classification neglects the informal sharing of lessons learned reports between formations. Second, while Fox-Godden is correct to highlight the importance of official training schools in the knowledge dissemination process, these schools were only established on a large scale towards the end of 1915; before that, the provision of training also occurred on a mostly informal basis.

The complexity of the process of learning is highlighted in works such as Adam Grissom's "The Future of Military Innovation Studies", Robert Foley's "Horizontal Military Learning", and Stuart Griffin's "Military Innovation Studies: multidisciplinary or lacking discipline?"<sup>57</sup> All three articles outline the intricacy of institutional learning and the subservient portions such as innovation, sharing of information and motivation. What is clear from all three is the benefit of studying military transformation and innovation using an academic theoretical model. They consider the benefits of military innovation and transformation and highlight the intrinsic nature of the factors that plague a military commander's decisions and actions. All three papers suggest that there are significant difficulties in defining innovation and transformation which prevent progress.

However, it does seem that the BEF increased its appetite for innovation as the demand grew, as explained by Michael LoCicero, Ross Mahoney and Stuart Mitchell in *A Military Transformed? Adaptation and Innovation in the British Military 1792-1945*.<sup>58</sup> This desire for increased innovation is substantiated by John Brown and Paul Duguid in their "Organisational Learning and Communities of Practice" work.<sup>59</sup>

---

57 Adam Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (2006): 905–908, and see Robert Foley, "A Case Study in Horizontal Military Innovation: the German Army, 1916-1918," *Journal of Strategic Studies* 35, no.6 (December, 2012), 799–827; and see Stuart Griffin, "Military Innovation Studies: Multidisciplinary or lacking discipline?" *Journal of Strategic Studies* 40, no. 1-2 (2017).

58 Michael LoCicero, Ross Mahoney and Stuart Mitchell, eds., *A Military Transformed? Adaptation and Innovation in the British Military 1792-1945* (Solihull: Helion, 2014), 77-79, 112-118, 241-242.

59 John Brown and Paul Duguid, "Organizational Learning and Communities-of-Practice: Towards a Unified View of Working, Learning and Innovation," *Organisational Science* 2, no. 1 (March 1991): 40-57.

As already mentioned, an enlightening contemporary contributor to the area of learning is Robert Foley with his two papers on developing strategies and learning lessons. In “A Case Study in Horizontal Military Innovation: The German Army, 1916–1918”, Robert Foley outlines how the German Army in the First World War innovated by spreading knowledge between units rather than up and down the chain of command.<sup>60</sup> Described as horizontal innovation, rather than vertical innovation, it allowed for far quicker learning, as higher commands did not have the opportunity to interfere. Foley sets this in context by supposing that the usual vertical innovation is bi-directional and can be top-down or bottom-up. The analysis suggests that it is regarded as a given that most military innovation is credited to certain individuals as, even in the organisational cultural model, individuals will play a significant role in innovation. Foley concludes that the German Army in the First World War showed a robust example of innovation that enabled units to develop much quicker than before. However, it seems that the BEF adopted a different method, which will be explored later in this thesis.

Stuart Mitchell adds to the debate by considering how a single BEF Division learnt while on the Western Front. His focus on the 32<sup>nd</sup> Division suggests that it was at the divisional level and below that many of the tactical developments occurred. He has considered learning from three different perspectives, namely structure, battle wisdom, and leadership, and conflated the BEF’s ethos and underpinning doctrine. Mitchell is content that the BEF’s structure remained consistent throughout the war, with emphasis on decentralisation and the feedback system to initiate the lessons process. He finds fault with the command system and personalities, rather than critiquing the generation of new tactics and doctrine.<sup>61</sup>

The doctrinal change during the First World War is encapsulated in Tim Travers's extremely useful contribution to the debate in, *How the War Was Won*.<sup>62</sup> His explanation of the two types of offensive action in 1918 outlines the tactical differences between the two approaches; infantry-artillery and infantry-tank-artillery. In doing so, he refers to the fire and movement doctrine that was written in *SS 135, Instructions for*

---

60 Foley, “A Case Study in Horizontal Military Innovation): 5.

61 Stuart Mitchell, “An Inter-Disciplinary Study of Learning in the 32nd Division on the Western Front, 1916-1918” (PhD diss., University of Birmingham, 2013), 7.

62 Travers, *How the War Was Won*, 110-116.

*the Training of Divisions for Offensive Action*.<sup>63</sup> However, he never references either document, showing an interesting stance on technology devoid of doctrine. The fact that this technological development was written in SS doctrine seems at odds with his narrative. Especially as *SS 135* included infantry-tank-artillery cooperation, how to train for these offensive actions, and some suggested assault formations.

In the Royal Military Academy Sandhurst occasional paper, “We Have Been Here Before: the Evolution of the Doctrine of Decentralised Command in the British Army 1905-1989”, Chris Pugsley proposes that not only was the BEF’s doctrine sound but it was positively suited to the vagaries of the first half of the First World War.<sup>64</sup> Because the campaign changed direction once trench deadlock was established, Pugsley suggests that the overarching *FSR 1909* was well suited to guide the officers and commanders of the BEF. He proposes that how the BEF undertook the creation of new doctrine was central to success. Further, that the formation and capability of the company were set to be the fighting unit of choice in any new style of warfare. Pugsley also highlights that it was a pre-war doctrine that suggested the introduction of platoon organisations, commanded by officers, into the infantry company structure, with four companies in each battalion.<sup>65</sup>

In “Issued by the General Staff” Jim Beach discusses how doctrine in the second half of the war was generated and written.<sup>66</sup> He advocates that the contribution of the training systems and the tactical beliefs of commanders and their staff were probably more important than pamphlets issued by higher headquarters. However, this statement is then seemingly unpicked throughout the remainder of the article as he proves that the BEF was passionate and committed to the publication of sound doctrine.

Beach’s most illuminating explanation regards the process of crafting some of the SS series of pamphlets. He suggests that, in early 1917, the doctrine writing process was more committee based and a mechanism for

---

63 GHQ, *SS 135, The Training and Employment of Divisions* (HMSO: August 1917).

64 Pugsley, “We Have Been Here Before,” 13.

65 *Ibid.*, 11.

66 Beach, “Issued by the General Staff,” 464-491.

gathering ideas, rather than the work of a very few empowered individuals. The March 1917 publication of *SS 148, Forward Inter-Communication in Battle* proves his point as he states,

After the battle of the Somme the need to standardise communication procedures had been recognised, and so following a four-day 'Staff and Signal Conference' it was written up in four days, presumably by some of the participants, and then published within two weeks.<sup>67</sup>

Jim Beach's second area of study is how the doctrine of the time reflected the themes and driving force of GHQ. Beach views the move away from the methodical, bite-and-hold tactical approach suggested a shift in GHQ's informal doctrinal position during the Third Ypres offensive, which was also known as the Battle of Passchendaele.<sup>68</sup> Beach goes on to highlight the argument made by Harris and Marble that GHQ had undergone an 'intellectual conversion... to step-by-step methods' by early August 1917.<sup>69</sup> This thesis supports this view as it substantiates the propensity for GHQ's support of doctrine generation and the initiation of the Inspectorate of Training. It also supports the concept that the BEF was aligning itself to General Foch's *bataille générale*.

Jim Beach is also responsible for the discovery of *SS 198, Tactical Instructions for the Offensive of 1918*, a formerly unheard-of SS pamphlet, which makes significant inroads into the development of BEF doctrine in the second half of the war. His work based on *SS 198* suggests that, instead of a haphazard metamorphosis, the doctrine was well staffed, founded on sound principles, and was delivered through a robust staffing process.<sup>70</sup> The significance of the hitherto unknown *SS 198* is covered in depth in chapter 6, but it may be one of the most telling discoveries regarding First World War tactics of the last 30 years.

---

67 Raymond E Priestley, *Work of the RE in the European War, 1914–1919: The Signal Service (France)* (Uckfield: Naval and Military, 2006), 180–181.

68 The Battle of Passchendaele was fought from 31 July 1917 – 10 November 1917.

69 Harris and Marble, "The Step-by-Step Approach," 22, 39.

70 Beach, "Issued by the General Staff," 485-486, and see *SS 198*.

Within its 55 pages, it outlines a tactical middle way. A combination of bite and hold and breakthrough which it describes as continuous counterattacks. In many ways, it is a development of General Foch's *bataille générale* but with less attrition, and spoke to the desire of Field Marshal Haig to develop a new means of warfare after the losses of 1916 and difficulties of 1917.<sup>71</sup> The circumstances behind its lack of publication are fascinating, although some of its new concepts may have been published in the last revision of *SS 135, The Division in the Attack*, in November 1918.<sup>72</sup>

However, even with the revelations in *SS 198*, Jim Beach is still inclined to question the utility of the SS pamphlets overall which he considered did not in themselves offer conclusive proof of steadily increasing competence across the BEF: 'Indeed, the manner of their creation suggests an extremely uneven, almost haphazard process that does not mature until mid-1918.'<sup>73</sup>

Further support to the SS pamphlets comes from the dissertations of Andy Whitmarsh and James Mythen who have both written on their broader utility. Whitmarsh's study suggests that Brigadier-General Solly-Flood was an innovative tactician and trainer who advocated a return to fire and movement tactics during rehearsals for the Somme.<sup>74</sup> Mythen seeks to identify the origins of *SS 143, Instructions for Training Platoons* and reviews the British experience on the Somme, including the probable influence of French tactics, and Solly-Flood's own experiences with 35<sup>th</sup> Brigade. Both sets of findings substantiate the view of this thesis that the SS pamphlets became a deliberate mechanism for change, but admittedly not until 1917 after the fallout of the Somme campaign.

Whilst most studies mention training in passing, it has not been specifically examined in detail. Peter Simkins' study of the raising and training of the New Armies is the most detailed analysis of the subject but is confined

---

71 For an understanding of General Foch's *bataille générale*, see Philpott, "Marshal Foch and Allied Victory," 38-53.

72 *SS 135* (November 1918).

73 Beach, "Issued by the General Staff," 466.

74 Andrew Whitmarsh, "The development of infantry tactics in the British 12th (Eastern) Division, 1915-1918" (MA diss., University of Leeds, 1995), and James Mythen, "The Revolution in British Battle Tactics July 1916-June 1917: The Spring and Summer Offensives during 1917" (M.Phil. thesis, Pembroke College, Cambridge, 2001).



to what happened in Britain between 1914 and early 1916.<sup>75</sup> With little historical research on the subject of training during the period 1916-1918, academics have been forced into piecemeal analysis. Paddy Griffith was one of the first to recognise the significance of the SS series of training pamphlets and to examine the impact that *SS 135, Instructions for the Training of Divisions for Offensive Action* and *SS 143, Instructions for The Training of Platoons for Offensive Action* had upon the BEF's tactical development at the beginning of 1917.<sup>76</sup>

Other studies have broadened the focus beyond these pamphlets, but there is no comprehensive analysis of the other manuals and official publications produced. *SS 152, Instructions for the Training of the British Armies in France*, the BEF's most important training publication, has received little attention.<sup>77</sup> The facilitator for this new doctrine, the system of training schools in France, has also been largely overlooked. Scant attempt has been made to explain how they worked or whether the problem of instructors and syllabus was ever addressed. This dissertation aims to address the paucity of historical study into these key themes.

One of the consequences of negligible in-depth research on the training of the BEF has been a simplification of the contribution of the Inspectorate of Training and Lieutenant-General Sir Ivor Maxse.<sup>78</sup> John Baynes' analysis of Maxse's time as Inspector-General of Training (IGT) suffers because it does not contextualise his contribution with that of Brigadier-General Solly-Flood.<sup>79</sup> Simon Robbins has argued that the claims made by General Sir Ivor Maxse and others have perhaps been overblown and that the Inspectorate of Training came too late in the war to have had a significant impact on the development of training and tactics.<sup>80</sup> James Mythen goes much further, refuting the traditional interpretation that General Sir Ivor Maxse played a vital role in improving the fighting efficiency of the BEF.<sup>81</sup> The fact that the Training Directorate continued to

---

75 Simkins, *Kitchener's Army*, 18-20.

76 Paddy Griffith, *Battle Tactics of the Western Front: The British Army's Art of Attack 1916-1918* (London: Yale University Press, 1994), 76-79, 183; *SS 135* (August 1917).

77 GHQ, *SS 152, Instructions for the Training of the British Armies in France* (London: HMSO, (provisional) June 1917 and January 1918).

78 See for example Bidwell and Graham, *Firepower*, 43; Travers, *How the War Was Won*, 33. Travers' argument is undermined by his misconception that no training organisation existed at GHQ until Maxse's appointment in late 1917 and early 1918.

79 John Baynes, *Far from a Donkey: The Life of Lieutenant-General Sir Ivor Maxse* (London: Brassey's, 1995), 213-214.

80 Simon Robbins, *British Generalship on the Western Front 1914-1918: Defeat into Victory* (London: Routledge 2006), 97.

81 Mythen, "The Revolution in British Battle Tactics," 105.

operate alongside the Inspectorate of Training in a slightly modified form, described by Dawnay as the Training Branch, has been mostly overlooked; hence there is scope to reassess the contribution of General Sir Ivor Maxse.<sup>82</sup>

However, there has been significant recent study regarding the importance of training and its processes; three have examined the theme in detail. Jim Beach has already been discussed, but Chris Pugsley and Robert Foley have all put forward explanations for the BEF success founded on the non-physical elements of capability. Chris Pugsley has suggested that the doctrine written in the SS series, and how it was developed, played a key role in the advancement of the BEF. Robert Foley, meanwhile, puts forward theories on how learning occurred and how information was spread.<sup>83</sup> Simultaneously, Gary Sheffield and Dan Todman characterise the British Army as 'a highly effective, battle-winning, all-arms force, that achieved what it did primarily through integration and cooperation at the tactical level'.<sup>84</sup>

A final approach to the benefit of the doctrinal change is discussed by Gary Sheffield in his analysis of BEF High Command which suggested that the BEF maintained a semi-formal doctrine throughout the war despite the SS publications, because they may not have been engaged with at the tactical level.<sup>85</sup> Sheffield takes this point further when he suggests that 'the problem lay in the execution, not a doctrinal weakness'.<sup>86</sup> However, recent academic research suggests a resurgence of the significance of doctrine to the BEF suggesting that the new doctrine may well have had an indirect contribution, but that it was still significant.<sup>87</sup>

Overall, the historical record and subsequent analysis suggest that the BEF was successful in November 1918 as it changed faster and more appropriately than the German Army; but how? When we look at the primary sources, we glean there was an overall process of learning, with the literature suggesting that the BEF

---

82 LHCMA, Montgomery-Massingberd Papers 7/32, *Letter from Major-General GP Dawnay to Major-General AA Montgomery*, 31 October 1918.

83 Foley, "Dumb Donkeys or Cunning Foxes," 279-298.

84 Gary Sheffield and Dan Todman (eds), *Command and Control on the Western Front: The British Army's Experience 1914-1918* (Spellmount: Staplehurst, 2004), 8.

85 Gary Sheffield, *British High Command in the First World War: An Overview*, in *The Challenges of High Command: The British Experience*, ed. Gary Sheffield (Palgrave Macmillan, 2014).

86 Gary Sheffield, *The Somme: A New History* (London: Orion, 2003), 73.

87 See Beach, "Issued by the General Staff" and Fox-Godden, "Beyond the Western Front."

approach changed better after the sacrifice on the Somme. It precipitated a move from a mostly informal process of learning into a formal one that sought out lessons from combat, brought them carefully into doctrine and then exported them to the widest parts of the BEF via a training and schools' system that could cope with the high turnover of troops and ever-changing doctrinal aspirations.

### **The wider transformation lexicon**

To better appreciate the BEF's overall transformation, the role and impact of military culture within the moral component of fighting power may be seen as the part of the foundation upon which a military institution changed. Michael Siegl suggests that 'military culture is the linchpin that helps determine the ability to transform because it influences how innovation and change are dealt with.' This will be considered in chapter 2 and shown to be the metaphorical glue to the overall transformation process.<sup>88</sup> The development of an open learning culture seems to have been essential in allowing 'transformation and innovation, which were the results of a continuous, deliberate process of learning and adapting'.<sup>89</sup> In doing so, the permissive culture allowed flexibility of approach to develop and link innovations in technology to doctrinal, organisational, and tactical improvements.<sup>90</sup> This eventually led to transformation across all three components of fighting power.

Theo Farrell and Terry Terriff propose three specific means by which an institution's culture can affect military innovation; they represent a broad test of viability that the BEF, unknowingly, undertook. Firstly, senior leaders can specifically address the culture of the organisation to generate more innovation. Secondly, external shocks can rehabilitate the culture. Thirdly, a nation's army can change its own culture through the emulation of other national militaries.<sup>91</sup> But regardless of how culture changes, it remains an important foundation to doctrinal change; specifically, as this thesis argues, it dictates the rate at which change may be enacted and accepted.

---

88 Michael Siegl, "Military Culture and Transformation," *Joint Force Quarterly* 49, 2nd Quarter (2008): 103-105.

89 *Ibid.*, 104.

90 *Ibid.*, 103.

91 Theo Farrell and Terry Terriff, "The Sources of Military Change," in *Sources of Military Change: Culture, Politics, Technology*, ed. Theo Farrell and Terry Terriff (Colorado: Lynne Rienner, 2002); 7-8.

When considering military change, it is useful to understand which parts of a military force can be altered. There are myriad models which can be used, those from within the business change literature are found to be less compatible, so this thesis focuses upon a contemporary military model which already sits at the heart of its doctrine; that of fighting power. It has, as described in full on page 60, three parts – namely, the conceptual, physical, and moral.<sup>92</sup> This model is used within contemporary military strategy as a way of delineating the elements of a military force that can be addressed when making strategic decisions. The model was not available at the time of the First World War but is now part of NATO strategic doctrine which uses it as a way of articulating its outputs along with the ends, ways and means spectrum of effort.<sup>93</sup>

The military innovation, transformation and change lexicon remain in a state of flux within academia. There has been much debate in recent studies of their meaning but there is, as yet, no comprehensive explanation of the terms as they relate to military change, nor is there any agreement over how they interrelate horizontally or vertically. How these terms relate to each other defines our understanding of overall change and the methods used to achieve it.

The hypotheses within “Transformation in contact: learning the lessons of modern war”, highlight the role of innovation, adaption and, specifically, transformation, but do not deal with terms such as revolution, evolution, modernisation, or the impact of culture.<sup>94</sup> This thesis agrees with McCartney et al. that innovation is directly affected by civil-military relations, inter-service politics, intra-service politics and cultural influences; indeed, in the BEF, it was not until these factors were compliant that transformation could occur and broader learning could be enabled.<sup>95</sup>

---

92 Fighting Power as described in ADP, *Land Ops*, ch 2. It consists of three components: a conceptual component (the ideas behind how to fight); a moral component (the ability to get people to fight); and a physical component (the means to fight).

93 Franklin Kramer, Hans Binnendijk, and Daniel Hamilton, “NATO’S New Strategy, Stability Generation, 2015,” The Atlantic Council of the United States, accessed 11 July 2019, [https://www.atlanticcouncil.org/images/publications/NATOs\\_new\\_strategy\\_web.pdf](https://www.atlanticcouncil.org/images/publications/NATOs_new_strategy_web.pdf).

94 Robert Foley, Stuart Griffin and Helen McCartney, “Transformation in contact: learning the lessons of modern war,” *Journal of International Affairs* 87, no. 2 (March 2011): 253-270.

95 Ibid.

That a coherent set of definitions is missing from the historiography is a testament to the complexity of this contested field of study. In “Military Innovation Studies: multidisciplinary or lacking discipline?” Griffin asserts that 'philosophical tensions exist between the main approaches to military innovation, the challenges of a multidisciplinary approach and the utility of viewing military innovation studies as a field in its own right.'<sup>96</sup> Griffin's belief, that the complexity of the theory of military innovation is its downfall, highlights the friction in dealing with such powerful themes. Indeed, he summarises his view of the military's attempts at defining innovation by stating that, 'innovation is in danger of simply obfuscating a well-established practice-focused theoretical literature', suggesting that it is the complexity of military innovation and its associated themes that deny its full understanding. Consequently, within the confused lexicon, this thesis uses the terms as outlined below.

A revolution assumes a meaningful change to at least one of the components of fighting power over a short period. Evolution, on the other hand, assumes a similar degree of change, but over a protracted length of relative time.<sup>97</sup> So evolution and revolution should not be conflated as this risks the temporal element of change being underestimated.

If a single element of the fighting power model changes to suit the circumstances, and the period is not a factor, then it may be described as either adaptation or modernisation. Siegl defines modernisation as 'an action that changes within the physical element of the model, usually an equipment or technology-based change', whereas adaptation refers to change in the conceptual component.<sup>98</sup>

Both adaptation and modernisation can be revolutionary or evolutionary depending upon the relative timescale of the change. Williamson Murray conflates adaptation with innovation, stating that the difference between them is the type of environment – innovation being a peacetime process, and adaptation a wartime

---

<sup>96</sup> Griffin, “Military Innovation Studies,” 196-224.

<sup>97</sup> This parallels the Oxford English Dictionary definitions of revolution and evolution. Namely, that a revolution is 'a dramatic and wide-reaching change in conditions, attitudes, or operation', while evolution is, 'the gradual development of something'.

<sup>98</sup> Siegl, “Military Culture and Transformation,” 104.

process.<sup>99</sup> However, this ignores the degree of change, the motivation and the timescale, and in many ways offers an overly simplified view of transformation. Furthermore, it doesn't account for the innovation which sits within the overarching transformation process in the First World War.<sup>100</sup> This may be conflating the idea that adaptation is a simple change to new circumstances rather than implying a gradual change to a new form.<sup>101</sup> As Siegl suggests,

Innovation is a complex process that is neither linear nor always apparent. The interactions among intellectual, institutional, and political-economic forces are intricate and obscure. The historical and strategic context within which militaries transform compounds this.<sup>102</sup>

It seems that innovation is poorly described in the contemporary academic literature; indeed, in his paper on "Understanding Innovation", Colonel Thomas Williams sets out the reasons underlying the lack of a uniform definition and how it can be misused.<sup>103</sup> This notwithstanding, for this thesis innovation is considered as an approach to changing a system or process that is time sensitive, willing to take significant risk, has excessive resource, and is inclined to use novel approaches.

The motivation driving change is also key. In times of significant stress on a system, such as during a world war, both motivation and consequences are high. In these circumstances military commanders may, for example, decide it is more acceptable than it is in peacetime to take risks with lives and money. This approach can be referred to as innovative, as it balances resources with the potential outcome.

Hence, innovation without suitable motivation is likely to be less useful in terms of efficiency and may well prove to be a poor form of change when there is no underlying imperative. Without motivation, innovation is likely to be denuded as normal processes require checks and balances which can get in the way of an

---

99 Williamson Murray, *Military Adaptation in War* (Cambridge: Cambridge University Press, 2011), 2-5.

100 Foley, McCartney, and Griffin, "Transformation in Contact," 253.

101 Fox, *Learning to Fight*, 78.

102 Siegl, "Military Culture and Transformation," 103.

103 Colonel Thomas Williams, "Understanding Innovation," accessed, 4 July 2019, [http://www.au.af.mil/au/awc/awcgate/milreview/williams\\_innovation.pdf](http://www.au.af.mil/au/awc/awcgate/milreview/williams_innovation.pdf)

innovative approach. Indeed, Michael Horowitz advocates that militaries respond differently to innovation because of what he terms adoption capacity theory,

The combination of financial intensity and organisational capital possessed by a state, influences the way states respond to major military innovations and how those responses affect the international security environment.<sup>104</sup>

### **The process of learning**

Recent studies have focused on the BEF's ability to learn and improve its fighting ability. As such, learning in the BEF has emerged as a key historiographical theme in the past thirty years.<sup>105</sup> Building on the theory of a learning curve, many authors have investigated what facilitated the BEF's success, what underpinned its ability to change, and how one set of belligerents outfought the other. Ultimately, victory in the First World War was due to a combination of many factors, some within the BEF's control, others forced upon it. Its ability to change reflected its culture, history, and leadership, and required an underpinning process of learning to realise its inherent ability.<sup>106</sup>

The BEF's overall transformation was underpinned by a process of learning, within the conceptual component, which started with the capturing of lessons, routinely driven from the bottom-up but occasionally introduced from the top-down. These lessons were then evaluated and turned into doctrine, codified in SS pamphlets, and taught to the Army within its schools' system across France, Belgium, and the UK. Through this process, a new way of fighting was inculcated into new and experienced troops. This three-stage process, learning, doctrine, training, underpinned the BEF's transformation.

---

104 Michael Horowitz, *The Diffusion of Military Power: Causes and Consequences for International Politics* (Princeton: Princeton University Press, 2010), 209.

105 Heather Jones, "As the Centenary Approaches: The Regeneration of First World War Historiography," *The Historical Journal* 56, no. 3 (2013): 862.

106 Edgar Schein, *Organisational Leadership and Culture* (San Francisco: Jossey-Bass, 2009), 17.

However, the process was complex and provided many opportunities for failure. Lessons could escape laterally to adjacent units, be lost forever, or be selected for promotion on a false basis. As will be explained later in this chapter, the lessons that stuck, and those which did not, were fraught with factors beyond the control of the BEF. As highlighted in *Firepower*, the impact of the lessons which were learnt was reduced by the deaths of many talented younger leaders, especially divisional commanders in 1914 and 1915, before they passed on their experience.<sup>107</sup>

To understand why this process of learning was so important for the BEF it is necessary to look first at the problem they faced after the initial war of manoeuvre. In short, static trench warfare would have continued without end if no means of unlocking the stalemate had been found. Somehow, the infantry had to move forward and overcome the lethal nature of direct, and indirect, fire and trench systems that favoured the defender. The infantry had to be able to cross no man's land and remain a credible fighting force upon arrival at the German trenches. Once the BEF learnt what worked, the information had to be captured, passed on, codified in doctrine, and then taught to others. Thus, this thesis will contend that the process of learning made a significant contribution to facilitating BEF transformation as it directly answered 'the' tactical question of the war.

Although the establishment at General Head Quarters (GHQ) of the Training Directorate in January 1917, and the appointment of Brigadier-General Arthur Solly-Flood to lead the department, has been widely recognised as important to the process of learning, no in-depth analysis of its role has been undertaken.<sup>108</sup> Indeed, Brigadier-General Solly-Flood was just one of the key figures responsible for the developments in doctrine during the war,<sup>109</sup> and was joined in the latter stages by doctrine writers such as Lord (Captain) Gorell, Captain, and later Major, Edward Grigg and Major, later Lieutenant-Colonel, Cuthbert Headlam, all of whom

---

<sup>107</sup> Bidwell and Graham, *Firepower*, 38.

<sup>108</sup> Brigadier-General Solly-Flood has been studied, to a degree, by several academics, most recently by Beach, "Issued by the General Staff," 464; and Andy Whitmarsh in "The Development of Infantry Tactics in the British 12th (Eastern) Division, 1915-1918," *Stand To! The Journal of the Western Front Association* no. 48 (January 1997), 28-32; and Mythen, "The Revolution in British Battle Tactics,"

<sup>109</sup> Beach, "Issued by the General Staff," 464-491.



played a vital role in developing key BEF doctrine.<sup>110</sup> The fact that so little has been made of their combined contribution as both writers and creators of doctrine supports the lack of analysis applied in the historiography, and is why the basis of the evidence in this thesis fills a gap in the literature.

## Doctrine

This thesis will show that without doctrine, the process of learning would have had no central fulcrum around which to develop. It is hard to define doctrine as it is much more than the clumsy euphemism of ‘what is taught’. The contemporary British military definition suggests it is, ‘a set of rules and practices that describe how military activity should be achieved.’<sup>111</sup> The ramifications of doctrine, and the nuances of its definition, are explored in depth in chapter 5; but it must be noted that doctrine in 1914 differed considerably to doctrine in 1918, and even more so in comparison to doctrine today. The course and outcome of the First World War was fundamental to how the British Army created, reacted to and valued its doctrine for the next 100 years.<sup>112</sup>

At the beginning of the First World War, the British Army had recently codified its doctrine in *Field Service Regulations (FSR) 1909 Part I (Operations) and Part II (Organisation and Administration)*.<sup>113</sup> It was based on the first formal British Army doctrine, published in 1905, which had coincided with the formation of the Army General Staff.<sup>114</sup> The newly developed doctrine provided a focus for training and equipping the Army, as well as a central idea of basic cooperation and integration that would focus its efforts in preparation for the next war; it was a significant and tangible fallout from the Boer War.<sup>115</sup> Indeed, in the introduction to *FSR 1909 I*, it states,

---

110 Solly-Flood is discussed at length in the second half of this thesis, concerning his role leading the Training Directorate. Lt Gen Sir Ivor Maxse was appointed as the first Inspector of Training. General Bonham-Carter was Brigadier-General Staff (Training) at the GHQ from 1917-1918.

111 ADP, *Land Ops*, ch 2.

112 The next British Army doctrine of note was published in 1989, called ‘British Military Doctrine’, 1st Edition.

113 *FSR I and II*.

114 These changes were part of Richard Haldane’s sweeping changes post Boer War and his professionalisation of the British Army. Richard Haldane was ennobled in 1911 and became Lord Haldane. See the London Gazette, 28 March 1911, p 2522.

115 Spencer Jones, *From Boer War to World War, Tactical Reform of the British Army, 1902-1914* (London: Prager, 2015), 37.

The principles given in this manual have been evolved by experience as generally applicable to the leading of troops. They are to be regarded by all ranks as authoritative, for their violation in the past has often been followed by mishap, if not by a disaster. They should be so thoroughly impressed on the mind of every commander that, whenever he must decide on the field, he instinctively gives them their full weight.<sup>116</sup>

*FSR 1909 I* covered 'inter-communication and orders'.<sup>117</sup> *FSR 1909 II* outlined the planning measures, mobilisation and war establishments, communications and systems that would be used to generate fighting power.<sup>118</sup> This thesis suggests that these small red books became the foundation of military thinking until after the First World War and were the capstone doctrine for the British Army. The creation of *FSR 1909 I and II* was led by the then Major-General Sir Douglas Haig who was, at the time, Director of Military Training; he was assisted by the then Colonel Solly-Flood, an infantry officer whose input would be called upon a few years later when crafting BEF doctrine in the second half of the First World War.<sup>119</sup>

Underpinning the changes in the war was the publication of a series of pamphlets that laid out the BEF's new doctrinal thinking. These were initially known collectively as the Central Distribution Service (CDS), and later as the Stationery Service (SS) pamphlets. These formal documents were augmented by less official, informal documents, which were often produced at divisional or corps level, such as Lieutenant-General Sir Ivor Maxse's *'Brown Book'*.<sup>120</sup> Taken together, they represented the best practice of the BEF and demonstrated the BEF's use of both formal and informal methods that could elicit change.

---

<sup>116</sup> *FSR I*, 2.

<sup>117</sup> *FSR I*, 27-28.

<sup>118</sup> *FSR II*, chapter I on preparatory measures, chapter II on war organisation, chapter III on the staff and planning, chapters IV-VIII on maintaining the force in the field, chapter IX on ordnance, chapter X on horses, chapter XI on medical matters, chapters XII-XVIII on broader administration matters.

<sup>119</sup> Douglas Haig arrived in France in 1914 as a Corps Commander in the rank of Lieutenant-General, he became a General in December 1915 and the Commander-in-Chief of the BEF after the removal of the then General John French. He would later become a Field Marshal and a Sir.

<sup>120</sup> IWM, Maxse Papers 69/53/13, *Notes on Training Infantry Companies in Open Warfare*, April 1917.

In January 1917, GHQ ordered the establishment of the Training Directorate, which would eventually become the Training Branch. It was augmented with the Inspectorate of Training in July 1918. Together, these staff branches were responsible for the changes to BEF doctrine, the lessons process and training.

The changes included the reinvigoration of the platoon as the basic unit of force and a reshaped company structure.<sup>121</sup> The relevant SS documents outlined how they would be equipped, train, and fight.<sup>122</sup> The Training Directorate published new tactics for fighting with tanks, aeroplanes, gas, and artillery,<sup>123</sup> setting out specifically who would be trained, where, by whom, and what they would learn.<sup>124</sup> In consequence, the SS series was part of the foundation of the BEF's overall change as it directed the means and ways by which to fight, and in doing so, changed the conceptual and physical components of fighting power, while supporting the overall transformation of the BEF.

The establishment of the Inspectorate of Training in January 1918 has been interpreted in several ways, broadly aligning into two schools of thought. Paddy Griffith believes that the Inspectorate was a late-in-the-day solution designed to enforce some uniformity in theory and practice on to the chaotic training practices of the BEF.<sup>125</sup> Martin Samuels questions the significance of the Inspectorate, arguing that it added little value to the groundwork already laid by the Directorate and that, whatever it did achieve, was too late in the day.<sup>126</sup> In contrast this thesis argues that, while late in the day, the Directorate and Inspectorate were fundamental in bringing together ideas, formalising the process of learning, agreeing to new concepts, publishing them in a coherent doctrine, and enforcing their adoption across the entire BEF so that it could transform all three components of fighting power.

---

121 GHQ, SS 143, *Instructions for the training of platoons for offensive action* (HMSO: February 1917 and republished June 1917).

122 GHQ, SS 125, *Instructions for Training* (HMSO: June 1917).

123 SS 214; GHQ, CDS 33, *Co-operation of aeroplanes with other arms* (HMSO: July 1915); GHQ, CDS 307, *Defensive Measures against Gas Attacks* (HMSO: November 1915); GHQ, AEF, *Artillery in Offensive Operations* (HMSO: August 1917); and, SS 135.

124 SS 152.

125 Paddy Griffith, *The Extent of Tactical Reform in the British Army, British Fighting Methods in the First World War* (London: Frank Cass, 1996), 4.

126 Martin Samuels, *Command or Control? Command, Training and Tactics in the British and German Armies, 1888-1918* (London: Frank Cass, 1995), 122.

Although this thesis will show that doctrine was central to change in the BEF during the First World War, there were numerous occasions where it was ignored.<sup>127</sup> For example, some divisions and corps ignored doctrinal updates in the SS pamphlets and acted differently to those that did adopt and adapt; consequently, instead of acting as part of a single overarching whole, they became detached, uncoordinated or misplaced.<sup>128</sup> Furthermore, some General Officers Commanding (GOsC) ignored doctrine on purpose in the belief they knew their troops better and had better ideas. However, the complexity of the First World War reinforced the need for doctrine for two reasons. Firstly, to improve the BEF's fighting power as methods changed and secondly, to make the Army fight as one. The lack of cohesion and the reach of the new doctrine are considered in chapter 8.

In some instances, doctrinal change facilitated better warfighting methods, in others, it ensured troops and equipment reached the right place at the right time. Lack of coordination and the use of different tactics were among the reasons for failure in the summer of 1916 on the Somme.<sup>129</sup> This was not just tragic and costly in men and materiel, but was a consequence of an army that had yet to find a reason to address transformation seriously. However, the failure on the Somme acted as motivation for the hierarchy of the BEF and almost certainly led to the creation of formal processes and establishments that facilitated the setting up of the Training Directorate.

## **Training**

By the autumn of 1917, training had been re-established as the engine of change for the BEF.<sup>130</sup> Dudley Ward recounts in his comments on the training of the Welsh Guards that, 'training never ceased during the war.

---

127 The greatest disdain towards BEF doctrine was shown by the AEF upon their entry into the First World War. General Pershing chose to ignore the contemporary BEF experience and maintain their antiquated tactics and doctrine, such as Infantry Drill Regulations, 1914, first published in 1907 but based upon the American Army experience in their wilderness in the Midwest against an indigenous enemy.

128 David French, *British Economic and Strategic Planning, 1905–1915* (London: Routledge, 2013), 119.

129 Philpott, *Bloody Victory*, 110.

130 Jonathan Boff, *Winning and Losing on the Western Front: The British Third Army and the Defeat of Germany in 1918* (Cambridge: Cambridge University Press, 2012), 247.

The hardened veteran, out of the line for a rest, joined the young recruit who had just arrived in France for the first time, and trained.<sup>131</sup>

The failure to provide effective training in Britain was a result of inexperienced officers, inadequate training facilities and poor conditions.<sup>132</sup> This was compounded by inferior quality training equipment, a lack of ammunition, and disruption to formation and unit training caused by the constant transfers of men.<sup>133</sup> Additionally, the Imperial Service commitment, and redeployment of units to other formations, prevented the stability required for good training. And the initial official War Office training syllabus was based on outdated training theories and programmes. Furthermore, Territorial officers and men were incapable of fully understanding and employing the texts irrespective of their value; overall, the UK-based initial training during the first two years of the war was poor.<sup>134</sup>

As late as January 1918, the quality of training was still not as it should be. General Guy Dawnay suggested that the German Spring Offensive in 1918 'proved, above all things, the necessity for thorough training on the recognised tactical principles,' and that 'there is no doubt that our troops suffered from lack of sufficient training.'<sup>135</sup> It was 'a matter of the highest urgency to take steps to improve the efficiency of training throughout the Armies in France.'<sup>136</sup>

In part response to such criticisms, the Inspectorate of Training produced training leaflets covering such topics as 'Sample of a Day's Training for a Company' and 'Attack Formation for Small Units'. They were straightforward and easy to read, understand and implement. By 1918, GHQ was making significant efforts to analyse, and subsequently disseminate, the tactical lessons learnt from recent actions. As a result,

---

131 CH Dudley Ward, *History of the Welsh Guards 1914-1918* (London: John Murray, 1920), 18.

132 Simkins, *Kitchener's Army*, 71-75.

133 Within this thesis, the term 'formation' refers to a brigade or division within the BEF. The formations were considered the tactical units to manoeuvre in the BEF and the lowest level that GHQ planned for.

134 Craig French, "The 51st (Highland) Division During the First World War" (Unpublished PhD diss, University of Glasgow, 2006), 17, 24-25, 112-114.

135 IWM, Maxse Papers 69/53/11, *Major-General Guy Dawnay, Appendix A, Duties of Inspector General of Training, GHQ*, 20 June 1918.

136 IWM, Maxse Papers 69/53/11, *Sir Douglas Haig letter to The Secretary, WO, GHQ*, 16 June 1918.

commanders were receiving a great deal of useful tactical advice and information which they could integrate into their training.<sup>137</sup>

The delivery of education in the form of training or lesson development was centred on the military schools' system. Individual and group training began in the UK and was followed by trench initiation in France or Belgium. There was almost no contact between Home Command and their UK-based schools, and the BEF and their schools in France and Belgium; coordination was non-existent and affected the fighting effectiveness of new formations until they had become battle-hardened.<sup>138</sup> The number of schools, the training they delivered, and how they linked to the fighting experience of the day will be covered in chapter 6.

The most meaningful change to the BEF's process of learning came about under Brigadier-General Solly-Flood's reorganisation of the training system of schools and their syllabus in 1917. During his tenure he reduced the number of schools and simplified the syllabus so that adjacent units could justifiably expect BEF troops to act, fight, and predictably sustain themselves; all of which aided integration and cooperation. In addition, the schools invested in more instructors with recent Western Front experience, improved facilities, and a system to record and capture the lessons that had been learnt at the front, so that best practice could be identified and passed on via the lessons' cycle.<sup>139</sup>

### **Technology, leadership, and alliances**

Although this thesis will not focus in depth on the role of technology, leadership, and alliances in contributing to overall victory on the Western Front, it nonetheless acknowledges that they were the key to victory but were probably enabled by the process of learning. And whilst a comparative analysis of their role, and that

---

<sup>137</sup> British tactical pamphlets were also used as source material by the US Army. See, *Attack of the British XIX Corps at Messines Ridge*, (Washington: Government Printing Office), 1917.

<sup>138</sup> Simkins, *Kitchener's Army*, 8-11.

<sup>139</sup> French, "The 51st (Highland) Division during the First World War," 66.

of the process of learning described above would be enlightening, it is beyond the remit of this thesis; instead, it is the specific contention of this thesis that the process of learning has been undervalued in the literature. As such, it is anticipated that this thesis will add to the historical debate by diverging from much of the contemporary commentary within the broader learning curve theory that is 'now generally accepted amongst historians' as a description of the broad learning method of the First World War.<sup>140</sup> Instead, it will reflect that technology, leadership, and alliances were significant contributors to victory, because of the underlying credible, formal and informal process of learning.

Jonathan Bailey described the role of modern technology in the BEF, asserting that it produced a 'Revolution in Military Affairs', and that it was the driving force in tactical success.<sup>141</sup> His argument is compelling; technical change does indeed provide new mechanised ways of killing, but this alone does not deliver tactical success; it is but one factor. For example, commanders and staff required an understanding of how to employ the new equipment, and how it was to be integrated into the existing BEF.<sup>142</sup> And this was the role of doctrine and lower-level tactics; hence, technology was important, but without the underlying doctrine to direct how it was to be applied as lethal force, its impact may well have been limited.

When the tank was first introduced in 1916, it was a means of crossing no man's land, crushing barbed wire, and crossing trenches; it was not an offensive weapon.<sup>143</sup> However, as its role developed, it was the doctrinal approach outlined in *SS 164, Notes on the Use of Tanks*, in May 1917, and *SS 214, Tanks and their Employment in Cooperation with Other Arms*, published in August 1918, that transformed it from a mobility system into a fire support platform that fixed the enemy in their trenches.

Not only did technology help the BEF, but so did the relative decline in the German war effort in 1918. As Jonathan Boff explains, a German lack of manpower and materiel to fulfil the front line tasks, led to their

---

140 Ian Beckett and Steven Corvi, eds., *Haig's Generals* (Barnsley: Pen and Sword Military Classics, 2005), 3.

141 Jonathan Bailey, "The First World War and the Birth of Modern Warfare," In *The Dynamics of Military Revolution, 1300-2050*, ed. McGregor Knox and Williamson Murray (Cambridge: Cambridge University Press, 2001), 132-153.

142 Jonathan Bailey, "The First World War and the Birth of the Modern Style of Warfare," *Strategic and Combat Studies Institute Occasional Paper 22* (1996): 12.

143 John Glanfield, *The Devil's Chariots: The Birth and Secret Battles of the First Tanks* (Stroud, Gloucestershire: Sutton Publishing, 2001), 16.

decline.<sup>144</sup> These factors precipitated a new defensive approach of a far more elastic defensive system, with some manned outposts but at far greater depth to denude BEF short-range assaults. Simultaneously, the Royal Navy blockade post Jutland had impinged upon iron ore imports to such an extent that the German nation's heavy industry was slowly being starved of resources and could no longer deliver the hardware required by the German Army. This notwithstanding, this thesis argues the BEF's victory was significantly hastened by its process of learning in general and its doctrine, which put pressure on the German nation's industrial effort by denying it the manpower and materiel to manufacture, and the food to feed its working and fighting population.<sup>145</sup>

Finally, the arrival of the American Expeditionary Forces (AEF) in 1917 made a substantial contribution to the Allies by reducing the manpower reliance on ever younger conscription. However, its arrival was not an instant success and its methods of integration took time to resolve.<sup>146</sup> Regardless of the sheer numbers of soldiers supplied by General Pershing and the AEF, their ability to fight and contribute on the Allied front was due, in part, to their in-theatre training using the SS documents. A memorandum dated 4 July 1918 from Colonel HB Fiske, G-5, to the American Chief of Staff AEF, makes clear the cooperation between American, French and British troops, and his belief that the AEF should adopt the doctrine of the Allied forces they fought with.

Make it clear to the French commanders to whom these are addressed that they must control the instruction of American regiments training with French divisions and impregnate the American units with French methods and doctrine. That such was the understanding of the French officers has long before this been evident... The many French and British instructors scattered among our divisions have spread French or British doctrine or a combination of both.<sup>147</sup>

---

144 Boff, *Winning and Losing on the Western Front*, 18, 64, 71-73, 99-110.

145 Boff, *Winning and Losing on the Western Front*, 64-65.

146 Centre of Military History United States Army, *Training and Use of American Units with the British and French: United States Army in the World War 1917-1919* (Washington: CMH, 1989), 9.

147 *Ibid.*, 12.



The American II Corps was unique in that it spent its entire service in France in the British sector. And two American divisions, the 27<sup>th</sup> and 30<sup>th</sup>, remained within a British Corps and relied upon the BEF for training, supplies, equipment, food, and tactical leadership. Unfortunately, the American II Corps suffered very heavy casualties during its limited operational experience, having failed to learn lessons from the BEF during its campaigns of 1916-1917, and sticking to its outdated doctrine.<sup>148</sup> Its failure to employ BEF doctrine and local conditions cost it dearly and highlights how important contemporary doctrinal change had been in producing successful tactical engagements.

## **Methodology**

The thesis draws on a broad selection of primary sources, notably the divisional war diaries of combatant forces, and the Stationery Service pamphlets. The former contains the broadly accurate accounts of each formation and its day-to-day exploits while the latter follows the course of doctrinal change that is evidenced within the former. This thesis is also informed by the extensive secondary sources which have developed a detailed analysis of many of the constituent parts of the BEF's transformation. As will be discussed in detail later, very few of these sources, however, have attributed overall success to any process of learning, thus the rationale for this thesis and its contribution to the literature.

This thesis constrains itself to the Western Front on the basis that it was central to all First World War theatres. However, the significance of other fronts, as outlined by Aimee Fox in her thesis on intra-theatre learning, is acknowledged. It is further accepted that William Philpott's suggestion, that a less Anglocentric, less Western Front bias to First World War scholarship would be beneficial and set the correct context for the World War, is a balanced and pragmatic position to adopt.<sup>149</sup> Unfortunately, a full analysis covering all of the fronts on which the First World War was fought is beyond the scope of this thesis. Consequently, the Western Front was chosen as the focus because it appears to have been the centre of gravity for military

---

148 Mitchell Yockelson, "Brothers in arms, the American and British coalition on the Western Front, 1918" (PhD diss., Cranfield University, 2006), 26-29, 117-118.

149 William Philpott, "Beyond the 'Learning Curve': The British Army's Military Transformation in the First World War," RUSI Analysis, November 2009 accessed 22 May 2014, <https://www.rusi.org/analysis/commentary/ref:C4AF97CF94AC8B/#.U33lrV4k9g0>

operations, and the location at which strategic victory would be won or lost. Nonetheless, it is acknowledged that the process of learning was probably in existence in other British theatres, as described by Aimee Fox.<sup>150</sup>

The thesis is structured in two ways. Firstly, it uses the seminal campaign on the Somme as the pivot point around which BEF change occurred. Two armies, nine corps and forty-nine divisions had participated in the fighting, generating a shared experience and the motivation to establish a formal structure for change.<sup>151</sup> Secondly, the thesis will consider each of the three constituent parts of the process of learning – lessons, doctrine, and training – in turn.

Within the three chapters on learning, doctrine and training, the SS pamphlets are analysed in detail as they relate to each topic. As such, they are a constant theme running throughout the thesis and their fundamental role in facilitating change will be demonstrated.

This thesis also contains two chapters that consider specific aspects of the BEF's transformation. The unpublished *SS 198, Tactical Instructions for the Offensive of 1918*, requires in-depth analysis as its genesis and contents are fundamental in understanding the doctrinal progress of the BEF. Secondly, a chapter looks at the impact of doctrine on the BEF and makes a broad assessment of the utility of the new pamphlets, and how they were received by the divisions within the BEF.

The thesis will begin by looking at what it means to learn as an organisation and will set out the broader constituent parts of the learning model and transformation in chapter 2. Chapter 3 will consider the change the British Army undertook after the Boer War and before hostilities in August 1914. In doing so, it will outline the theories and ideas that enabled the BEF to be both fit to fight in 1914 and able to accept a degree of change in time to remain a credible fighting force in 1915, before wider transformation after the Somme campaign in 1916.

---

<sup>150</sup> Aimee Elizabeth Fox-Godden, "Putting Knowledge in Power: Learning and Innovation in the British Army of the First World War" (PhD diss., University of Birmingham, 2015), 12.

<sup>151</sup> Counting all formations that spent more than two weeks in the front line.

Having considered the learning mechanism and context in order to explain the process of learning, chapter 4 will consider how lessons were learnt, the motivation for learning, and how learning changed during the war. The chapter will also consider whether it mattered if lessons were driven from the bottom up or pushed down from the top, while deliberating the extent to which our lessons were facsimiles of other countries' ideas.

Chapter 5 will consider the creation of the BEF doctrine, what significant doctrinal changes occurred and why. It will look at how the doctrinal evolution was communicated, received and put into practice. The bulk of the chapter will dissect the key SS publications and show transformation through their change, thus unpicking the significance of each seminal SS document, the changes the documents instilled, and what they resulted in.

Chapter 6 focuses specifically upon *SS 198, Tactical Instructions for the Offensive of 1918*, and explores why this unpublished document would have been so fundamental to the BEF, and the circumstances of its creation. It also touches upon why the pamphlet was not published and how some of its newest ideas were distributed in a subsequent pamphlet, *SS 135, The Division in the Attack*.<sup>152</sup>

Chapter 7 will merge the lessons and doctrine into the training process, looking at the school structures, both home and abroad, which delivered the new syllabus. It will also focus on the Training Directorate and Inspectorate of Training and how they engendered change.

Chapter 8 will finally consider how well new doctrine was received and how it was implemented by considering four representative divisions and using their war diaries to understand whether the doctrine was successful, unsuccessful, or simply ignored.

---

<sup>152</sup> SS 135 (November 1918).

## Conclusion

This thesis contends that the BEF's route to victory, as part of an alliance, was underpinned by a process of learning which enabled technology, leadership, alliances and German Army decline to deliver tactical success and, ultimately, strategic victory on the Western Front. This historical thesis follows the process of learning as it develops throughout the First World War within the BEF. It traces the changes from an ad hoc informal system, to a developed formal system supported by a wider bureaucracy and established staff officers in higher headquarters. In so doing, it relies upon the historical record of the time in the divisional war diaries, letters, and memoirs of senior officers – as such, it has a degree of social science consideration.

The First World War posed a doctrinal problem, amongst many others, to the belligerents, of how to cross no man's land, where the defender had a significant advantage and the defender could improve their defences quicker than the BEF could improve their attack.<sup>153</sup> Until this tactical issue was resolved neither side could consider victory and would instead have to endure an attritional war of virtual stalemate.<sup>154</sup>

The first two years of the War progressed without BEF formal learning structures. The Somme and latterly the Third Ypres campaign motivated a doctrinal reappraisal. Field Marshal Haig set in motion a more formal approach with the establishment of the Training Directorate that would specifically cohere lessons, training and doctrine.

This thesis takes a historical view of the less studied doctrinal foundation of the BEF and considers the Stationery Service pamphlets, and their ilk, to assess whether the eventual transformation of the BEF can be credited to some degree to the emerging doctrinal foundation. To do so, it will need to consider the context in which the BEF arrived in France in autumn 1914 and then analyse the constituent parts of the process of

---

<sup>153</sup> Sheffield, *The Chief*, 102. The advantage was due to the protection the trench defences provided and the opposite lack of protection any advancing force gave up. It was also compounded by the issue of sustaining any assault with combat supplies and reinforcements that had to move across no man's land, which was inherently difficult and dangerous.

<sup>154</sup> Various doctrinal approaches were tried, breakthrough and bite and hold, but neither achieved what was needed to force negotiations. In the meantime, to maintain pressure on the enemy, continuous campaigns were fought looking for success, which were essentially attritional battles, trying to bleed the adversary dry.

learning that facilitated change. These parts, learning, doctrine, and training, will then be brought together to establish the utility of the process of learning to the BEF that contributed to the conceptual component of fighting power. Finally, by looking into the war diaries of some representative divisions, an estimation will be made as to the impact of the new doctrine.

And while it is recognised that the factors involved in victory in 1918 were numerous and complex, this thesis will enhance current understanding by identifying a hitherto under-studied process of learning. A process which has, perhaps, been hidden behind other learning theories such as the learning curve, but is now readily available to be credited with setting both a foundation for success on the Western Front in 1918 and the BEF's wider transformation.

Thus, this thesis proposes that the BEF changed from a small professional force to a vast army, enabled by the new doctrine that sat at the heart of the conceptual component of fighting power, and this enabled the physical and moral components to also change, leading ultimately to BEF transformation and victory. Doctrine was a singular factor that enabled far-reaching change. Its contribution was small but it had significant ramifications, allowing the BEF to change comprehensively by the beginning of 1918, ready to defend the German Spring Offensive and eventually seek victory in the One Hundred Days Offensive.

## Chapter 2 – Learning

This thesis proposes that the BEF's fighting performance benefited from a process of learning which started as mostly informal with a small formal foundation and migrated by 1918 to a robust formal process of learning with a small but enduring degree of informality. The process of learning identified lessons, constructed appropriate doctrine, and then trained by that doctrine, forming a constructive feedback loop of benefit to the formations of the BEF.<sup>1</sup> In the second half of the First World War, after the Somme campaign and when the culture allowed for broader change, the BEF was well-positioned to change using its doctrine as a fulcrum from which other features benefited.

In the years preceding the First World War, intellectual challenge and support to commanders was delivered through lectures, service journals, and commercial publications. Forums such as the Royal United Services Institute (RUSI) witnessed important military debates which punctured the parochialism of the early Edwardian Army. The tactical organisation of the infantry battalion, shifting from eight smaller companies to four larger ones, was debated by officers such as Reginald Kentish and the then Brigadier-General Ivor Maxse at the RUSI, and in the pages of its journal.<sup>2</sup>

This was not an isolated discussion. The cavalry was engaged in a debate over the very essence of its function and composition. General Sir Douglas Haig and Lord Roberts stood on opposite sides of the issue. Douglas Haig favouring a versatile cavalry arm proficient in both mounted and dismounted combat, while Lord Roberts was the leading proponent of 'mounted infantry'.<sup>3</sup> The *Cavalry Journal* of 1905 provided a forum for intellectual elaboration within the cavalry, while individuals such as Ivor Maxse and JFC Fuller regularly contributed to the written debates.<sup>4</sup> These debates suggested that the Army leaders were aware of the need

---

1 A formation is a collection of troops larger than a battalion or regiment that has the constituent parts of an Army. The BEF considered its formations as brigades, divisions and corps.

2 Bidwell and Graham, *Firepower*, 35-37; Brigadier-General Kentish, quoted in Robbins, *British Generalship on the Western Front*, 90 and see R Kentish, "The Case for the Eight Company Battalion," *Journal of the Royal United Services Institute* 56, no. 2 (1912), 891-928. Jones, *From Boer War to World War*, 71-72.

3 Sheffield, *The Chief*, 55.

4 Such as JFC Fuller, "The Procedure of the Infantry Attack: A Synthesis from a Psychological Standpoint," *Journal of the Royal United Services Institute* 58 (January 1914): 65-66; and I Maxse, "Battalion Organization," *Journal of the Royal United Services Institute* 56, no. 1 (1912), 53-86.

to change but that they lacked the methodology to achieve it. Instead, they argued and debated, but did not generate much meaningful or lasting change.

Recently, much of the contemporary historiography of the First World War has focused on learning. It is contained in works by Simon Robbins on generalship, Andy Simpson's work on the corps level of command, and Sanders Marble's work on the evolution of the British artillery.<sup>5</sup> All three studies outline how important a process of learning is, that it may well have followed a curved trajectory of improvement, and that the BEF took measures to improve its learning via a series of deliberate interventions to promote new process and the dissemination of new ideas. However, even though they openly support the concept of a learning curve, they all miss the opportunity to understand the parts of the curve, settling for a balance of top-down, bottom-up and, occasionally, horizontal dissemination of new ideas, rather than an overall process.<sup>6</sup>

More recently, Aimee Fox and Stuart Mitchell have focused their research on understanding the curve. Mitchell suggests that the curve was synonymous with developing leadership and that the curve explains the commander's betterment as much as it does the overall process of learning.<sup>7</sup> In contrast, Fox believes the learning curve simply outlines the benefit from the experience and the growth of a small army into a larger one while on a journey of improvement. The ability to improve, according to Fox, is based upon experiences that underpin change and improvement in a mostly informal manner.<sup>8</sup> However, both Mitchell and Fox are aligned with Gary Sheffield's more recent proposal that the curve concept now refers to a process and not just a singular focus, and hence their interpretations align with this thesis.

One way to represent the learning curve is shown below in figure 1. It is a simple representation of the SS books published throughout the war and shows the increase in publications over time. While this is not the learning curve, it is easy to visualise how similar data could be represented to produce a curve of sorts. The

---

5 Simpson, *Directing Operations*, 156-157; Sanders Marble, "The Infantry cannot do with a gun less: The Place of the Artillery in the BEF, 1914-1918," (PhD diss., King's College London, 1999).

6 See, Jim Beach, "British Intelligence and the German Army, 1914-1918" (PhD diss., University College London, 2004), 149-153.

7 Mitchell, "An Inter-Disciplinary Study of Learning," 113.

8 Fox-Godden, "Putting Knowledge in Power," 9.

graph has three lines well above the others: Tactics, Artillery and General doctrinal change. This graph is statistically a straight line, not a curve, but remains a persuasive visualisation of learning progressions if the number of SS publications can be taken as a measure of learning.

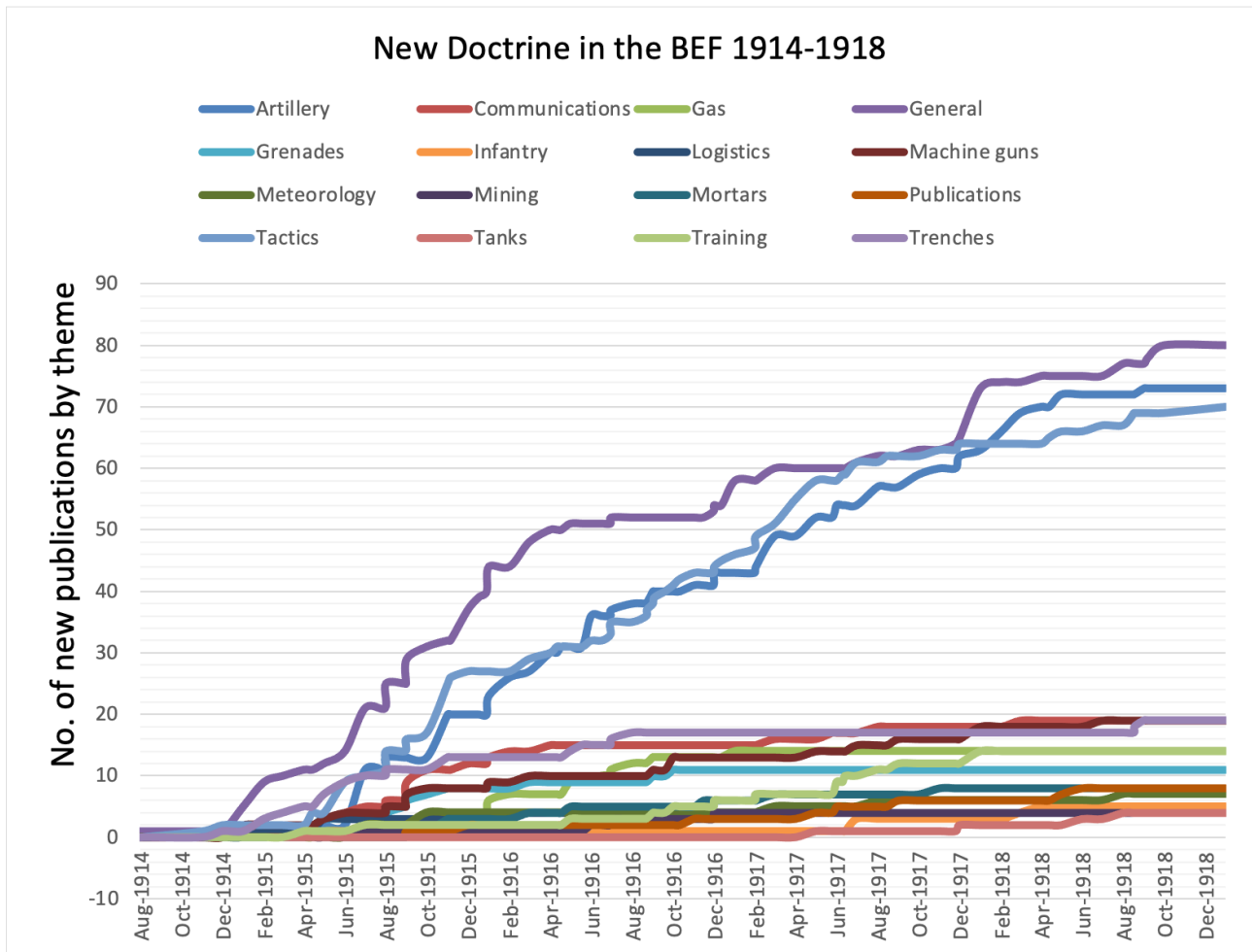


Figure 1: New Doctrine in the BEF by Pamphlet, with thanks to Chris Henderson.

This graph is not offered to dismiss the concept of a learning curve but to emphasise that there is more to learning than the shape of a line. The fact that so many authors, Biddle, Graham, Robbins, Fox, Boff, Mitchell, Prior and Wilson, all refer to a curve suggests that the concept has academic traction. So, it would be foolhardy to dismiss the learning curve thesis even if the rate of change of the learning may be misconstrued.

Of course, not all development occurred via a process of learning. The often-quoted example of Sir Eric Geddes as the Director-General of Transportation, who restructured the logistic component of the BEF, is



interesting.<sup>9</sup> Geddes undoubtedly did much good for the BEF, but this was not learning in the sense that this thesis will focus upon. Geddes brought new information and practices to the BEF and implemented some methodologies to bring the military up to date with commercial practices. This notwithstanding, Robert Foley suggests that it did show that the BEF was willing to do whatever was needed to succeed, even if it had to gather ideas from outside the military.<sup>10</sup> In Geddes's case, his new ways and means were akin to innovation, not learning, and, as such, are outside the scope of this thesis, even though innovation is essential to the broader learning debate.

## Context

In the first four months of the First World War, the BEF lost more than 85,000 men in France, of whom over 3,000 were officers. With their loss went the inculcated military syllabus that the BEF would find hard to regain.<sup>11</sup> To compound the situation further, 56 of the British Army's formally trained staff officers were also killed in 1914.<sup>12</sup> By the end of 1914, an average British infantry battalion was reduced to a single pre-war officer and about 30 of its original men. This led the British Official History of the war to reflect that 'The old British Army was gone, leaving but a remnant.'<sup>13</sup> The cost of casualties in the first 18 months led to an inability to learn and train effectively for a further two years. As General Walter Nicholson wrote,

The trouble was that for the next four years we did no more than perfect this limited knowledge; on the rare occasions when open warfare intervened, we were but untrained self-opinionated soldiers.<sup>14</sup>

In August 1914, the BEF had 247,400 officers and men.<sup>15</sup> By the middle of 1916, the Army stood at 1,800,000 across all theatres. It had changed from the standardised British Army of 1913 to a blend of new Territorial,

---

9 On Geddes's life and career, see Keith Grieves, *Sir Eric Geddes: Business and Government in War and Peace* (Manchester: Manchester University Press, 1989).

10 Foley, "Dumb Donkeys or Cunning Foxes," 279-298.

11 Frank Davies and Graham Maddocks, *Bloody Red Tabs: General Officer Casualties of the First World War 1914-1918* (Barnsley: Pen & Sword, 2014), xii.

12 Edmonds, *British Official History: 1914*, 1.

13 Ibid.

14 General Walter Nicholson, *Behind the Lines: An account of administrative staff work in the British Army 1914-1918* (London: Jonathan Cape, 1939), 65.

15 War Office, *Statistics of the Military Effort of the British Empire during the First World War 1914-1920* (London: HMSO 1922), 30.

Kitchener Army, Indian Army, and Dominion units. By the end of the war, the Army's strength had risen to 2,700,000 officers and men, who had lost all sight of its origins.<sup>16</sup>

The loss of experienced men reduced the combat effectiveness of units and amplified the pressure on the remaining officers and senior soldiers to lead and make decisions. As the experience of recruits reduced, the need for officers to lead increased, which intensified the risk of the officer becoming a casualty and perpetuated the decline into poorer leadership through inexperience. In the 17<sup>th</sup> Division in late 1915, the war diary of the 7<sup>th</sup> Battalion Border Regiment notes that they became 'rudderless' after the commanding officer was killed on 20 October 1915; it took weeks to recover.<sup>17</sup>

Aimee Fox discusses these difficulties in her thesis "Putting Knowledge in Power", explaining that leadership turnover can facilitate adaptation, as the appointment of new commanders disrupts institutional memory and exposes units to new practices and approaches.<sup>18</sup> However, as new leaders arrived in old units, many of which were tired from battle, the new drafts could often appear as outsiders and inhibit coherent change.

The complexity of the beginning of the 20<sup>th</sup> century put the British Army and other national institutions in a state of intellectual and industrial flux; industrialisation, a changing European political landscape and the continuing rise of America and Asia permeated European governments of the day. The pressure on the British military to remain relevant and affordable was significant. In 1907, Harold Mackinder had called for the Chief of the Imperial General Staff and his staff to become more of a 'soldier business', and the whole army an 'amazing business institution' so that they could transform adequately and be ready for future conflict.<sup>19</sup>

---

<sup>16</sup> War Office, *Statistics of the Military Effort*, 30.

<sup>17</sup> TNA, PRO, WO 95/1985, *17th Division GS War Diary, After Action Review (AAR)*, 21 August-11 November 1915.

<sup>18</sup> Fox-Godden, "Putting Knowledge in Power," 76.

<sup>19</sup> Sir Halford John Mackinder (15 February 1861–6 March 1947) was an English academic and politician, and Director of the London School of Economics, and regarded as one of the founding fathers of geopolitics.

## A learning framework

Before this thesis dissects the process of learning, it must reflect upon the academic considerations and taxonomy that relate to its constituent parts. The relevant theories consider the difference between formal and informal learning; whether learning is better driven by the ideas of the masses at the bottom of an army or by the ideas from those at the top and forced down, as well as a horizontal sharing process.<sup>20</sup> Motivation and its impact on learning are also considered, as well as the effect that specific circumstances have on both group and individual learning traits. These factors highlight the numerous elements that could, and indeed did, impinge on a process of learning which was at first sluggish and informal, and required cultural acceptance to become formal and more dynamic.<sup>21</sup>

Learning is undoubtedly a collaborative process. For those seeking change, there was no lack of information coming into the headquarters and field units; what was missing was the authority to direct change.<sup>22</sup> Headquarters verged on decision paralysis as nobody believed they had the authority to move away from the endorsed pre-war doctrine.<sup>23</sup> There was a demand for decision-makers and 'learned professionals' so that the BEF could plan, learn, and fight more appropriately. But, due to a lack of institutional agility and the realisation that change required coherence, the opportunities of the first 20 months of the war were not taken. This is clearly explained in Douglas Haig's letter to the then Lieutenant-General Sir Robertson, in February 1916, which discusses the requirement for a new impetus in learning from experience.<sup>24</sup> However, in Lieutenant-General Sir Robertson's letter to General Sir Henry Rawlinson in July 1916 he suggested that,

---

20 Foley, "Dumb Donkeys or Cunning Foxes," 292; Beach, "Issued by the General Staff," 464-491.

21 Theo Farrell, "Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006-2009," *Journal of Strategic Studies* 33, no. 4 (2010): 567-594.

22 Until the establishment of the Training Directorate in 1917, there was no overarching authority for doctrinal change across the BEF. GHQ were understandably focused on winning battles and campaigns and potentially did not have the time to engage in the detail of new doctrine to a sufficient level. Hence, new doctrine was left to GOCs of divisions and those that did initiate new doctrine did so without an overarching coherence from a higher HQ.

23 Tim Travers, "The Evolution of British Strategy and Tactics on the Western Front in 1918: GHQ, Manpower and Technology," *Journal of Military History* 54, no.2 (1990): 173-200.

24 LHCMA, Robertson Papers 1/22/24, *Field Marshal Earl Haig letter to Field Marshal Sir William Robertson, 18 February 1916.*

The situation is now better than it has ever been before and all that is needed is the use of common sense, careful methods, and not to be too hidebound by the books we used to study before the war.<sup>25</sup>

Thus, it is clear that there was informal institutional disagreement over what was required for change. Unfortunately, improving the process of learning was not addressed until early 1917 with the appointment of Brigadier-General Arthur Solly-Flood as the Director of Training in General Headquarters, before which it seems that better learning was not recognised as a solution to the sacrifice on the battlefield.

To understand the process of learning, this chapter draws on academic and business theories that explain the relationships between experience and outcomes. However, fitting military experience into a model is difficult as the theoretical is far removed from the physical and lethal nature of warfare that may, itself, prevent the undertaking of the rational actions seen in theoretical experiments. Implementing training change in the First World War required a degree of phronesis, as well as a new structure, new instructors, and acceptance across the BEF.

What this thesis does not consider in detail is the role of military culture on learning and performance. Culture is essential to learning as it provides a footing for adaptation; however, with such a complex topic, the impact of culture within this thesis can only be cursory. Theo Farrell in "Improving in War", and Sergio Catignani in "Getting COIN", both outline the role of culture, how it imparts benefit, and what contributes to its strength and depth.<sup>26</sup> Robert Foley also touches on the impact of culture in his case study on horizontal innovation in the German Army, where the stark differences between BEF and German culture are laid bare and expose how far behind the BEF were for the first three years of the War.<sup>27</sup>

---

25 LHCMA, Robertson Papers 8/4, *Field Marshal Sir William Robertson letter to General Sir Henry Rawlinson, 26 July 1916.*

26 Farrell, "Improving in War," 567-594; Sergio Catignani, "Getting COIN at the Tactical Level in Afghanistan: Reassessing Counter-Insurgency Adaptation in the British Army," *Journal of Strategic Studies* 35, no.4 (2012): 513-539.

27 Foley, "A Case Study in Horizontal Military Innovation," 799-827.

Albert Palazzo suggests that an army's culture is expressed as an ethos and reflects the culture, social structure, and intellectual values. This certainly appears the case for the British Army before the First World War as it seems to have had a 'unifying philosophy' which could be conflated as its ethos.<sup>28</sup> To change the British Army's culture was to impinge upon its moral component of fighting power. The BEF culture did seemingly change because the officer corps changed and, indirectly due to the vast expansion of the BEF, it potentially watered down its underlying class bias.<sup>29</sup>

A military culture influences the type and style of bureaucracy required to process information, make decisions and act. Max Weber's work of the early 20<sup>th</sup> century is considered critical to understanding the benefits of a bureaucratic approach to organisations. His theory of bureaucratic benefit is discussed later in this chapter since it links culture to identity.<sup>30</sup>

Chester Barnard led a Behaviourist school of thought that took a different view to Weber's and viewed the balance of individual organisations differently from the Weberian view of an organisation such as the BEF. Behaviourists focused on how organisations operate in the real world and not under specific conditions. Hence Barnard's views align more easily with the BEF, the impact of enemy action, and the friction of war.

Considering culture, ethos, and the propensity to learn, it is worth reflecting on the words of General Sir John Hackett in his comments about the BEF that deployed in August 1914,

Its officer corps was still the preserve of young men of good social standing who had the outlook of amateurs, which is what they mostly were. They were ill-paid, with 'half a day's pay for half a day's work,' and so had to be of independent means. This means they were hard to teach, and many were

---

28 Albert Palazzo, *Seeking Victory on the Western Front: The British Army and Chemical Warfare in World War I* (USA: University of Nebraska Press, 2000), 9.

29 Sir John French quoted in Elizabeth Greenhalgh, *Victory through Coalition, Britain and France during the First World War* (Cambridge: Cambridge University Press, 2009), 7-8.

30 Max Weber was a German political economist known for his thesis examining bureaucracy. Weber's influence on sociological theory was driven by his demand for objectivity in scholarship and from his analysis of the motives behind human action. His work on the benefits and pitfalls of bureaucracy is particularly apt for any military entity engaged in information management or decision making.

un-teachable. They were not well trained and were expected to be neither industrious nor particularly intelligent.<sup>31</sup>

Without prior experience, these new officers had little context in which to distinguish good ideas from bad ones. Surrounded by the realities of warfare in 1914, new officers were desperate to make an impression as worthy leaders.<sup>32</sup> Thus new officers, who should have been responsible for learning, were themselves vulnerable to liking new concepts for their novelty rather than their utility in the race to improve.<sup>33</sup>

Regardless of where and how new ideas arose, analysis since the mid-1980s agrees that the BEF was a learning organisation.<sup>34</sup> This learning ability was described by Gary Sheffield et al as a 'learning curve' while working at the Royal Military Academy Sandhurst in the 1980s. And although Sheffield has commented in later work that the learning style of the British Army during the First World War is 'more accurately described as a process of learning', the difference between the two descriptions remains subjective.<sup>35</sup>

## **Doctrine**

This section considers the various terms and phrases that occur within the learning lexicon. It is important to define them as they are often misused or confused, especially within a military context. The lexicon covers learning theory and business mantra as well as straying into the almost impenetrable military idiolect. The most important definition of this thesis is that of doctrine as it is so central to the overarching premise.

It is difficult to place contemporary definitions on events that took place a hundred years ago, but to ease understanding a degree of contemporary nuance must be applied. The North Atlantic Treaty Organisation's

---

31 John Hackett, *The Profession of Arms* (London: Sidwick and Jackson, 1983), 158.

32 TNA, PRO, WO 95/26, *GHQ AG War Diary*, November 1914.

33 TNA, PRO, WO 95/3086, *5th Battalion Duke of Wellington's Regiment War Diary, After Action Review*, 24 August-2 September 1914.

34 Robbins, *British Generalship on the Western Front*, 132.

35 Gary Sheffield, "Military Revisionism: The Case of the British Army on the Western Front," in *A Part of History: Aspects of the British Experience of the First World War*, ed. Michael Howard (London: Publishing House, 2008), 1.

definition of doctrine is 'Fundamental principles by which the military forces guide their actions in support of objectives. It is authoritative but requires judgement in application.'<sup>36</sup>

A more compelling understanding was described by Gary Sheffield who, whilst working at the Joint Services Command and Staff College, championed the quote by JFC Fuller that proposes doctrine is the 'central idea of an army'.<sup>37</sup> It suggests that until the BEF had a central idea, transformation would be slow.<sup>38</sup> What doctrine is not, is 'what is taught'; this thesis suggests this denigrates the significance of doctrine as it suggests it can be changed almost at the will of the instructor, or even the student.

Sheffield has written since that doctrine should establish a framework of understanding and action which should inform the decision-making process. Hence, doctrine at the higher levels should permeate the language and thinking of those in high command, and their subordinates should be able to gauge their thoughts and, indeed, anticipate them because of a common background and training.<sup>39</sup> This view is perfectly aligned with this thesis as it articulates that doctrine can be at the heart of transformation and is so much more than 'what is taught'.

The British Army today uses the NATO doctrine definitions above, suggesting it is authoritative but requires judgement in application as doctrine acts as a formal expression of military knowledge. It must remain agile, not rigid, as it takes previous experience and develops ideas and concepts for dealing with the challenges of future warfare, and provides a foundation from which commanders and leaders can wage war with confidence. This contemporary view is also aligned with the approach of this thesis and is seen as complementary to how the BEF viewed their emerging doctrine in 1918.

---

<sup>36</sup> NATO, Allied Publication No. 6, *NATO Glossary of Terms and Definitions* (Brussels, November 2019).

<sup>37</sup> Gary Sheffield, *Doctrine and Command in the British Army, A Historical Overview* (London: Army Doctrine Publication, Land Operations, DGD&D, British Army, 2005), 165, and see JFC Fuller, *The Foundations of the Science of War* (London: Hutchinson, 1926), 254.

<sup>38</sup> Whether or not the BEF or its allies ever developed a central and overarching aim is a matter for another thesis, but initial investigations suggest that, if it did, it was in the hands of General Ferdinand Foch and his implementation of fighting on a far grander scale than ever before in the Hundred Days campaign of autumn 1918.

<sup>39</sup> Sheffield, *Doctrine and Command in the British Army*, E-3.

Harald Høiback takes a less positive stance on the BEF's view of doctrine, explaining its antipathy was due to the belief that a specific doctrinal approach would 'prepare the Army to face the wrong Army at the wrong time and in the wrong place'.<sup>40</sup> It seems that, for military commentators in the late nineteenth and early twentieth centuries, there was a fear that doctrine could become dogma, highlighted in the comments by Brigadier-General Thompson Capper when he suggested that 'doctrines soon produce doctrinaires, and doctrinaires soon produce dogma'.<sup>41</sup>

Supporting Capper, JFC Fuller, at the time believed that 'dogma would be seized upon by mental emasculates who lack virility of judgement, and who are extremely grateful to rest assured that their actions, however inept, find justification in a book'.<sup>42</sup> For any army, it seems that doctrine could be the route to success or failure.<sup>43</sup> And yet, the BEF did initiate a doctrinal revolution in late 1917, even with the ethos of an army distrusting of doctrine.

Høiback goes on to define doctrine as the 'institutionalised beliefs about what works in war', opining that they act as 'an authoritative theory of war that allows for cultural idiosyncrasies'.<sup>44</sup> In doing so, he highlights the friction that the BEF faced in the early part of the War where there was no driving force behind change and it seemed that to maintain a status quo was acceptable, until forced into change by the events of the Somme.<sup>45</sup>

Unlike doctrine, ethos is simple to define and, according to Anthony King, is 'one of the most tangible aspects of human reality'.<sup>46</sup> Ethos can be defined as 'the unique spirit of a people, community, culture or era, or the

---

40 Harald Høiback, "What is Doctrine?" *Journal of Strategic Studies* 34, no.6 (2011), 890.

41 LHCMA, General Sir JSM Shea Papers 2/5, Draft of Brigadier-General Thompson Capper, 'The doctrine of a "Doctrine" (1912).

42 Fuller, *The Foundations of the Science of War*, 254.

43 Hew Strachan, "Introduction," in *Big Wars and Small Wars: The British Army and the Lessons of War in the 20th Century*, ed. Hew Strachan (Abingdon, Routledge, 2006), 4.

44 Høiback, "What is Doctrine?" 897.

45 Philpott, *Bloody Victory*, 62, 112-114.

46 Anthony King, "The Ethos of the Royal Marines: The Precise Application of Will," Report Commissioned by the Royal Marines, 2 May 2004, accessed 12 April, 2019. <https://ore.exeter.ac.uk/repository/bitstream/handle/10036/58653/RMethos4.pdf?sequence=1>.



popular character of an institution or system'.<sup>47</sup> This acts as a useful description of the approach the BEF would ultimately take in August 1914, relying upon culture and ethos rather than any specific doctrine beyond *FSR*.

Aimee Fox suggests that defining doctrine is simply a nomenclature issue as there is little consensus on what it means.<sup>48</sup> Dominick Graham and Shelford Bidwell support her when they define doctrine as,

The definition of the aim of military operations; the study of weapons and other resources and the lessons of history, leading to the deduction of the correct strategic and tactical principles on which to base both training and the conduct of war.<sup>49</sup>

Finally, this thesis will show that even though the BEF did produce useful and timely doctrine, no matter what its definition, 'the path to doctrinal inculcation is difficult and fraught with institutional obstacles'.<sup>50</sup> There is a case to be made that this thesis and wider academia confuses ethos with doctrine, especially when it is effectively semiformal, which is then compounded by the vague distinction between doctrine and tactics.

Hence, this work will propose that the BEF had a weak, semi-formal doctrine upon arriving in France, based on *FSR I and II*. But in many ways it did without an overarching formal doctrine and instead it made do with a strong ethos and culture which was based on its intellectual values.<sup>51</sup>

---

<sup>47</sup> *Oxford English Dictionary*.

<sup>48</sup> Høiback, "What is Doctrine?" 880.

<sup>49</sup> Bidwell and Graham, *Firepower*, 2.

<sup>50</sup> Albert Palazzo, *From Moltke to Bin Laden: The Relevance of Doctrine in the Contemporary Military Environment* (Canberra, ACT: Land Warfare Studies Centre, 2008), 29.

<sup>51</sup> Palazzo, *Seeking Victory on the Western Front*, 9.

## Tactics

Sitting below doctrine, and bridging the gap to military actions, are tactics. These are defined in contemporary NATO doctrine as ‘the art of organising an army, the techniques for using weapons or military units in combination for engaging and defeating an enemy in battle’.<sup>52</sup> While this thesis is not focused on tactics, it acknowledges that the line between doctrine and tactics is often blurred, especially when dealing with massive armies fighting in small areas. However, changing tactics are the artefacts of new doctrine and synonymous with transformation. They are also easily changed, often part of the culture of an organisation, and not intellectually engaged with in the same way as the overarching doctrinal approach. However, tactics are part of doctrine, as is the structure of an army, its equipment schedule, and its training. Doctrine should be seen as the higher level, with tactics as one of its important subsidiaries.

The BEF aimed to fight in a way that the German Army could not withstand, using its doctrine to shape its tactics into an approach that would overmatch the German Army. In 1918, this doctrinal aim was to fight by combining all the Arms and Services of an Army with as many mechanised systems or machines as possible, an approach to warfare that sought to integrate to achieve mutually complementary effects. In combined arms warfare, the benefit of integrated planning and coordination is of significant benefit to tactical outcomes as it allows all parts of an army to support each other in a symbiotic manner.<sup>53</sup>

To achieve a doctrinal change that supports new tactical approaches, an army needs to convey the information to its officers, soldiers, units, and formations. It needs to impart information to both individuals and groups of men. Similarly to the confusion over the doctrinal lexicon, there are different interpretations of the language surrounding imparting knowledge.

---

<sup>52</sup> NATO *Glossary of Terms and Definitions*.

<sup>53</sup> United States Army, *ADRP Land Ops, 3-0: Unified Land Operations* (Department of the Army, 2012), 1–14.

## Training, learning, education

The contemporary British Army currently defines training as ‘the essential vehicle by which all three components of fighting power are developed. Force preparation relies on a structured training progression, tailored to the operating context, tempo and the resources available’. It goes on to state that soldiers are trained in a specific role, individually and as part of a team, so that the team is trained to be a coherent part of a sub-unit. The sub-unit is then trained to operate within a grouping of all elements that the operation will require, known as all arms grouping or battle-grouping.<sup>54</sup>

The way today’s British Army defines training illustrates its close relationship with learning. *Army Land Operations* suggests that ‘education contributes, in parallel with training, to the development of fighting Power as a whole’. It suggests that training without the necessary supporting education will not be sophisticated enough to deal with the complexity of conflict and operations.<sup>55</sup>

This is taken to mean that being well educated in military matters allows individuals and units to understand and plan against far greater uncertainty, and therefore become more employable for more tactical situations. *Land Operations* goes on to state that ‘the adaptability of land forces depends on continuous investment in, encouragement of, and reward for, appropriate education. Most importantly, education gives people the intellectual edge and confidence to improvise, innovate, and find solutions to problems which do not fit the contingency expected’.<sup>56</sup>

A more theoretical approach to understanding learning describes organisational learning as the act of acquiring new, or modifying and reinforcing existing, knowledge, behaviours, skills, values, or preferences, which may involve synthesising different types of information.<sup>57</sup> This sits alongside the military view of

---

<sup>54</sup> ADP, *Land Ops*, 19.

<sup>55</sup> ADP, *Land Ops*, 20.

<sup>56</sup> Ibid.

<sup>57</sup> David W De Long and Liam Fahey, “Diagnosing Cultural Barriers to Knowledge Management,” *Journal of Academy of Management Perspectives* 14, no.4 (2000): 113-127.

learning neatly, and balances the view of Marlene Fiol and Marjorie Lyles, who propose that organisational learning is 'the process of improving actions through better knowledge and understanding'.<sup>58</sup>

This thesis will consider learning as 'the acquisition of knowledge or skills through experience, practice, study, or by being taught'.<sup>59</sup> The distinction between learning and training is simple: training is how groups are educated and taught in formal settings, whilst learning is how individuals absorb novel ideas and concepts.

Outside of the military, education is considered a form of learning in which the knowledge, skills and habits of a group of people are transferred from one generation to the next through teaching, training, research, or directly through auto-didacticism.<sup>60</sup> This can occur through any experience that has a formative effect on the way one thinks, feels, or acts.<sup>61</sup> However, this thesis will not engage with education in itself but rather consider all aspects of the BEF's development as either training or learning, on the basis that the latter is considered a subset of the former and does not add extra value to the analysis. However, regardless of how soldiers gain new information, many ideas are born out of new experiences on the battlefield; often referred to as 'lessons learnt'.

## **Lessons learnt**

The United States Army Center (*sic*) Lessons Learned, states that the lessons learnt are,

validated knowledge and experience derived from observations and the historical study of military training, exercise, and combat operations that lead to a change in behaviour at either the tactical, operational, or strategic level or in one or more of the Army's DOTMLPF.<sup>62</sup>

---

<sup>58</sup> Marlene Fiol and Marjorie Lyles, "Organizational Learning," *Academy of Management Perspectives* 10, no.4 (1985): 803.

<sup>59</sup> *Ibid.*, 803-807.

<sup>60</sup> David Boud, *Developing Student Autonomy in Learning*, 2nd edition (Abingdon: Taylor and Francis, 1988), 4.

<sup>61</sup> *Ibid.*, 8.

<sup>62</sup> Doctrine, organisation, training, materiel, leadership and education, personnel, and facilities domains.

This definition highlights the utility of experience and of historical narrative in ensuring that ideas become accepted lessons. However, Foley et al. suggest that in the 'lessons learnt' processes in the contemporary American military, and British Army, they stay very local and would not lead to improved operational performance without structural changes initiated by senior leaders.<sup>63</sup> There is an important distinction here about lessons learnt and how they are achieved. These definitions suggest that lessons rely upon a balance of history, credibility, relevance and the degree to which they may improve performance. But an investigation of the BEF in the First World War may suggest that identifying a lesson was only the beginning of its route to formal doctrine. Not least because the route may have been either formal or informal, depending on the observer, which seemingly had a significant impact on the lessons' veracity and ability to become part of the doctrine of the BEF.

With these definitions in mind, it suggests there are two ways in which a lesson is learnt. Either in an obvious and recognisable way or a way that is hidden and requires deep explanation. In a vast, organised body such as an army, these different learning forms can be distilled into explicit and tacit knowledge processes.

### **Explicit and tacit knowledge**

An example of explicit knowledge would be of antenna selection for high-frequency radios in low cloud conditions, as described by III Corps.<sup>64</sup> In these circumstances, the operator's manual explains why specific wavelengths of radiofrequency require differing antenna forms, suggesting what is appropriate for each atmospheric circumstance. The information is based on physics and experimentation and is easy to understand and apply, but its physical derivation requires detailed and specific electromagnetic spectrum understanding.<sup>65</sup> Hence, explicit knowledge is often encountered on a formal basis.

---

<sup>63</sup> Foley, Griffin and McCartney, "Transformation in Contact," 269-270.

<sup>64</sup> As explained in GHQ, *SS 100, Notes on Wireless* (HMSO: January 1916) and GHQ, *SS 563, Manual of Position Warfare for All Arms Part 6 Communication between Infantry and Aeroplanes or Captive Balloons* (HMSO: May 1917).

<sup>65</sup> TNA, PRO, WO 95/692, *III Corps BGRA diary, 29 June 1917*.

Conversely, tacit knowledge is seldom recorded formally, is more likely to be thought of as 'what we do because it works' and is seen as informal. This includes the unrecorded, personal knowledge of individuals; what soldiers would consider useful without ever being taught. As an example, not handling a hot gun barrel without gloves is tacit knowledge; it is easy to understand, easy to explain, and easy to adopt. The difference between what is tacit and what is explicit is important as it links how lessons are passed on, and in which direction.<sup>66</sup>

Where lessons or insights are first detected can reflect whether they are considered as either informal or formal. Informal learning happens with repetition of circumstances, a degree of practice and familiarity. It is implicit and often opportunist, hence it can be highly individual.<sup>67</sup> Conversely, formal learning is 'institutionally sponsored' and conformist in approach and requires a structure and culture to support it.<sup>68</sup> However, to understand the change in the BEF, either formal, informal, tacit or explicit, a model is required to explain the overall change. In this thesis, the fighting power model or conceptual, moral and physical component is used.<sup>69</sup>

## **Fighting power**

This thesis proposes that BEF transformation occurred as all three components of fighting power changed. As outlined in chapter 1, fighting power is a concept that describes the operational effectiveness of an armed force. Common across contemporary military forces and NATO, the concept guides forced development and planning.<sup>70</sup> Currently, the British Army's ADP *Land Operations* defines fighting power thus,

The conceptual component represents the force's knowledge, and application of doctrine, which articulates how to operate and fight, kept appropriate by its ability to learn and adapt. The moral

---

66 Theo Farrell, "The Dynamics of British Military Transformation," *International Affairs (Royal Institute of International Affairs, 1944)* 84, no.4 (July 2008): 777-807.

67 Michael Eraut, "Informal Learning in the Workplace," *Studies in Continuing Education* 26(2) (2004): 247-273.

68 David McGuire and Claire Gubbins, "The Slow Death of Formal Learning: A Polemic," *Human Resource Development Review* 9, no.3 (June, 2010): 250.

69 Fighting Power as described in ADP, *Land Ops*, ch 2.

70 ADP, *Land Ops*, 3-1.

component is the force's morale leadership and ethical focus, which is used to get soldiers to fight and to do so appropriately. The physical component is manpower, equipment, sustainability, and resources that facilitate the means to fight. Finally, training, the engine of change, sits within the physical component, even though it integrates all three components.<sup>71</sup>

In more detail, the conceptual component requires the development and application of new doctrine which acts as the intellectual basis of fighting power, as it guides the physical and moral components. A lack of conceptual thought can severely damage overall fighting power, regardless of the applicability of the will and means to fight.<sup>72</sup>

The moral component affects the human aspects of fighting power. It consists of three mutually dependent elements, namely morale, leadership, and ethics. The moral component is easily corrupted; to be sound its three elements must be in balance as a force can have high morale and be willing to fight, but if its actions are not legitimate, it risks failure.<sup>73</sup>

Lastly, the physical component provides the means to fight, comprising the manpower, equipment, training, sustainability, and resource, known overall as the combat power of the force. Manpower and equipment are prepared to fight through credible training, which is an essential part of the development of fighting power as a whole, building the moral and conceptual components as much as the physical.<sup>74</sup>

Hence, this contemporary model represents all the components of an army and acts as a useful model to consider the degree of change. To reiterate, this thesis argues the BEF did transform on the Western Front, and that the contribution of a new doctrine, from within the process of learning, facilitated the conceptual component of fighting power to support changes in the moral and physical components. The conceptual

---

71 Ibid., 3-4.

72 ADP, *Land Ops*, 3-1.

73 Ibid., 3-9.

74 Ibid., 3-14.

change was seemingly significant, but its role was facilitation for the wider change in the equipment, training, and ethos of the BEF, which ultimately drove its overall transformation.

## **Transformation**

Stuart Griffin, Robert Foley and Helen McCartney suggest that transformation is just military innovation by another name, that they are synonymous, and that the specific difference is that, unlike transformation, innovation has a fixed end state.<sup>75</sup> The differences are taken a step further by Theo Farrell, who suggests that adaptation is a more systematic change process, which can be fixed to quantifiable moves to ‘change tactics, techniques, or existing technologies to improve operational performance’.<sup>76</sup> But, these differing approaches to the lexigraphy show how much confusion surrounds the theory of learning and that it is easy to misunderstand the roles of innovation and adaptation within any overall learning system. This thesis argues that in the First World War an innovative approach was deliberate, had increased risk, and was thirsty for resources.

Innovative learning and change are dependent upon the military situation and are different for an army at war, and an army at peace. It is recognised that wartime military innovation is driven by the interaction between military people, technology, and tactical circumstances.<sup>77</sup> However, this does not account for either the hidden curriculum or, indeed, the nuanced balance between top-down and bottom-up learning.<sup>78</sup> As discussed previously, the direction in which information and lessons are passed is critical and is driven by culture and structures, as well as leadership traits. Catignani suggests that,

---

<sup>75</sup> Foley, Griffin and McCartney, “Transformation in Contact,” 253.

<sup>76</sup> Farrell, “Improving in War,” 569.

<sup>77</sup> Grissom, “The Future of Military Innovation Studies,” 905-934.

<sup>78</sup> A hidden curriculum can be a welcome side effect of an education or lessons process wherein lessons are learnt, but not openly intended to be. Often, they are in the form of accepted norms, values, and beliefs conveyed in the classroom and the social environment.



lessons identified and practices employed by tactical units are often a result of ad hoc change or are transient and informal. These mechanisms make it very difficult for adaptation to convert into innovation.<sup>79</sup>

According to Hedberg, the make-up of an army will change, its soldiers will move on, and its officers will be promoted; but an army's memory can preserve certain behaviours or practices in their Standard Operating Procedures and Tactics Techniques and Procedures.<sup>80</sup> In broader learning theory this is referred to as the 'hidden curriculum', which seems to be at the centre of BEF experiential learning, and potentially the glue that held the process of learning together and which will be discussed in chapter 5.<sup>81</sup> This thesis argues that the hidden curriculum, which was mostly informally designed and passed on, was very much part of the foundation of the process of learning up to the end of 1916. How it changed to a more formal system, that Posen, Fox and Rosen would all recognise, is very much at the heart of the change process the BEF underwent in the second half of the war.

But this view does not account for the differing motivations for adaptation, or modernisation, that happen regardless of the various formal processes that organisations adopt. This may increase the chance of positive outcomes being 'lost, reinvented, or duplicated under the fog of war'.<sup>82</sup> Therefore an army requires an inherent degree of flexibility to avoid being too rigid when risk and reward seem out of balance and opportunities for change appear.

Hence, it has been established that learning can occur amongst individuals, and that information acquired by them can be transferred to other parts of an organisation for its benefit. This can be considered as multi-level learning, which both Ikujiro Nonaka and Mary Crossan have explored in depth. They both use transfer models

---

79 Catignani, "Getting COIN," 536.

80 Bo Hedberg, "How Organisations Learn and Unlearn," in *Handbook of Organizational Design*, ed. Paul Nystrom and William Starbuck (Oxford: Oxford University Press, 1981), 6.

81 A hidden curriculum can be a welcome side effect of an education or lessons process wherein lessons are learnt, but not openly intended to be. Often, they are in the form of accepted norms, values, and beliefs conveyed in the classroom and the social environment.

82 Nina A Kollars, "War's Horizon: Soldier-led adaptation in Iraq and Vietnam," *Journal of Strategic Studies*, 38 no. 4 (January, 2015): 20-21.

to illustrate how learning flows from the individual to the group, and on to the organisational level.<sup>83</sup> Their literature shows the ability to adapt to new learning, while leveraging existing learning, is a fundamental challenge to any military organisation.<sup>84</sup> Neither Nonaka nor Crossan discusses how this is achieved but what is clear is that their model sits neatly within the military's approach.

This is further amplified within the Clausewitzian military learning dogma that,

If in warfare, a certain means turns out to be highly effective, it will be used again; others will copy it and it will become fashionable; and so, backed by experience, it passes into general use and is included in theory.<sup>85</sup>

Clausewitz felt that, despite the complexity, military organisations were capable of change when it was to their benefit. Furthermore, he believed that this change was realised through the process of knowledge transfer from an individual, to a group, and, finally, on to the organisational level, which was a reference to bottom-up learning. The direction of learning, bottom-up or top-down, seems to be a critical indicator of the type of military culture surrounding innovative change.

The military's struggle with learning is brought to life in Paddy Griffith's *Battle Tactics on the Western Front*, and Peter Simkins' *From The Somme to Victory*, both of which view late-1916 and the Somme campaign as the tipping point for the BEF.<sup>86</sup> Griffith suggests that it was the Somme that 'transformed the BEF from a largely inexperienced mass army into a largely experienced one'.<sup>87</sup> He suggests that a combination of renewed motivation and valuable lessons learnt on the Somme, translated into a new rush to learn and do better. He explains that the new lessons learnt, which were both tacit and explicit, were advantageous to all

---

83 Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge Creating-Company* (Oxford: Oxford University Press, 1995), 56-90; Andrew C Inkpen and Mary Crossan, "Believing is Seeing: Joint Ventures and Organizational Learning," *Journal of Management Studies* 32, no.5 (1995), 595-618; Mary Crossan, Henry Lane and Roderick White, "An Organizational Learning Framework: From Intuition to Institution," *Academic Management Review* 24, no.3 (1999), 522-37.

84 Ibid.

85 Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (London: Oxford World Classics, 2007), 24.

86 Paddy Griffith, *Battle Tactics, From the Somme to Victory: The British Army's Experience on the Western Front, 1916-1918* (Barnsley: Pen and Sword, 2014). 60-68.

87 Ibid., 65.

and had to be implemented. This provided new momentum for a formal learning system, and probably precipitated the setting up of the Training Directorate in January 1917, as explained in chapter 5.<sup>88</sup>

### **Broader change**

BEF success was initially hampered by the poor level of training; until the processes of learning developed recruits would arrive with their new units underprepared.<sup>89</sup> However, there may have been an advantage in this minimal UK training. Peter Simkins suggests that because recruits arrived with such little understanding of the war and how to conduct themselves, they had to be trained quickly and appropriately once in France and Belgium, which gave them an advantage of learning only the pertinent lessons.<sup>90</sup> This gave the local trainers not only a motivated set of students but also the chance to pass on the most useful lessons.

Continuation training was delivered in France and Belgium and it was this teaching that became the foundation for success later in the war. Officer training relied upon the expansion of the Officer Training Corps within established universities, the Officer Cadet Battalions, and the Schools of Instruction that preceded them.<sup>91</sup> These various officer schools delivered an acceptable starting point for junior officers but did not satisfy the need for the middle-level commanders, such as majors and Lieutenant-Colonels, who were cycled through various staff colleges as quickly as possible, either back in the UK or Army schools in France and Belgium, as discussed in chapter 6.

It is hard for units not to draw lessons from successes, even when they are predominantly due to factors beyond their control. Gunhild Hoogensen Gjørsv reinforces this point in his study of the last Afghanistan campaign when he suggests that what is seen to win initially, is taken as the best answer, and, as such may

---

<sup>88</sup> Ibid., 65-69.

<sup>89</sup> TNA, PRO, WO 95/4757, *GHQ War Diary, Summer Training, 17 June 1917*.

<sup>90</sup> Simkins, *Kitchener's Army*, 296.

<sup>91</sup> Edward Spiers, "University Officers' Training Corps and the First World War," *Council of Military Education Committees of the UK*, Occasional Paper. No 4 (2014), 1-28.

squeeze out other methods that would have been better.<sup>92</sup> These may then be ignored based on the belief that soldiers should not change what is working for them, a behaviour which is summarised by the phrase 'If it is not broken, do not try and mend it.'<sup>93</sup> Chapters 4 and 6 will look more deeply at this belief and will show that while this was the initial stance of the BEF within an informal learning system, as it developed into a mature and formal system it had mechanisms for weeding out what initially looked good in preference to what would become harder to achieve but ultimately be more successful.

Even so, while experience is immediate, lessons are not necessarily captured immediately. The time between experience and capture is a key criterion in the quality and acceptance of the experience and potential lesson.<sup>94</sup> Lessons can be immediate and can be lost immediately or gathered for the greater good. How and why some lessons stick, and others drift away, is complex. Further explanations are discussed later and focus upon the means of capture, validation, and their route to a senior decision-maker for adoption.<sup>95</sup>

Another significant aspect of learning is motivation. Some new lessons were solely based on personal survival, while others were based upon increasing overall unit effectiveness.<sup>96</sup> However, not all new lessons brought a similar benefit. The primary motivation of not becoming a casualty was undoubtedly strong, but this was also an individual motivation that relates to the front line and the lowest ranks in the battle. As the individual is moved further from the front line, the motivation for change varied.<sup>97</sup>

The overall process of learning should be considered as one functioning entity. To harness its utility Jonathan Boff has suggested that initial military training in the UK was combined with the experience of battle and the

---

92 Gunhild Hoogensen Gjrv, "Learning Painful Lessons from Afghanistan," *Small Wars Journal*, accessed 24 April 2019, <https://smallwarsjournal.com/blog/learning-painful-lessons-afghanistan>.

93 Ibid.

94 Catignani, "Coping with Knowledge," 30-64. Catignani, "Getting COIN," 514.

95 Strachan, *Big Wars and Small Wars*, 4.

96 Personal survival was typified using simple ballistic protection in the form of bullet-catching plates worn under the jacket, and rudimentary tin hats before their formal introduction in late 1915.

97 Hew Strachan, "Training, Morale and Modern War," *Journal of Contemporary History* 41, no.2 (April 2006), 211-227; 212.

motivation to learn which, in turn, generated lessons that were then recorded, if the witnesses survived.<sup>98</sup> This simple process generated a change in behaviour and novel military doctrine. It looked and felt like a ‘tacit’ knowledge exchange; primarily driven by the soldiers and officers at the front line, in the thick of battle, and from the bottom-up. The lessons were reactive, timely, and driven by tactical necessity rather than by a singular doctrinal requirement. The individual soldiers and low-level commanders tried everything in their power to maintain a local advantage through the swift adaptation of new skills.

Eventually, lessons and experience become formal and become doctrine if they are to spread within a fighting force. Once adapted, distributed and taught they are validated in battle and either seen to succeed or fail, so moving into the second stage of the process of learning.<sup>99</sup> The newly created doctrine was not only distributed but, more importantly, was then taught in the military schools in the UK, France, and Belgium. It was a formal process and officially sanctioned as explicit learnings. It was in stark contrast to the looser and informal tacit knowledge that dominated in the first half of the First World War but started to decline as the more formal route expanded from 1917 onwards.

While the process of learning was multifarious, it followed a simple and tangible process whereby tacit and explicit knowledge were combined to deliver new knowledge that benefited the BEF. As ideas were created, top-down and bottom-up, they were assessed by either the BEF hierarchy, explicitly, or the low-level soldiers who used the concepts to stay alive, tacitly. Hence, through a process of natural selection of what was seen to work, the better ideas prospered while the lesser ideas withered. Tacit and explicit lessons interacted on the Western Front. The codification of these ideas, and how they became part of the central doctrine, and then learning of the BEF, has remained a relatively hidden feature of BEF transformation, one which this thesis will dissect in chapter 4.

The veracity of the process of learning did not depend upon the specific direction or means by which lessons

---

<sup>98</sup> Jonathan Boff, *Mastering the Industrial Battlefield: Military Transformation on the Western Front, 1914-18*, ed. William Philpott (Ashgate; Publishing House, 2018), 16-21.

<sup>99</sup> ADP, *Land Ops*.

arrived at higher headquarters. The difference between knowledge transfer, either top-down, bottom-up or horizontal does not seem to convey an advantage to the ideas but rather is suited to the type of lesson and its means of capture.<sup>100</sup>

Robert Foley suggests that proximal coherence is essential if neighbouring units are to interlock and perform well.<sup>101</sup> Spreading good ideas to neighbours was not just necessary for self-preservation, but was also the easiest, quickest and simplest way to adapt.

Drivers behind the process of learning include the organisational infrastructure and the presence of a culture of learning, as well as the relationship between the formal and informal process of learning.<sup>102</sup> These drive the relationship as they set processes within the bureaucracy that either support or stop the transmission of lessons. Structural changes in 1917 facilitated a positive change in the BEF and its propensity for a process of learning as the bureaucracies were broken down and then formally re-established with a specific purpose; consequently, the speed of transmission of lessons increased.

Although informal learning networks are necessary for sharing knowledge at an individual and unit level, an official learning system is necessary to ensure knowledge is captured and shared more widely. This formal knowledge can then be used to build more complex knowledge through 'on the job' experience and subsequent learning. However, it is then essential for individuals to disseminate this new learning through networking and other informal channels.<sup>103</sup>

---

100 Foley, "A Case Study in Horizontal Military Innovation," 1-29.

101 Foley, "Dumb Donkeys or Cunning Foxes," 291-295.

102 Matthew Ford, "Learning the Right Lessons: Military Transformation in Crisis and the Future of Britain's Armed Forces," in *A Military Transformed? Adaptation and Innovation in the British Military, 1792-194*, ed. M LoCicero, R Mahoney, and S Mitchell (Solihull: Helion, 2014), 258.

103 Paddy O'Toole and Steven Talbot, "Fighting for Knowledge," *The Journal of Armed Forces and Society* (December 2010): 61-62.

## Learning factors

The application of a learning theory lens helps support the academic underpinning of this investigation by showing that the propensity of the BEF to learn reflected many factors outside their control and was a factor of their broad cultural approach. Two broadly dissimilar approaches are considered below that allow an insight into the unconscious processes that BEF commanders may have taken while seeking doctrinal improvement. By understanding the implications of various models, the thesis can substantiate why some lessons were learnt and why others never arrived in the final doctrine.

In his seminal book *Economy and Society*, Max Weber described all the necessary conditions and features of bureaucracy whereby an organisation is characterised by the presence of impersonal positions that are earned and not inherited. They have rule-governed decision-making, professionalism, chain of command, defined responsibility, and bounded authority. As such, successful bureaucracies need systems and forms to function, benefiting from processes that are familiar and reliable. They produce expected results and are inherently stable.<sup>104</sup> The BEF was a typical bureaucracy, complicit with an approach that theoretically inhibited change, via innovation or any other means, as its very structure valued stability and a set of norms that its commanders expected. The only way to break away from Weber's ideal of bureaucracy was to build a new structure, with new staff and ask them to do new things.

As this thesis will show, this was eventually achieved in 1917 with the formation of the Training Directorate but, under the Weberian view, it should be no surprise that new doctrine was slow to form in the first three years of the war when its bureaucracy was imposed to inhibit it.<sup>105</sup> Hence, it is not rigidity or the bureaucratic processes that undermine efforts to change, but rather the military's cultural struggle with 'the knowledge generated by its practitioners,' and therefore it struggles to formally adopt the knowledge, regardless of its

---

<sup>104</sup> Max Weber, *Bureaucracy. In Economy and Society, and outline of interpretive sociology* (Berkeley: University of California Press, 1968), 339-355.

<sup>105</sup> Ibid.

tacit or explicit nature.<sup>106</sup>

### **The broader process of learning**

When considering the process of learning and its constituent parts Daniel Kim suggests that an army can learn 'independent of any specific individual but not independent of all individuals'.<sup>107</sup> This assumes that an army learns through its independent actions, which are endorsed or enhanced because of its standards, rules, procedures, and beliefs.<sup>108</sup> It is not merely the sum of each member's learning.<sup>109</sup> Although organisations do not have consciousness, they do have memories. This rationale suggests that the BEF could quickly adopt contemporary ideas and codify them in Standard Operating Procedures, or Tactics, Techniques and Procedures. If this is the case, then they should appear in the various SS pamphlets. However, just because an idea is codified in a publication does not necessarily mean it has been learnt or employed, as will be discussed in chapters 5, 6 and 8. It will become obvious that much good doctrine was ignored for no good reason.<sup>110</sup>

Complication occurs when senior military leaders seek out innovative civilian developers to champion their ideas.<sup>111</sup> Aimee Fox expands on this theme in her thesis on learning and innovation in the First World War, stating that the mixing of military and civilian ideas and processes leads to improved take-up of new ideas in reduced timescales.<sup>112</sup> Rosen, however, believes that an externally imposed change would suffer too much pushback, and would fail unless it was aligned with military personnel who had a means of promoting the concept.<sup>113</sup> Both positions highlight that there is a myriad of external influences to learning, which this thesis looks to cohere.

---

106 Kollars, "War's Horizon," 6.

107 Daniel Kim, *The Link between Organizational and Individual Learning, The Strategic Management of Intellectual Capital* (Boston: Butterworth-Heinemann, 1998), 37-47.

108 Barbara Levitt and James March, "Organizational Learning," *Annual Review of Sociology* 14 (August 1988): 320-338.

109 Gestalt theory – the sum of all the parts is different from the individual components.

110 Fox-Godden, "Putting Knowledge in Power," 13.

111 Rosen, *Winning the Next War*, 7-8.

112 Fox-Godden, "Putting Knowledge in Power," 12.

113 *Ibid.*, 20-21.



It is only within the last few years that Aimee Fox, Robert Foley, Williamson Murray and Jim Beach have started to unpick the details of the process of learning.<sup>114</sup> Foley discusses the Army's propensity to pragmatic, soldier-driven solutions, using the development of the tank as an example.<sup>115</sup> Beach's examination of the Army's doctrine process has enhanced our understanding of how it was created, and posits that the BEF moved from an ad hoc approach to a far more systematic one, as the motivation to succeed increased and there was a realisation that something had to be done to get ahead of the enemy.<sup>116</sup>

Beach and Griffith conclude that formations throughout the BEF read and exploited the information in SS pamphlets, and used the doctrine to adapt, modernise and eventually transform.<sup>117</sup> However, suggesting that the Army's SS pamphlets were proof of doctrinal development is telling only one part of the story. Their overall benefit and legacy are discussed in chapter 5.

## **New ideas**

Why some lessons were learnt, why some disappeared, and why some may have been erroneous, affects the learning process. As does what difference it makes if a new idea was generated from the lower ranks and sent upwards or from above and sent down. Lessons are generated in all directions through shared experiences and are validated through battlefield experience. The fact that new lessons can be adopted at the bottom of the hierarchy, be sent up the chain of command and become doctrine, reinforces their importance regardless of whether they are formal or informal in origin. For example, the initial idea of finding enemy artillery units using sound ranging was initially discussed at unit level in 1916, advocated by a Master Gunner Royal Artillery, and proposed as a corps concept in October 1916.<sup>118</sup> Although it was initially turned down as the equipment was not designed for the task, and higher command felt that this was a

---

114 Williamson Murray, *Army Transformation: A View from the U.S. Army War College*. (US Army War College, 2001), 13; Foley, "Dumb Donkeys or Cunning Foxes," 292; Beach, "Issued by the General Staff," 464-491.

115 Foley, "Dumb Donkeys or Cunning Foxes," 291-296.

116 Beach, "Issued by the General Staff," 491.

117 Paddy Griffith, *Battle Tactics of the Western Front*, 183-191.

118 TNA, PRO, WO 161/113, *GS Report on Survey on the Western Front, 1914-1918*, 120; Sir Lawrence Bragg, Arthur Dowson and Henry Hemming, *Artillery survey in the First World War* (London: Field Survey Association, 1971), 38.

misappropriation of new technology, the concept was then further refined and sent back into the lessons process in January 1917.<sup>119</sup>

The concept allowed the Royal Artillery to zone its guns on to the enemy gun batteries in what were called 'registration missions'.<sup>120</sup> They used the ability to monitor noise or sound ranging to focus on where their shells were landing. They then listened for enemy gunfire, worked out the difference in range and bearing, and then sent this 'correction' to their guns. This resulted in considerable damage to enemy batteries and was a turning point in the counter-battery fight. This was all enabled by bottom-up, tacit learning, which was then spread horizontally and vertically. It was eventually codified in doctrine, top-down via the SS books such as *SS 98, Artillery in Offensive Operations*, where this drill appears on pages 17-19.<sup>121</sup>

Matthew Ford also considers this in depth in his analysis on 'learning the right lessons', and points out the key detail that learning fewer, but better, lessons well was better than learning many poor lessons badly. He believed that an organisation had a finite capacity to adapt and learn; hence there should be some form of prioritisation of lessons.<sup>122</sup>

A very useful categorisation of horizontal learning in comparison to top-down and bottom-up learning has been presented by Robert Foley. He proposes that the German Army benefited in comparison to the BEF by its use of horizontal learning, as explained in "A Case Study in Horizontal Military Innovation, The German Army, 1916-1918".<sup>123</sup> Rather than focusing solely on 'vertical' innovation, Foley suggests that the German Army innovated by spreading knowledge between their units. This horizontal system was enabled by deliberately weak central doctrine, a robust lesson learnt system, and the German Army having a positive learning culture. Foley suggests that, without a set hierarchal structure, new lessons could permeate into

---

119 GHQ, *SS 199, Co-operation of Sound Ranging Sections and Observation Groups with Artillery (Provisional)* (HMSO: November 1917) contains the tactics to achieve this.

120 TNA, PRO, WO 33/723, *Notes on Close Shooting by Guns and Howitzers, Registration of Targets and Calibration*, August 1915.

121 GHQ, *SS 98, Artillery in Offensive Operations* (HMSO: April 1916).

122 Ford, "Learning the Right Lessons," 246-260.

123 Foley, "A Case Study in Horizontal Military Innovation," 799-827.

evolving doctrine quicker than in the BEF, even though there was less bureaucracy.<sup>124</sup>

To support his hypothesis, Foley examined the German Army's change from stonewall to elastic defence after their experiences on the Somme in 1916. This change was enabled by the production of timely 'lessons learnt' reports, known as *Erfahrungsberichte*, in the German Army. These formal reports allowed new units to absorb new tactics on the battlefield and incorporate them into their training before deployment. Foley suggests that by sharing new lessons between units the German Army was able to innovate quicker than the BEF. The German Bavarian Army Corps stated,

All lessons that are important for commanding in the battle of the Somme should be given to the relevant staffs and units with enough time that they can be distributed down to the company level before their arrival in the battle zone.<sup>125</sup>

This left the German Supreme High Command to endorse new doctrine as it passed horizontally before them. It suggests a meeting of bottom-up and top-down approaches, interwoven with horizontal distribution that increased the speed of adoption.<sup>126</sup>

Foley also considered a second example of learning and innovation, that of the British tank.<sup>127</sup> He proposes that the process was a mix of good fortune, tenacity by interested parties, and a degree of patronage.<sup>128</sup> The evolution of the tank, the merging of ideas and the use of favours and friends, is an example of top-down learning that was not formal, or even structured, but instead relied upon pragmatism and drive. Foley explains how concepts arose simultaneously within the Admiralty and the Army and how, by luck, a Landship committee formed, failed, and then reformed with new impetus. The outcome is known to all, but the success and timely arrival of the tank is an established example of BEF learning. This is a glimpse of an

---

124 Foley, Griffin and McCartney, "Transformation in contact," 264-265.

125 Robert Foley, "Learning War's Lessons: The German Army and the Battle of the Somme 1916," *Journal of Military History* 75, no.2 (April, 2011), 503.

126 Foley, "Learning War's Lessons," 471-504.

127 Foley, "Dumb Donkeys or Cunning Foxes," 280-284.

128 Harris, *Men, Ideas, and Tanks*, 21-51.

innovation culture that delivered new and novel approaches and equipment to the BEF, but it was not the only way that new doctrine arrived in the front line.

Foley's final example of learning methodology involves an examination of how German Army Group Commander Prince Rupprecht, made it 'a requirement' for all divisions under his command to complete lessons learnt and feedback reports.<sup>129</sup> This approach suggests that the decision-making process was centralised and deliberate and was forced down upon field units. It is likely that this knowledge was vetted by higher commands and represents an institutionalised method of knowledge sharing. Horizontal innovation cannot be divorced from the interaction between top-down and bottom-up innovation and, instead, should be viewed as a complementary process. The formality of this German process contrasts with the BEF's informal methods, but both systems seemed to convey a benefit.

### **Was it a learning curve?**

The learning curve concept established in the mid-1980s, and developed by Gary Sheffield, took time to gain academic traction. However, by the late 1990s it was taken as the accepted means of describing BEF learning in the First World War. Yet, even with its academic credibility, it has never been graphically represented or quantified. Since then, Gary Sheffield has described the curve as somewhat 'wobbly' and more of a process of learning.<sup>130</sup> Even so, his work of the early 1990s set the agenda for military learning theory and the imagined learning curve.<sup>131</sup> More recently, Peter Simkins admitted to being at least partly responsible for applying the term 'learning curve' to the process of operational and tactical improvement in the BEF.<sup>132</sup> Although its actual origin is rather vague, that doesn't diminish its relevance. And its acceptance in recent thesis by Fox, Mitchel, Watt, and Beach shows its enduring and compelling nature.

---

129 Foley, "A Case Study in Horizontal Military Innovation," 815.

130 Sheffield, "Military Revisionism," 1.

131 Gary Sheffield, "The Somme: a Terrible Learning Curve," accessed 24 May, 2020, <http://www.historyextra.com/feature/somme-terrible-learning-curve>

132 Peter Simkins, *From the Somme to Victory: The British Experience on The Western Front 1916-1918* (Barnsley: Pen and Sword, 2014), xiv.

Christopher Duffy reflected upon BEF learning in his study exploring how the German Army viewed the BEF during the Somme campaign. He suggests that,

a curve is something smooth, whereas the progression in the First World War was more of a series of steps, some of which led downwards. It was, if anything, a learning or re-learning process.<sup>133</sup>

Its continued inclusion in doctoral works gives it veracity and it provides a neat route into the BEF learning theme, providing a broad theoretical framework. However, Jonathan Boff states that he sees it, 'as a metaphor rather than a formal hypothesis, which has been embraced by a wide range of historians whom each applies it slightly differently.'<sup>134</sup>

Shelford Bidwell and Dominick Graham further developed the concept of the 'learning curve' in their book *Firepower*.<sup>135</sup> They established that the British Army 'learned from its experience' through its adoption of new tactics and weaponry, but did not attribute the improvement in fighting power to anything other than the broadest of themes, missing the opportunity to consider the constituent part of the process of learning.<sup>136</sup>

Bill Rawling focused, in his study *Surviving Trench Warfare*, on how the adoption of an active process of innovation within the Canadian Corps allowed them to adapt their tactics and technology to the challenges of modern war.<sup>137</sup> It reflected the learning curve thesis of gradual improvement but again missed the opportunity to attribute causality or overall benefit. Griffith reinforced the learning curve concept in his book *Battle Tactics on the Western Front*, suggesting that the British Army learnt from its mistakes but did not

---

133 Christopher Duffy, *Through German Eyes: the British and The Somme 1916* (London: Phoenix, 2007), 323.

134 Boff, *Winning and Losing on the Western Front*, 289.

135 Bidwell and Graham, *Firepower*, 59.

136 Ibid., 65.

137 Bill Rawling, *Surviving Trench Warfare, Technology, and the Canadian Corps 1914-1918* (Toronto: University of Toronto Press, 1992), 215.

apply what it garnered until the final year of the war.<sup>138</sup> He went further by suggesting that the British Army's approach to learning was not slapdash or amateur, but developed to become quite erudite.<sup>139</sup>

Overall, this group of authors all described the learning curve, attributed tactical success to it, but all failed to unpick its constituent parts or examine how the curve improved learning or represented the improvement caused by any other means. Overall, no matter how the process of learning is presented, as a curve or not, any organisational learning is disjointed and, indeed, not an easily plotted graph. Dan Todman has argued that it is more accurate to,

postulate a variety of different developmental processes, which if represented graphically would be some lines whose gradients and direction was not only different but changed at different times.<sup>140</sup>

Jonathan Boff develops this view in his thesis on the British Third Army in 1918, arguing that the British Army's process of learning was not 'an abstract exercise aimed at solving a single equation'.<sup>141</sup> Robin Prior and Trevor Wilson also supported the idea of a learning cycle by acknowledging the significant improvements made by the BEF in the harnessing of all forms of firepower.<sup>142</sup> They proposed that the harnessing of the other forms of firepower and all arms and weapon systems amounted to 'hard-learned lessons and mounting expertise', particularly in 1918, but they stopped short of suggesting a curve of learning.<sup>143</sup> However, while there was no shape to the learning, they did link the lessons to both a top-down series of amendments to procedures and some bottom-up adaption of techniques that warranted further examination. This will be covered in chapter 5 on doctrine.

---

138 Griffith, *The Extent of Tactical Reform in the British Army*, 2-22.

139 In summary, the learning curve's popularity shows the BEF as a learning organisation, while the details of the shape of the curve do not matter, the move to a more 'wobbly' curve and overall process aligns well with this thesis.

140 Dan Todman, "The Grand Lamasery Revisited: General Headquarters on the Western Front, 1914-1918," in *Command and Control on the Western Front: The British Army's Experience, 1914-1918*, ed. Gary Sheffield and Dan Todman (Staplehurst: Spellmount, 2004), 64-65.

141 Boff, *Winning and Losing on the Western Front*, 128.

142 Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson 1914-1918* (Oxford: Blackwell, 1992), 77.

143 *Ibid.*, 308, 390, 393-4.

## Conclusion

This chapter has considered how individuals, as part of the BEF, adapt, learn, or change in what this thesis suggests is a process of learning. This process contains a lessons' system, a way of codifying change within new doctrine, and a process for teaching the new doctrine. As such, an academic lens is a useful way to study the multifaceted concept of learning in such a complex system as the BEF.

The lessons and process of learning started as a haphazard informal system built upon small formal foundations, such as the *FSRs*, and a broad culture and ethos that readily accepted change when motivated by the tragedy of warfare. It witnessed a difference between tacit and explicit knowledge methods that varied between the phases of the war. There is a broad conflation of formal learning with explicit means, and of informal learning and tacit means. The delineation is not precise, but there is much common ground.

Hence, the BEF can be seen to have changed from an informal and tacit learning organisation into a more formal and explicit force, able to take on new lessons quickly and coherently across the entire BEF. This change occurred after the Somme campaign, when the motivation increased sufficiently, as the hidden curriculum emerged into the forefront of military training and was itself absorbed into formal doctrine.

Lessons, once captured, can move in many directions as described by Robert Foley; they can move bottom-up, top-down and can also be transferred laterally.<sup>144</sup> He has also explained that motivation and opportunity are key to the success of new lessons being adapted. He goes on to differentiate between the more formal process of the German General Staff and their horizontal approach, and the BEF's less linear approach with far fewer formal concepts.

This thesis suggests that BEF transformation occurred when all three components of fighting power changed. Doctrinal change drove the conceptual component of fighting power, which in turn supported wider change

---

<sup>144</sup> Foley, "A Case Study in Horizontal Military Innovation," 799-827.

within the moral, the ability to get soldiers to fight appropriately, and the physical, the means to fight. The doctrinal change was no more important than the other areas, but potentially acted as a foundation for wider change and accelerated the utility of new equipment and new leaders.

The learning curve theory is persuasive and enduring but, rather than being seen as a seamless curve, it is now more often seen as a meandering line of troughs and peaks that eventually points upwards to show improvement. It is generally accepted in the academic literature as a representation of a learning process and has softened the 'curve' nomenclature into more of a wobbly line. It has been such an enduring and compelling theory that it has developed its meaning within BEF historiography, but it also hides a far greater accomplishment based around the generation of doctrine, within a process of learning, that has remained hidden, or at least not appreciated, for its potentially central role in BEF transformation.

The learning process is not linear, and unpicking the different stages in the process, and understanding how they relate to each other, is the focus of the remaining chapters of this thesis. Chapter 4 will examine lessons, chapter 5 will look at doctrine, and chapter 8 will focus on the training elements of the process. When considered as a complete process, these elements produce a process of learning which offers a new understanding of how the BEF changed throughout the war so that it was, ultimately, successful in November 1918; not just because of how it learnt, but because it had a process which supported the moral and physical components of fighting power, and delivered a transformed BEF able to defeat the German Army.



### Chapter 3 – From Boer War to First World War

The first ten years of the 20<sup>th</sup> century witnessed a coalescence of innovative technology, political will and fighting concepts which propelled the British Army into an age of warfare that was industrial in scale and would be costly in blood, treasure, and time. As discussed in chapter 1, this thesis will show that of all the factors driving the British Army's overall transformation, it was the underlying learning, doctrine, and training which constituted an overall process of learning and provided a solid foundation for victory. However, to contextualise the changes that occurred during the First World War it is essential to consider the years leading up to 1914 and the events which shaped the BEF prior to its arrival in France and Belgium in August 1914.

Between the Boer and First World War, the British Army undoubtedly underwent comprehensive organisational and doctrinal reforms that produced 'incomparably the best trained, best organised, and best equipped British Army whichever went forth to war.'<sup>1</sup> The interwar years witnessed the realisation of the latter stages of the industrial revolution, the development of world telecommunications and a societal reform that empowered workers.

The British Army changed the basis of its thinking from 'Drill to Doctrine', while designing more lethal weapons to be used in new ways.<sup>2</sup> However, the influence of the Boer War was not felt equally across the British Army. The Royal Artillery profited with new guns and new tactics, whereas the infantry and cavalry were limited to only small shifts in tactical employment, and virtually no change in equipment.<sup>3</sup>

The experience on the Veldt translated into a degree of improvement on the Western Front, having generated the momentum to reform attitudes toward training.<sup>4</sup> The Boer War provided both a proving

---

1 Colonel John Dunlop, *The Development of the British Army 1899-1914* (London: Methuen, 1938), 305.

2 Nick Evans, "From Drill to Doctrine: Forging the British Army's tactics 1897-1909" (PhD diss., Kings College London, November 2017).

3 Phillip Towle, "The Influence of the Russo-Japanese War on British Military and Naval Thought 1904-1914" (PhD diss., University of London, 1973), 1.

4 Jones, *From Boer War to World War*, 172.

ground for new combat techniques and the opportunity for the officer corps to professionalise and develop their intellectual foundation. This development complemented the way the soldiers were trained to deliver higher levels of proficiency in skills such as marksmanship while also enabling a degree of initiative to creep into units, rather than just strict obedience to orders as found in the Victorian Army.

Tactical ideas and doctrinal philosophy drawn from the Boer War remained the core principles of British training at the turn of the 20<sup>th</sup> century, with the Russo-Japanese War reinforcing concepts such as concealment and cooperation.<sup>5</sup> One of the Boer War's most important effects was to promote a greater belief in the offensive, contrary to the tactical lessons of the war which had shown that emerging technology supported the defender by creating an almost impenetrable 'no man's land' between attacker and defender.<sup>6</sup> Overall, the lessons of the Boer War, with some influence from the Russo-Japanese War, shaped the British Army in the early 1900s and modernised its approach to the First World War.<sup>7</sup>

The British Army had created its first formal doctrine in 1905, namely the *Field Service Regulations (FSR)*, primarily due to mounting pressure to codify the new practices in a written format that could be used to train and inform the expanding Army. *FSR 1905* instilled a degree of uniformity in the British Army for the first time,<sup>8</sup> and *FSR 1* provided a basis from which further detail could be built as tactical methods evolved. It contributed a solid doctrinal foundation<sup>9</sup> and the 'broad principles for action' that reflected the contemporary debates over tactics, command and principles of warfare.<sup>10</sup>

The British Army also embraced new technologies, such as enhanced telegraphy, quicker burning powder, and artillery prediction so that, when combined with a new doctrine, it facilitated new tactics.<sup>11</sup> Lastly, the

---

5 Major AWA Pollock, "The Battle Drill of Infantry," *Journal of the Royal United Services Institute* 42, no.1 (1898): 540, 554.

6 Spencer Jones, "The Influence of the Boer war (1899 – 1902) on the tactical development of the regular British Army 1902 – 1914" (PhD diss., Wolverhampton University, 2009), 32.

7 Keith Neilson, "That Dangerous and Difficult Enterprise: British Military Thinking and the Russo-Japanese War," *War and Society* 9, no.2 (1991): 31.

8 Stephen Badsey, *Doctrine and Reform in the British Cavalry 1880–1918* (Aldershot, Ashgate, 2008). 31-34.

9 Sheffield, *Doctrine and Command in the British Army*, E-9 – E15.

10 Sheffield, *The Chief*, 60.

11 Captain HR Mead, "Notes on Musketry Training of Troops," *Journal of the Royal United Services Institute* 42 (1899): 235.

Army finally professionalised the officer corps, through promotion on merit, ending purchasing of commissions, and the reinvigoration of the Staff College between 1894 and early 1908.<sup>12</sup>

Of the official reviews post-Boer War, the Elgin, Norfolk, and Esher Commissions laid the foundation for reform of the British Army in time for the First World War.<sup>13</sup> The majority of reforms attempted by the first two Secretaries of State during this period, William St. John Brodrick and Sir Hugh Oakley Arnold-Forster, were relatively ineffective. Many historians used the term 'Period of Attempted Reforms' to describe the terms of these first two Secretaries.<sup>14</sup> Both Brodrick and Arnold-Forster proposed schemes that were too expensive and impinged upon the Royal Navy's aspirations to build a new class of Dreadnoughts in 1905. However, three people seem responsible for most of the effective reforms that eventually produced the BEF: Lord Roberts as Commander-in-Chief of the British Army 1900-1904, Lord Kitchener as Commander-in-Chief of the Indian Army 1902-1909, and Lord Richard Haldane as Secretary of State for War 1905-1912.<sup>15</sup>

Lord Roberts oversaw significant revision to British tactics and doctrine and introduced training reforms as Commander-in-Chief of the British Army until the War Office abolished the post in 1904. With the publishing of *Field Regulations: Combined Training in 1902*, Roberts initiated a complete rewriting of British doctrine focused on an expeditionary force fighting in a European war. He also directed significant changes in the training of the Regular Army and the Reserves that helped prepare the British Army for a future European war.<sup>16</sup> The training was professionalised with a set curriculum, examinations, and assessments to pass for all ranks. The same standards were expected of all parts of the Army, not just the infantry and cavalry, producing a far more cohesive Army of trained men.<sup>17</sup>

Although Lord Kitchener implemented reform as the Commander-in-Chief of the Indian Army, the effects

---

12 Brian Bond, *The Victorian Army and the Staff College 1854-1914* (London: Eyre Methuen, 1972), 114, 187, and 195-199.

13 The Elgin Commission reported in 1903, the Esher Committee and Norfolk Commission reported in 1904.

14 Dunlop, *Development of the British Army*, 218.

15 Richard Haldane became 1st Viscount Haldane on the 30 March 1911.

16 General Staff, War Office, *Combined Training 1902* (London: HMSO, 1902).

17 Edmonds, *British Official History*, 118-119.

impinged upon the wider British Army as individual and unit replacements continuously flowed back and forth between England and India. Kitchener's changes were primarily structural in India, such as the idea of stationing units together that would fight together and implementing joint training between the infantry and their attached artillery to gain trust in each other.<sup>18</sup>

The Right Honourable Richard Haldane, Secretary of State for War 1905-1912, made a more significant impression on the Army than any other Secretary of State for War of the period.<sup>19</sup> During his seven-year tenure, Lord Haldane built much of the BEF that eventually fought in France. He expanded training areas and oversaw a modernisation programme, while consistently managing the budget which allowed his reforms to succeed where his predecessors had failed.

This chapter will look at the influence of the period between the Boer War finishing and the First World War starting, a period of 12 years. It will establish the political reforms Lord Haldane created within the context of the three major reviews of the Boer War by Elgin, Norfolk, and Esher, noting that these reviews were framed in a period of perceived anti-intellectualism during the early years of the 20<sup>th</sup> century.<sup>20</sup> It will also explain how entrenched the British Army had become in maintaining a gentlemanly and amateur approach to the profession of arms.<sup>21</sup>

Hence this chapter serves two purposes. Firstly, it will examine the reforms the British Army undertook after the Boer War, and how they delivered the BEF as the fighting force that arrived on the continent in 1914. Secondly, it will highlight just how much reform was needed to make the BEF modestly capable in the summer of 1914. Having done so, this thesis will contend that without the Boer War changes, the BEF would have been a far worse fighting force and, had it maintained its 19<sup>th</sup>-century stance on training, tactics and equipment, it may well have never been committed to the fight on the Continent.

---

18 TA Heathcote, *The Indian Army, The Garrison of British Imperial India, 1822–1922* (Devon: David and Charles, 1974).

19 Major Andrew Risio, *Building The Old Contemptibles: British Military Transformation And Tactical Development from the Boer War to the Great War, 1899-1914* (Washington: Normanby Press, 2014), ch 3.

20 Harris and Marble, "The Step-by-Step Approach," 17-42, specifically 39.

21 Bowman and Connelly, *The Edwardian Army*, 24.

## Reform and the commissions

The political and public pressure to reform post-Boer War was significant. The unexpected failure against the Boers dealt a cruel blow to the British Army's self-esteem and reduced its place in society at a time when the public and political masters expected better.<sup>22</sup> Of the changes undertaken, some were self-imposed, some were the result of finance, and some were the direct outputs of formal Commissions and political reform.

While the Commissions' reviews set the conditions for the British Military, they would have counted for little if the new Secretary of State for War in 1905, Richard Haldane had not undertaken to reform the British military so completely. He fought political and military prejudice and eventually succeeded in moving the military from 19<sup>th</sup> century Napoleonic practices to 20<sup>th</sup>-century competence.

After the completion of the victory march of the BEF through London in July 1919, Field Marshal Haig arrived unannounced at Viscount Haldane's house and left a copy of his bound dispatches, in which he included the inscription,

To Viscount Haldane of Cloan - the greatest Secretary of State for War England has ever known.  
In grateful remembrance of his successful efforts in organising the Military Forces for a War on the Continent, notwithstanding much opposition from the Army Council and the half-hearted support of his Parliamentary Friends.<sup>23</sup>

The breadth of the Boer warfare, encompassing siege operations, set-piece battles and a protracted guerrilla campaign, across a vast geographical area, made analysis understandably problematic. Agreement upon lessons did not emerge quickly, while inter-service rivalry, social snobbery, and the continuing struggle between cliques within the officer corps promoted indecision.<sup>24</sup> This notwithstanding, the politically

---

<sup>22</sup> Jones, *From Boer War to World War*, 23-29.

<sup>23</sup> Dunlop, *Development of the British Army*, 231.

<sup>24</sup> Jones, *From Boer War to World War*, 12.

significant formal reviews will now be considered to understand their overall impact upon the British Army.

### **The Elgin Commission**

The first post-Boer War Commission was initiated in August of 1902 and submitted its final report in 1903.<sup>25</sup> Convened by King Edward VII and formally named the Royal Commission on the War in South Africa, it became known as the Elgin Commission, after the name of its Chairman, Lord Elgin. The Elgin Commission, being one of record and not one of advice, reported the facts from the Boer War rather than making recommendations.<sup>26</sup>

While most of the areas reviewed were graded from substandard to satisfactory, it is noteworthy that the Elgin Commission found the logistics of mobilisation had been particularly successful. Indeed, the Commission observed that the mobilisation, the largest in British history up to that point, went 'smoothly and with remarkable dispatch'.<sup>27</sup> A feat that would be repeated in the summer of 1914, built upon this expertise.

The quality of the personnel assigned to the force was a critical issue for the commissioners. They saw the need for intelligence and wit as a requirement of every soldier on the modern battlefield, and they viewed this as one of the critical lessons of the war. In the Commission's opinion,

That the conditions of modern warfare with long-range arms and smokeless powder involve an immense extension of lines of battle, diminish the power of control by commanding officers, and increase the degree of individual intelligence required in each private.<sup>28</sup>

---

<sup>25</sup> HMSO, *Report of the Royal Commission on the South African War* (London: Wyman and Sons, 1903), 1.

<sup>26</sup> Dunlop, *Development of the British Army*, 166.

<sup>27</sup> HMSO, *Report on the South African War*, 38.

<sup>28</sup> *Ibid.*, 45.

Every soldier on the future battlefield would be required to have the initiative to do his mission. Lord Kitchener, in his testimony to the Commission, felt some of the blame for the deficiencies in this area was due to the rigid training system of the past, as 'mechanical perfection had been cultivated at the expense of individual resourcefulness'.<sup>29</sup> Their findings regarding motivation and training show an early identification of significant issues that would be further debated in 1914. The Edwardian training system did not mentally engage a soldier or allow them any initiative. Instead, they were tasked to learn by drill so their actions could be brought together repeatedly and predictably so that their collective mass could be applied to the enemy. The findings of the Commission suggested that new training methods would be needed that allowed a degree of intuition, decentralised command, and more flexible control.<sup>30</sup> Without these findings, it seems unlikely that a new training system would have emerged in the BEF that allowed for greater flexibility and, indirectly, the transformation the BEF sought.

Marksmanship was a significant deficiency that many attributed to the rigid mechanical perfection of drill in the pre-war Army.<sup>31</sup> Before the Boer War, the British Army not only referenced volley fire in its regulations, but also practised it in the field.<sup>32</sup> Addressing the Commission, Lieutenant-General Methuen, who had commanded a division in South Africa, saw the issue as 'Good shooting, accurate judging of distance and intelligent use of ground are the very essence of success on the modern battlefield.'<sup>33</sup> This simple observation may well have contributed to the change from volley fire to higher levels of marksmanship just in time for the outbreak of the First World War.<sup>34</sup>

Tied to accurate fire was manoeuvring and entrenching. The threat of accurate and lethal artillery increased the need for better use of cover and entrenchment. There was minimal emphasis on entrenching before the war, but a rapid improvement was made during it. By the War's end, soldiers were dug down upon taking a

---

29 Ibid., 47.

30 General Staff, War Office, *Infantry Training (4-Company Organization) 1914* (HMSO: 1914), 139.

31 Spencer Jones, "Shooting Power: A Study of the Effectiveness of Boer and British Rifle Fire, 1899–1914," *British Journal for Military History*, 1, no. 1 (October 2014); 29-32.

32 Jones, *From Boer War to World War*, 8.

33 HMSO, *Report on the South African War*, 47.

34 Bowman and Connelly, *The Edwardian Army*, 100.

new position 'as a matter of course'.<sup>35</sup> The Commission voiced a single concern regarding entrenchment 'that it was sometimes difficult to get men to leave good cover when a forward movement was needed'.<sup>36</sup>

The Commission did not engage with what would become the most critical issue of the next few years, namely, how to cross the no man's land. The Commission decided to defer any judgement on the issue, leaving the interpretation of the lessons up to the 'military experts' as the Commission felt they were too out of touch with the 'modern' interpretation of warfare.<sup>37</sup>

The last significant lesson highlighted by the Commission related to staff officers.<sup>38</sup> Most of the staffs in South Africa had been ad hoc organisations with officers unfamiliar with each other and the General for whom they worked. The Commission determined that 'the necessity of training in peace with a complement of troops and more spacious grounds over which to manoeuvre' was necessary to train the staffs of division and corps.<sup>39</sup> As will be discussed later, this assisted the re-invigoration of Staff College which professionalised the staff, allowing for quicker and more thorough planning based on the level of education the students had undertaken.<sup>40</sup>

Thus, the first Royal Commission into the Boer War, which was evidential and not directed to make recommendations, set the conditions for the British Army to change. The themes included the formal education of staff officers, the waning of the cavalry mounted role, the acceptance of skirmish tactics, and the emergence of fire and movement with overlapping artillery and rifle fire. These factors all resonated with the doctrine that was developed during the First World War, but it took further Commissions to give these ideas the political and military momentum needed to enact the necessary change.

---

35 HMSO, *Report on the South African War*, 49.

36 Ibid.

37 Ibid.

38 Major WD Bird, "Some Notes on Modern Tactics," *Journal of the Royal United Services Institute* 53, no. 1 (1909): 492.

39 HMSO, *Report on the South African War*, 60.

40 Field Marshal Lord Roberts, "Memoir," in *The Science of War: A Collection of Essays and Lectures 1891-1903*, ed. Neill Malcolm (London, 1912), xxix; Paul Harris, "The men who planned the war: A Study of the Staff of the British Army on the Western Front, 1914-1918" (PhD diss., King's College London, 2014), 199.



## The Norfolk Commission

A year after the Elgin Commission, King George V chartered the Norfolk Commission to 'enquire into the organisation and terms of service of our Militia and Volunteer Forces and to report whether any changes were required.'<sup>41</sup> This Commission served in an advisory role to the War Office, recommending changes to the Militia and Reserves while widening its scope, by Royal Warrant, in May 1903. It also considered Home Defence, which it saw as integral to its study of the Reserve Forces. Before this Commission, Home Defence was the primary mission of the Reserves.<sup>42</sup>

Before the Norfolk Commission began, the Stanhope Memorandum, dated 1 June 1891, laid out strategic guidance for the Army. The last paragraph of the memorandum stated,

It will be distinctly understood that the probability of the employment of an Army Corps in the field in any European war was sufficiently improbable to make it the primary duty of military authorities to organise our forces efficiently for the defence of this country.<sup>43</sup>

The Norfolk Commission changed this. It found that the Navy was primarily responsible for British Imperial Defence, including defence of the home islands. This meant that the Regular Army was relieved of Home Defence and opened the way for the creation of the Territorial Force and, specifically, the British Expeditionary Force (BEF). Now the British Army could focus on the creation of an expeditionary force to fight in a European war. This crucial decision of the Norfolk Commission heavily influenced the restructuring of the British Army and led directly to the establishment of the BEF. As such, it provided seminal direction for the British Army, allowing it to consider itself expeditionary and, hence, initiated the training and planning that would allow it to cross the Channel in 1914.

---

<sup>41</sup> HMSO, *Report of the Royal Commission on the South African War*, 38.

<sup>42</sup> *Ibid.*, 38-40.

<sup>43</sup> Dunlop, *Development of the British Army*, 127.

## The Esher Commission

Formally entitled the War Office Reconstruction Committee, the Esher Commission's charter was to study the reorganisation of the War Office. A significant difference between the Elgin and Esher Commissions was that, while the Elgin Commission saw its responsibility to report facts to the War Office, the Esher Committee advised the Prime Minister on changes to the War Office.<sup>44</sup>

The Commission identified many of the problems the British Army would encounter in the First World War.<sup>45</sup> On expansion and delivery of a BEF made up of Regular and Territorial forces, Kitchener refused to agree that the Territorial Force for was fit for this purpose. Instead, he designed the New Army from the regiments of the old. In 1904, the Esher Commission pointed out that,

The true lesson of the (Boer) war is, that no military system will be satisfactory which does not contain powers of expansion outside the limit of regular forces of the crown, whatever that limit may be.<sup>46</sup>

## The Commission findings

Thus, across the Elgin, Norfolk and Esher Commissions, a comprehensive review of structure, funding, training, and tasks of the British Army was completed. The reviews reinforced the beliefs that a requirement to train, procure new equipment and write new doctrine was required. The effect of the Commissions was to place the British Army on a war footing in preparation for a European war. A method of expanding the Army emerged and clearer thinking prevailed on where the priorities should be. However, funding was not

---

<sup>44</sup> Dunlop, *Development of the British Army*, 168.

<sup>45</sup> Jones, *From Boer War to World War*, 7-9.

<sup>46</sup> This is significant as no nations maintain a standing army big enough for all eventualities. Its ability to expand quickly and without a loss of relative combat power is crucial to deterrence and warfighting capability.

certain, and most of the changes had to be made within existing budgets. This notwithstanding, the three Commissions effectively designed the BEF that would arrive in France and Belgium in August 1914.

While the benefit of the Commissions was substantial, Richard Haldane would succeed in rationalising the British Army whilst working within three principal constraints. First, any change needed to support the policing of Britain's colonial Empire. Second, a nation in arms concept towards the Reserves using the continental model was not possible in Britain due to the inherent mistrust of a large army that remained from the Cromwell era. Finally, any change needed to allow for little or no increase in the yearly Army Estimates.<sup>47</sup> By recognising and working within these constraints, Haldane was not only able to succeed in his reforms, but also to reduce the Army Estimates each year he was secretary, gaining traction for his reforms by selling them as efficiencies, which played out well in Parliament.<sup>48</sup> The new Haldane structure proved itself adaptable and more resilient than the previous structure, and training regimes were significantly improved.<sup>49</sup>

### **Lord Richard Haldane, Secretary of State for War**

In what became known as the reorganisation of 1908, Haldane completely changed the British Army and its Reserves. Before the reforms, the British Army was broken into four constituent parts: the British Regular Army, the Militia, Yeomanry, and Volunteers. The Militia was a loosely formed national guard with little or no experience, but responsible for Home Defence. The Yeomanry was the cavalry force of the Militia, and although it tended to be of a higher calibre than the rest of the Militia, it still lacked the experience of the Volunteers. And the Volunteers were primarily a special reserve of former soldiers serving out the reserve portion of their enlistment; in the case of war, they had to fill out the ranks in regular army units.<sup>50</sup>

---

47 This would now be referred to as the Annual Budget Cycle, i.e. how the Army submits its plan to spend the monies given to it by HM Treasury each year; its operating budget.

48 Edward Spiers, "The Late Victorian Army 1868-1914, ch 9," in *The Oxford Illustrated History of the British Army*, ed. David Chandler and Ian Beckett (Oxford: Oxford University Press, 1994), 205.

49 John Gooch, *The Plans of War: The General Staff and British Military Strategy 1900-1914* (London: Routledge, 1974), 122.

50 John Pimlott, *The Guinness History of the British Army* (Enfield: Guinness Publishing, 1993), 90.

Haldane's vision of a transformed Army force was composed of three elements. The first, the Regular Army, comprised regiments with two battalions each, one on colonial duty and one at home station. This retained the Caldwell System of linked battalions and was easy to re-establish. Additionally, the Regular Army battalions at home station formed the core of the expeditionary force, organised into brigades, divisions, and corps. Haldane ensured the formation staffs were permanent organisations and not ad hoc, as was the case before the Boer War.<sup>51</sup> These permanent staffs were then trained and tested as cohesive headquarters, outperforming those planning teams which had been thrown together. The second element of Haldane's system was the Special Reserve, composed of experienced former active-duty soldiers. As designed, this organisation filled any shortages in the home battalions in case of mobilisation for war and came from the existing volunteers. The final element was the Territorial Force, built from the Yeomanry and Militia.

Haldane's reforms differed from his predecessors because he linked each battalion in the Territorial Force to an active duty regiment that would be responsible for its training and operation. However, all was not as effective as Haldane had hoped. Few men took the Imperial Service Obligation, and it turned out to be a weak political compromise.<sup>52</sup> Nonetheless, the changes to the Militias and Yeomanry brought about a degree of uniformity and equality in the reserves, which had never previously been achieved. Haldane had attempted to balance the needs of the Entente agreements that the British had made with the French in 1905, and the requirement to defend the disparate British Empire.

We had therefore to provide an Expeditionary Force, which we reckoned at six great [i.e. with three instead of two brigades] divisions, fully equipped, and at least one cavalry division. We also had to make certain that this force could be mobilised and sent to the place where it might be required as rapidly as any German force could be.<sup>53</sup>

---

51 JSCSC, *AH Marindin Papers, Shute Lecture* (November, 1920), 8.

52 When Territorial troops agreed to overseas service they signed the Imperial Service Obligation, which was later seen as a fuller commitment than that of the troops who did not go overseas and remained in defence of the homeland; see Bill Mitchinson, *The Territorial force at war, 1914-1916* (Basingstoke: Palgrave Macmillan, 2014), 32-33.

53 Dunlop, *Development of the British Army*, 243.

The changes to the structure of the Territorial, Militia and Regular Army proved instrumental and set the conditions for the ensuing doctrinal reforms, and the broad BEF transformation of the following decade. The Regular Army and its reserves trained according to a single unified doctrine, namely the Field Service Regulations 1909, which would 'create common standards and routines' with the intention 'to make a large organisation function along similar lines and pull towards common goals'.<sup>54</sup> The General Staff were centrally trained and commanded the reserves, while local governments maintained administrative control of them.<sup>55</sup>

The speed with which change occurred was considered exceptional for its time.<sup>56</sup> The degree of change achieved by Haldane was greater than the previous five Secretaries of State for War in that changes had been designed, implemented, and proved affordable; areas where Haldane's predecessors had failed. As Lord Anglesey stated in *A History of the British Cavalry 1816 to 1919*, 'all these aims were accomplished to a remarkable degree just in time for the First World War.'<sup>57</sup> However, while reform was initiated, not everything that was intended occurred as expected; and there is evidence to suggest that while the reform detractors did not block change, they certainly neither welcomed it nor promoted its inception.<sup>58</sup>

Haldane added further value by insisting that the Dominion forces throughout the British Empire agreed to train and fight according to the new doctrine.<sup>59</sup> The tactics of fire and movement, manoeuvre, and equal emphasis on defence and offence, represented the lessons learnt on the South African veldt during the Boer War.<sup>60</sup> However, the change post-Boer War was not all-encompassing. The single biggest failure of the British Army was to not implement a robust system for the expansion of the Army once an initial fighting force had deployed.<sup>61</sup> Indeed, there was no policy or system to train, equip or deploy any follow-on forces. Haldane

---

54 Hew Strachan, *The Evolution of Operational Art and Britain, 1909-2009* (Oxford: Oxford Online, 2010), 97.

55 Hugh Oakeley Arnold-Forster (19 August 1855–12 March 1909), known as HO Arnold-Forster, was a British politician. He served as Secretary of State for War from 1903 to 1905.

56 Risio, *Building The Old Contemptibles*, 81-84.

57 The Marquess of Anglesey, *A History of the British Cavalry from 1816 to 1919* (London: Secker and Warburg, 1986), 377.

58 Dunlop, *Development of the British Army*, 292-293.

59 Bowman and Connelly, *The Edwardian Army*, 100.

60 Captain R Trimmel, "South African Campaign," *Journal of the Royal United Service Institute* 45, no.1 (1901): 182–190.

61 Jones, *From Boer War to World War*, 48.

had the opportunity to instigate legislation that would have facilitated the quick expansion of the standing army but did not.<sup>62</sup>

The realities of the economy also heavily limited the British Army reforms. Haldane saw that the only path to improvement operated under the constraints of the annual financial estimates. And as the Royal Navy remained the first line of defence for the Empire, it received the majority of the military budget. Meanwhile, the flat economy limited the purchase and exploitation of innovative technology even though the Army saw a need for new artillery,

The British had recognised the importance of the howitzers in the Boer War, and their 1914 division had eighteen 4.5-inch howitzers, as well as four heavy 60-pounders (120 mm). However, the British Expeditionary Force went to France with a total of only eighty-nine medium and heavy guns, a total that included twenty-four old siege guns.<sup>63</sup>

In conclusion, Haldane achieved more than history expected and what he achieved would prove critical to what happened to the BEF in 1914. Without the fundamental changes in the early 1900s, the degree of change required may have been beyond that which the British Army could have made in a single step. Consequently, these early steppingstones proved vital.

### **Anti-intellectualism: challenging reform**

The Commissions and Haldane did much for Army reform but culturally there were other issues to resolve. Anti-intellectualism, or the perspective of not wanting to study the art of warfare, weaves itself throughout much of the First World War historiography.<sup>64</sup> Before the Boer War, there was a view that to study was un-

---

<sup>62</sup> Jay Luvaas, *The Education of an Army: British Military Thought 1815-1940* (London: Cassell, 1965), 309.

<sup>63</sup> HMSO, *Report on the South African War*, 83.

<sup>64</sup> Lieutenant RH Bedan, "How Can Moral Qualities Best be Developed during the Preparation of the Officer and the Man for the Duties Each Will Carry Out in War?" *Journal of the Royal United Services Institute* 59, no. 2 (1914): 132.

gentlemanly. Lord Wolseley, the Commander-in-Chief of the Army at the start of the Boer War, declared in 1897,

I hope the officers of Her Majesty's Army may never degenerate into bookworms. There is happily at present no movement in that direction, for I am glad to say this generation is as fond of danger, adventure, and all manly out-of-door sports as its forefathers were.<sup>65</sup>

However, the experience of the Boer War undoubtedly amended this Victorian approach and created the conditions needed for meaningful change.<sup>66</sup> The historiography shows that the period between 1902 and 1914 was characterised by a struggle between the 'reformists,' who sought fundamental change as they believed that a strategic shift had occurred, and the 'traditionalists,' who suggested that the lessons of the Boer War would not endure and that Victorian principles should remain. This complicated, and potentially unhelpful, debate took place not only within the British Army, but also within Edwardian society, and it paralysed the British Army for almost ten years. The idea that the lack of desire to study could have reflected a lack of intellect and, thus, a façade to hide behind, became a central point of discussion in Staff College and the headquarters of the Army.<sup>67</sup>

In many ways, the First World War 'set the pattern for 20<sup>th</sup>-century warfare'.<sup>68</sup> It was the significant alteration in social, political, economic and military aspects of society that facilitated change, and the openness of the debate that produced the military transformation needed.<sup>69</sup> However, there is a view that not all the development opportunities offered at the time were taken and that, while the British Army did progress, it missed significant opportunities.<sup>70</sup>

---

65 Travers, *The Killing Ground*, 39.

66 Jones, *From Boer War to World War*, 13.

67 Travers, *The Killing Ground*, 38-39.

68 MacGregor Knox and Williamson Murray, *The Dynamics of Military Revolution, 1300-2050* (Cambridge: Cambridge University Press, 2001), 6.

69 *Ibid.*, 12.

70 Hew Strachan, "The British Army, its General Staff and the Continental Commitment 1904-1914," in *The British General Staff: Reform and Innovation, 1890-1939*, ed. David French and Brian Holden Reid (London: Frank Cass, 2002), 75-94.

## Tactics and leadership: the cult of the offensive

Even with the significant reviews of the Boer War that looked at the British Army's manning, training and equipment, the studies only made cursory focused doctrinal suggestions. Consequently, the cult of the offensive remained embedded in the psyche of the officers and men of the British Army. A concept which suggested that, even with the new lethal weaponry on the battlefield, the only way to overcome defensive firepower was through strong moral belief, fortitude and aggression; in short, charging into the face of the enemy against overwhelming odds was still considered a relevant tactic.

The cult seemingly 'predisposes tactically inept commanders into heroic doom, rather than cower to await one's fate.'<sup>71</sup> This Victorian view of leadership and honour pervaded the British Army at a time when its reliance upon drill and technological efficiency was potentially waning. Commanders focused on adherence to orders and blind faith in the moral courage of their soldiers. And, as a result, officers would readily charge into a forlorn situation, seeing it as their duty, sacrificing men and materiel as they went.

This unwavering belief in the offensive was seen in the first few months of the First World War, and its origins before the war are significant.<sup>72</sup> However, concern with the offensive was not confined to the British Army; it was seen across Europe at the turn of the 20<sup>th</sup> century and was used against the BEF as much as the BEF used it against Germany.<sup>73</sup>

Even at a time when the newly educated officer corps were keen to investigate any new concept, the cult of the offensive continued to prosper. The practice played to the chivalry of the officer corps, took no intellectual investment, and it was an amplification of older methods that resonated well with their peers

---

71 Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," *International Security* 9, no. 1 (Summer, 1984): 58-107; see also Bird, "Some Notes on Modern Tactics," 492.

72 Basil Liddell Hart, *Through the Fog of War* (New York: Random House, 1938), 57.

73 Regarding the origins of the cult of the offensive, see Tim Travers, "Technology, Tactics, and Morale: Jean de Bloch, the Boer War, and British Military Theory, 1900-1914," *Journal of Modern History* 51, no.2 (June, 1979), 264-286.



and senior officers. Moreover, it was doing one's duty to lead troops into battle. Consequently, rather than being an ignorant tactic, the cult of the offensive evolved into a credible doctrinal approach.<sup>74</sup>

The cult proposed that tactical success lay with the infantry alone, as it was believed that only they could hold and occupy ground. Hence, the Infantry were expected to cross a killing area that would be expensive in lives, no matter the cost; sacrifice was expected and venerated. While extremely costly in manpower, the battalions were to be conditioned to the expected losses. Maintaining momentum in the face of significant enemy gunfire was the role of the subaltern officer and his platoon sergeant.<sup>75</sup>

The advocates of the primacy of the offensive belittled the fire and movement, manoeuvre, lessons of the Boer War. Instead, they focused on the offensive successes of the Japanese during the Russo-Japanese War, as they suggested that technology could facilitate a contemporary style of warfare that was potentially more lethal.<sup>76</sup>

The high casualties of offensive operations in both the Boer War and Russo-Japanese War validated both the cult of the offensive and the need to develop new doctrine. High casualties were not only to be expected but also now positively sought, as they acted as an indication of the fighting valour and moral superiority of one's force. Advocates proposed that attackers had to continue the advance through the depths of the killing zone to achieve the decisive point of the engagement. To overcome the lethality of the killing zone soldiers had to possess a robust offensive spirit. And whilst it could have been the case that this dogmatic belief in the success of the offensive spirit facilitated victory, in hindsight it might be seen as tactically irrational at best and suicidal at worst.<sup>77</sup>

---

<sup>74</sup> Jones, *From Boer War to World War*, 62-67.

<sup>75</sup> Travers, "Technology, Tactics, and Morale," 264-286.

<sup>76</sup> Jack Snyder, *The Ideology of the Offensive: Military Decision Making and the Disasters of 1914* (Ithaca: Cornell University Press, 1984), 12-16.

<sup>77</sup> Snyder, *The Ideology of the Offensive*, 15-40.

This mindset, drawn from the cult of the offensive, was bound into the British Army's culture and ethos; it would take significant changes in circumstances to challenge it. But that challenge would appear in 1916 with the degree of sacrifice beyond even the most ardent supporter of the cult and provide the motivation for a degree of change not seen before in the British Army. Indirectly, the cult of the offensive set the Army up for failure to such a degree that the only answer was for something very new such as a combined arms approach typified by cooperation and integration.

## The Infantry

Major-General Altham, the author of *The Principles of War* and the commander of the British Southern Command, suggested before the war that,<sup>78</sup>

The idea of the final decisive charge must ever be in the mind of the attacking infantry, to sustain them in enduring the punishing losses of the fire-swept zone, to draw them on to victory.

Even the most ardent supporter of the final assault as the decisive point of combat did not, however, limit the training of the infantry to this task alone. Indeed, British infantry training was focused on three primary tasks: attack, defence and security. The Army gave each tactical task equal time in their company training regulations.<sup>79</sup>

The primary doctrinal debate between the Boer War and 1914 was how the infantry should attack in the age of modern rifles, smokeless powder, rapid-fire artillery, and the machine gun.<sup>80</sup> Napoleonic lines were no longer credible and some form of skirmishing was thus necessary. However, there was concern about how the movement of infantry battalions would be controlled and planned.<sup>81</sup> The General Staff had considered

---

<sup>78</sup> Major-General EA Altham, *The Principles of War, Historically Illustrated I* (London: Macmillan and Co, 1914), 18-19.

<sup>79</sup> Brigadier-General R Haking, "Company Training," *Army Review*, vol 2 (January-April 1912): 79.

<sup>80</sup> Jones, "The Influence of the Boer War," 43.

<sup>81</sup> Much of the debate was outlined in various issues of the *Army Review*.

the doctrine adopted in the latter part of the Boer War and represented it in *Combined Training 1902* as too progressive.<sup>82</sup>

These regulations suggested a new form of fire and movement as the middle ground in the debate. Fire and movement were viewed as the keys to closing with the enemy but the shock action of the final assault was still to be the decisive point.<sup>83</sup> In his associated article, General Munro emphasised the use of fire and movement in the offence as espoused in the new regulation.<sup>84</sup> Shock action, which was synonymous with the cult of the offensive, was not, however, mentioned. General Munro's regulations led to the arrival of a basic form of combined arms manoeuvre which was to become the very spirit of the progressive new *Combined Training 1902*.<sup>85</sup> Further Army Reviews included an article that discussed artillery support of the infantry attack, emphasising fire and movement as the fundamental technique for closing with the enemy.<sup>86</sup> These were significant steps in the early transformation of the British Army and allowed for the decisive changes that took place during the First World War.

In 1907, the British Army demonstrated the concept of fire and movement during training in Aldershot. On observing this American Captain DW Falls stated that the manoeuvres were incredible and that he had never seen such tactical dispersion during the demonstration of an assault,

It was a curious feeling to know that the whole countryside was full of armed men, which thousands were engaged in fighting a battle, and yet not to see twenty soldiers as far as the eye could see.<sup>87</sup>

He went on to say that,

---

<sup>82</sup> General Staff, *Combined Training 1902*.

<sup>83</sup> Imperial General Staff, "Infantry Training 1911," *Army Review*, vol. 1 (July-October 1911): 86.

<sup>84</sup> Major-General CC Munro, "Fire and Movement," *Army Review*, vol. 1 (July-October 1911): 91.

<sup>85</sup> General Staff, *Combined Training 1902*.

<sup>86</sup> Brigadier-General JP Du Cane, "The Co-operation of Field Artillery with Infantry in the Attack," *Army Review*, vol.1 (July-October 1911): 97.

<sup>87</sup> Captain DWC Falls, "The Aldershot Command Manoeuvres for 1907," *Journal of the Military Service Institute of the United States* 42 (January-June 1908): 387.

There were no swarming lines of infantry, no solid columns hurrying forward on the roads, no inspiring bayonet charges with trumpets sounding and colours flying: in these days of long-range armaments, it seemed about as near the 'real thing' as one could get.<sup>88</sup>

Other military observers echoed Captain Falls' complete support and, as a result, the fire and movement tactics became standard practice for the British Army with their inclusion in *FSR 1909* and the updated *Combined Training* of the same year.

The British Infantry also adopted the skirmishing skills of the Boers. Widely dispersed, loose formations became a vital element of British tactical success in South Africa, reducing casualties and allowing individual men to make the most of cover. As a result, close order was rejected except for conflict against 'savages', and full extensions became a keynote of infantry tactics.<sup>89</sup>

The fact that the British Infantry had better tactics for fire and movement shocked the attacking Germans into hesitant and floundering moves at Mons and Le Cateau in 1914.<sup>90</sup> The British performance in these early engagements proved that many of the hard lessons of the Boer War had been well learnt. While the infantry wanted to adapt, the loss of so many leaders and trained staff officers denied it the ability to drive change in the early years of the First World War.<sup>91</sup> However, the infantry seemed ready for further changes to its structures, tactics, and training, which together made overall BEF transformation possible by supporting the physical and moral components of fighting power that allowed changes in modern technology and leadership to flourish.

---

88 Ibid., 388.

89 Bowman and Connelly, *The Edwardian Army*, 15.

90 As described in General Staff, *Infantry Training (4 – Company) 1914*, 12, 18-19. The Battle of Mons was the first major action of the War for the BEF on the 23 August 1914. It was followed by the engagement at Le Cateau on the 26 August 1914. Both battles were intended to slow the German advance and had relative success for the BEF.

91 The loss of trained staff officers and battlefield leaders hampered the development of the BEF. For example, at the Battle of Loos on 25 September – 8 October 1915, 21 Brigade lost 77 out of 100 officers, 27 Brigade lost 47 out of 80 and 45 Brigade lost 64 out of 80 officers (killed, wounded, or missing). TNA, PRO, WO 95/1652, 20th Infantry Brigade Headquarters War Diary, September–December 1915; TNA, PRO, WO 95/1769, 27th Infantry Brigade Headquarters War Diary, May 1915–December 1916; TNA, PRO, WO 95/1942, War Diary, July 1915–December 1916.

## The Cavalry

How the cavalry evolved post-Boer War was a very public and heated debate. Mr Erskine Childers was considered an expert on the Boer War, as he had edited The Times' *History of the War*. Childers chose to focus on cavalry tactics as seen in his book published in 1910, *War and the Arme Blanche*.<sup>92</sup> He published a further volume on cavalry tactics, *German Influence on British Cavalry*, in 1911. His premise was that the British Cavalry doctrine had ignored the lessons of the Boer War and the Russo-Japanese War, fixing instead upon German cavalry doctrine.<sup>93</sup> Childers' central idea was that the *arme blanche* and the charge were obsolete and that the rifle and dismounted action should be the primary purposes of the cavalry in future warfare.

He further argued that the Army should remove the lance and sword from the cavalry inventory to ensure the primacy of the rifle. The British General Staff disagreed and published a review of Childers' book in *The British Cavalry Journal*.<sup>94</sup> Their disagreement was not, however, with the entirety of his proposition; they agreed with many of his arguments in support of the rifle and dismounted action by the cavalry but disagreed with his position regarding the sword itself.

They argued that the *arme blanche* still proved useful in modern war and that the cavalry charge was not obsolete. However, they conceded that, when training time was limited, commanders should emphasise the rifle but maintained that the sword and lance should remain in the equipment of the cavalry.<sup>95</sup> They also highlighted and emphasised marksmanship, fire discipline and dismounted action as the primary skills of the cavalry. As Major-General Rimington, a Boer War veteran, put it in 1912,

---

<sup>92</sup> Arme Blanche referred to the use of the sword in a cavalry charge.

<sup>93</sup> Erskine Childers, *German Influence on British Cavalry* (London: Edward Arnold, 1911), ch 2.

<sup>94</sup> Erskine Childers, "The British Cavalry," *Journal of the Society for Army Historical Research* 57, no. 230 (Summer 1979): 71-79.

<sup>95</sup> Imperial General Staff, "War and the 'Arme Blanche,'" *Journal of the US Cavalry Association* 21, (July 1910-May 1911): 341-57.

our British regular cavalry is at least ten, if not fifteen years ahead of any Continental cavalry in rifle shooting, fire discipline and the knowledge of when and how to resort to firing tactics.<sup>96</sup>

Even Childers, a harsh critic of the cavalry, admitted this in 1911 when he stated that 'our cavalry, excessive as its reliance on the steel is, stands, of course, in the matter of fire action, ahead of its continental rivals'.<sup>97</sup> Ultimately, field regulations *Cavalry Training 1904 and 1907* pushed progressively in emphasising the rifle as the primary cavalry weapon over the lance and sword.<sup>98</sup> By the 1907 edition, the training for the lance and sword was no longer in the main body of the regulation.

As a result, despite both the brevity of the interwar period and a doctrinal debate which was both very public and, at times, erroneous, the British Cavalry arrived in France in 1914 with the carbine and pistol as their primary weapons, and with the practised ability to dismount and take cover. It was no longer a force for which the charge with flashing steel was the very reason for its existence; indeed, the cavalry played a vital role in reconnaissance, flank protection and the passage of information, as well as being dismounted riflemen. Accordingly, the cavalry can be said to have adapted well to the lessons of the Boer War.<sup>99</sup>

## **The Artillery**

Before 1900, the guns of the Royal Artillery only fired in the direct role, aiming at targets that could be seen from behind the gun. This allowed for simple integration with the infantry they were supporting as it was a simple task to coordinate because the gunners could observe both the enemy and friendly forces. However, as artillery systems grew more effective and longer ranging, it placed the gunners in a dangerous position. The natural tactical response was to deploy them further behind the friendly forces. This both limited effective range and made keeping up with the friendly forces' movements more challenging. The potential

---

<sup>96</sup> Anglesey, *A History of the British Cavalry*, 388.

<sup>97</sup> *Ibid.*, 423.

<sup>98</sup> General Staff, War Office, *Cavalry Training 1904* (HMSO: 1904) and General Staff, War Office, *Cavalry Training 1907* (HMSO: 1907).

<sup>99</sup> Badsey, *Doctrine and Reform in the British Cavalry*, 81-89 for Boer war developments, 245-250 for First World War adaptation.

of long-range fire, the value of concealment and the importance of cooperation between guns and infantry, were all-important lessons from the Boer War.<sup>100</sup> The long-range fire caught the attention of the public during the war and, while military authorities quickly noted that its physical effects were often limited, it could still cause much panic and fear amongst troops unaccustomed to it.<sup>101</sup>

Eventually, the gunners developed the means to fire indirectly and to aim at targets they could not see but whose whereabouts were relayed to them by a spotter.<sup>102</sup> However, the technical difficulties in firing indirectly, with moving infantry during a mobile war, seemed initially insurmountable.<sup>103</sup> In both the Boer and Russo-Japanese Wars, both sides had only used indirect fire during sieges, or against fixed positions. Technology had not developed enough to facilitate infantry movement that was supported by the artillery with any accuracy. As lethality of rifles and smokeless powder proliferated, so did the need for the artillery to, firstly, protect itself, and secondly, for it to become more effective at indirect fire. The initial problems were ones of communication between the artillery spotters and the guns, and how to predict where the artillery rounds would fall when beyond the line of sight.<sup>104</sup>

The British reacted by emphasising precision when designing new weapons and increasing the range at which their guns could engage. Additionally, the introduction of a heavy piece in the form of the 60-pounder howitzer added a new element to British Artillery tactics. While the gunners were criticised for basing its design purely upon their experiences in South Africa, in 1914 it was the only gun with a range capable of engaging the heaviest German weapons. Its accuracy at long ranges was the source of much admiration from the French.<sup>105</sup>

---

100 Tim Travers, "The Offensive and the Problem of Innovation in British Military Thought 1870-1915," *Journal of Contemporary History* 13 (1979): 539-540.

101 Bidwell and Graham, *Firepower*, 68.

102 Dunlop, *Development of the British Army*, 226.

103 Bailey, "Artillery and Warfare 1945-2025," 27.

104 WHF Weber, "Some Notes and Suggestions on the Control of Divisional Artillery in Battle," *Journal of the Royal Artillery* 38, no. 10 (1912): 413.

105 E Nicholls, "The Training, organisation and equipment of Companies of the Royal Garrison Artillery with medium guns, and howitzers, and their tactics in future field operations," *Journal of the Royal Artillery* 28 (1901): 103.

A further complicating issue was that of ownership; were the gunners subservient to the infantry or vice versa? A very public debate ensued, much like the cavalry debate, and was enthusiastically discussed in the press and military journals of the day. The principal protagonist was Brigadier-General Beaton, who authored a provocative article in response to Brigadier-General Du Cane's, published the previous year, in support of infantry pre-eminence and artillery subservience.<sup>106</sup>

While the debate endured, technology was momentarily lagging and the British Gunners entered the 20<sup>th</sup> century with direct fire as their primary mode. Furthermore, the development of coordination measures and liaison between the infantry and artillery was not resolved until it became the focus of tactical development from 1914 onwards.<sup>107</sup> But a change had started, indirect fire would take over from direct fire and the integration issue was recognised, even if it was not resolved. As a result, the Royal Artillery was well placed to contribute to transformation in 1914 as a result of the experiences of the Boer War.

## **Staffs**

Lord Roberts complained that Parliament never asked the Army for the lessons of the Boer War, relying instead on the Commissions to do the work for the Army. While the British Army did not file any official reports on the lessons learnt, it is possible to glean from professional journals, testimony before the commissions, and several Army Committees, the commonly accepted themes the British Army took away from the experience.<sup>108</sup>

Many senior officers in proximity to the fighting formations questioned the organisation of staffs as well as the quality of the staff officers, during and after the Boer War.<sup>109</sup> The British staff organisation was not standardised and many viewed serving on a staff as disloyal to their regiment. Even Lord Roberts and Lord

---

<sup>106</sup> Brigadier-General FC Beaton, "The Cooperation of Field Artillery with Infantry in the Attack," *Army Review*, vol.2 (January-April 1912): 100.

<sup>107</sup> *Ibid.*, 133.

<sup>108</sup> Jay Stone and Erwin Schmidl, *The Boer War and Military Reform* (Lanham: University Press of America, 1988), 107.

<sup>109</sup> Simpson, *Directing Operations*, 32



Kitchener operated ad hoc staffs that often functioned without a Chief of Staff because there was no set organisation of a headquarters. Trained staff officers existed but not in enough numbers to meet the need of the hugely expanding Army.<sup>110</sup> Colonel Grierson, a staff officer in Pretoria in 1900, wrote,

I think our first lesson is that we must have big annual manoeuvres and have our staffs properly trained.<sup>111</sup>

The reinvigoration of Camberley Staff College and staff training resolved this issue, with promotion coming from strong performances on the year-long course and prejudice for formal learning.<sup>112</sup>

Before the Boer War Britain did not have standing division and corps staffs and had not conducted large-scale manoeuvres to exercise or train them. This shortcoming was evident during the preliminary stages of the Boer War. Testifying before the Elgin Commission, Lord Roberts identified three areas for improvement related to training staffs,

It seems clear that the entire staff should be thoroughly trained; that a system of staff duties should be laid down; and that we should have enough trained staff to supply ... a large army.<sup>113</sup>

## Conclusion

Consideration of the doctrinal changes to the components of the BEF and their staffs reveals the degree to which change was required and how fundamental the changes become; turning the 19<sup>th</sup> century British Army into a fighting force that would be credible at the turn of the 20<sup>th</sup> century. Changes to equipment, command

---

110 Simon Robbins, "British Generalship on the Western Front in the First World War, 1914 – 1918" (PhD diss., Kings College University of London, 2001), 110.

111 Bond, *The Victorian Army and the Staff College 1854-1914*, 187.

112 Lord Roberts, "Memoir," xxix.

113 Lord Roberts, "Memoir," 192.

style and doctrine all contributed to the eventual transformation of the BEF, but the underlying foundation of doctrine became ever more apparent, supporting the conceptual component of fighting power.

*Combined Training 1905* made many substantial changes to the standards of British fighting. In defence, infantry and artillery entrenched and utilised the ground to provide the best possible cover, while using dummy entrenchments for deception.

*FSR 1909* provided a published core doctrine for the British Army which reflected its determination to fight a war of manoeuvre and saw the Army reorganised, equipped, and trained to achieve that intent. Formal doctrine at all levels consistently emphasised manoeuvre operations based on a command philosophy of centralised intent and decentralised execution. While it evolved with technological changes and the experience gained in higher formations during the First World War, its core philosophy remained unchanged until 1945.

The final doctrinal change of this period related to defence and the numbers of men required now that the Army's tactics had changed, and new equipment was available. It recognised the increased lethality of the infantry and prescribed that 3,000 men could now hold a front of up to one mile with a reserve, while 5,000 men could hold that same distance of frontage without a reserve.<sup>114</sup> This was a significant change from the previous standards in 1896 which had specified that the standard frontage of a division of 12,000 riflemen was just 700 yards.<sup>115</sup> And pointed towards the significant changes in warfare the early 20<sup>th</sup> century would bring.

With Haldane's reforms, the British Army was able to step into the 1910s with the confidence that it was adapting to the innovative technologies and imperatives of a contemporary style of warfare. It had a reorganised War Office, a General Staff, an overarching strategy for the Army, a Territorial Force, and an

---

114 Stone and Schmidl, *The Boer War and Military Reform*, 116.

115 Major-General HM Bengough, *Thoughts on Modern Tactics* (London: Gale and Polden, 1896), 26.

Army that could build and train an expeditionary force to fight on the continent. As Lord Anglesey stated, 'All these aims were accomplished to a remarkable degree just in time for the First World War.'<sup>116</sup>

As shown, the lessons learnt from the Boer War included the establishment of a culture of acceptance to change and a fledgeling process for creating new doctrine. Although there is scant evidence to illuminate the actual processes, it is apparent that, once the 'cult of the offensive' had diminished, the culture allowed progress and the benefits of combined arms manoeuvre grew. This represented a nascent informal process of learning which was yet to be underpinned by a formal process of learning, codification, doctrine creation and subsequent training, but it was to follow when needed in the second half of the First World War and was achievable due to the changes the Boer War imparted on the British Army.

---

<sup>116</sup> Anglesey, *A History of the British Cavalry*, 377.

## Chapter 4 – Lessons

The BEF took its experiences on the battlefield and chose, through both formal and informal processes, what to pursue and what to ignore. Primarily, the Army chose lessons that, at first, seemed to be credible improvements and, most importantly, were easily defined, understood and teachable. These were referred to as 'lessons identified' and are 'a change in behaviour because of experience'.<sup>1</sup> However, while a lesson may be identified, it does not necessarily follow that it is either adopted or learnt. There is another separate step whereby lessons are propelled into the subconscious or conscious so that they are enacted; simultaneously they become either informal or formal learnings.<sup>2</sup>

More recently, it has been noted that 'organisational learning is reliant on the interaction between formal and informal methods' and that the culture pervading the organisation is key to speedy adaptation.<sup>3</sup> This conflation of learning with culture is a recurring theme but is not developed further here as the culture of an organisation affects so many other factors.

To understand the lessons that the BEF had to learn upon arrival in France, consideration must be given to the circumstances which both shaped the BEF in the preceding years and enabled it to present itself as the fighting force it was. The timeline for transformation in an army is protracted. And, as discussed in chapter 1, changes to the moral, physical and conceptual elements of fighting power occur at differing rates; in the broadest of terms, however, it takes a minimum of five years to see any change of note.<sup>4</sup> The rate of change as a result of lessons learnt is a direct reflection of the degree of motivation for change, the willingness of an organisation to change, and the resources available to accomplish it.<sup>5</sup>

---

1 Eliot Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure of War and Peace in the Middle East* (New York: Free Press, 1990), 26-27.

2 Keith Bickel, *Mars Learning: The Marine Corps Development of Small Wars Doctrine, 1915-1940* (Boulder, CO: Westview Press, 2001), 15-17; Foley, Griffin and McCartney, "Transformation in Contact," 253-270; O'Toole and Talbot, "Fighting for Knowledge," 42-67; Chad Serena, *A Revolution in Military Adaptation: The US Army in the Iraq War* (Washington DC: Georgetown University Press, 2011), 44-48.

3 Fox-Godden, "Putting Knowledge in Power," 6.

4 Philpott, "Beyond the Learning Curve," 1-2.

5 Colonel (Retd) Jack Kem, "Military Transformation: Ends, Ways and Means," *Air & Space Power Journal*, Fall 2006, accessed 21 May 2020, <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj06/fal06/kem.html>

However, the 12 years between the Boer War and the First World War provided enough opportunity to change the BEF. As discussed in chapter 3, the primary lessons of the Boer War were dispersion, use of ground, maximisation of infantry firepower, the value of trenches to provide cover, and the benefit of cooperation between infantry, cavalry and artillery.<sup>6</sup> The Victorian era had previously generated plenty of lessons, but they had almost all failed to be disseminated in a meaningful way.<sup>7</sup> Consequently, the lessons had negligible impact on the Army, less for the regiments who had actually fought in the actions. However, the Boer War was different; because so much of the British Army contributed to the campaign it meant that the majority shared the same experiences of failure and motivation to succeed through revolutionary change.<sup>8</sup> Hence, British infantry tactics and training improved to a previously unknown level, well beyond that which contemporary commentators may give credit for. Not only were useful lessons derived from South Africa, but they also produced a raft of new doctrine; and, even more importantly, they improved training, both collective and individual, so that the entire British Army could absorb the new concepts.<sup>9</sup>

However, not all lessons from the Boer War were adopted. Infantry battalions were not equipped with enough machine guns due not only to costs but also to a concern over the use of new technology that had performed erratically in South Africa.<sup>10</sup> Secondly, artillery continued to seek out opportunities for direct fire to support infantry assaults rather than opting for an indirect approach.<sup>11</sup> Both are examples of simple lessons that went unheeded.

As such, the formal process of learning undertaken by the British Army in the early 1900s was not straightforward. While it was firmly influenced by the Boer War and to a lesser degree the Russo-Japanese War, the process of learning was haphazard, as highlighted in two of the journals of the day, the Cavalry

---

6 Lieutenant-Colonel RH Morrison, "Lessons to be Derived from the Expedition to South Africa regarding the best organisation of the Land Forces of the Empire," *Journal of the Royal United Services Institute* 45, no.2 (1901), 797.

7 Primarily because there was no established formal mechanism to record and analyse lessons from campaigns, less for the Government-led reviews at the grand strategic level.

8 General Sir Ian Hamilton, "Remarks by General Sir Ian Hamilton, Commander in Chief Southern Command, on the Training of Troops during 1907," *Journal of the Royal United Services Institution* 52, no.1 (1908): 83-84; Samuels, *Command or Control?* 103.

9 Snyder, *The Ideology of the Offensive*, 77-81.

10 Captain RVK Aplin, "Machine Guns in Our Own and Other Armies" *Journal of the Royal United Services Institute* 54, no.1 (1910): 50.

11 Marble, "The Infantry cannot do with a gun less," 99-125; and Jones, "The Influence of the Boer War," 43.

Review and Royal Artillery Journal. As they explain, the positive lessons from the wars were first exposed to a new rush of intellectual debate, and then subjected to financial scrutiny against a background of political and economic shifts which influenced what would be learnt and what would be forgotten.

While, initially, the tactical experiences of the Boer War dominated reform, their influence declined as time passed and the conflict faded from memory. Indeed, some have cited the fact that not all the Boer War lessons were implemented by 1914 as evidence that the war had limited tactical impact. Others have argued that those lessons that were accepted were fallacies that were to prove irrelevant in the First World War.<sup>12</sup> Even positive assessments of the Army of the period have concluded that some of the reforms introduced suffered from incomplete implementation.<sup>13</sup> This notwithstanding, it has been argued that these assessments forget the enduring difficulties of novel ideas gaining traction, especially when compounded by financial constraints.<sup>14</sup>

The British Army of the period has been described as anachronistic and resisting new ideas from an officer corps that was divided by rivalry and jealousies.<sup>15</sup> Indeed, it is suggested that the British Army had a culture of too much flexibility which was positively harmful, and led to unnecessary defeats and abdication of command responsibilities.<sup>16</sup> Ultimately, the British Army was not as well prepared for the First World War as it might have been and hence struggled in the first two years. However, one important factor is often overlooked, namely the fact that specific doctrinal ideas, born out of the Boer experience, prompted the fundamental change which was delivered by combined arms training, and which this thesis will explore. In the same manner, to suggest that the British Army had learnt little and was unprepared reflects only half of the evidence that will be presented later in this chapter.

---

12 Geoffrey R Searle, *Quest for National Efficiency, A Study in British Politics and Political Thought 1899-1914* (Berkeley: University of California Press, 1971), 50.

13 DM Leeson, "Playing at War: The British Military Manoeuvres of 1898," *War in History* 15, no.4 (November, 2008): 432-461.

14 MA Ramsay, *Command and Cohesion: The Citizen Soldier and Minor Tactics in the British Army 1870-1918* (Westport: Praeger 2002), 145.

15 Travers, *The Killing Ground*, 5.

16 Samuels, *Command or Control?* 145-148.

This chapter will consider the lessons taken from the Boer War into the First World War and how they shaped the deploying force in 1914, set against the context of how learning developed thematically. It will go on to consider the immediate changes the BEF made after the phase of manoeuvre became static in 1914. The chapter will then focus on the mechanism of how lessons were identified and sent into the process of learning, before finally looking at how lessons were distributed throughout the BEF and other theatres.

### **The context for learning on the Western Front**

The BEF's learning on the Western Front splits into four distinct phases which this thesis brackets either side of the end of the Somme campaign. Phase One, the opening phase of mobile warfare, between August and November 1914, during which the Boer War lessons were exploited and the BEF survived. A second phase, between December 1914 and June 1916, during which a period of geographic stalemate developed as the Army rapidly expanded, but lessons were in short supply due to a lack of formal processes for their capture, synthesis, and dissemination and the death of junior officers, marking the end of predominantly informal learning. A third phase, between July 1916 and August 1917, when the Army recognised the need for change and implemented not only new techniques and technologies, but also started to consider the possibility of instigating a formal mechanism and staff for the establishment of a process of learning. And a final phase, between September 1917 and November 1918, which saw a dramatic transformation of how the Army considered and conducted operations, with the instigation of the Training Directorate and, latterly, the Inspectorate of Training.<sup>17</sup>

These four phases reflected changing mindsets, opportunities and motivation. And it seems that it was only with the extreme motivation of the losses on the Somme in 1916, and the intellectual approach of General Sir Douglas Haig to take on the learning challenge, that senior generals defined the issue and then acted.<sup>18</sup>

---

<sup>17</sup> Robbins, *British Generalship on the Western Front*, 132.

<sup>18</sup> Griffith, *Battle Tactics of the Western Front*, 57.

During the First World War, lessons required a process of learning that would adapt as circumstances changed. This did not exist during the first half of the war while the processes were informal but developed after the Somme as a degree of formality took hold. Examples of the need to train and learn can be seen in diary entries such as those of the 51<sup>st</sup> (Highland) Division, during the German Spring Offensive in 1918; a time when the BEF was physically and emotionally stretched and facing the most concerted attack by the German Army.

The Division having sustained 219 casualties to officers and 4,646 ORs in the operations concluding 26 March was, therefore, composed of fresh drafts, both of officers and other ranks, when it went into action on 9 April. It became clear during these operations that the officers and men were lacking in training in the elementary duties of an infantry soldier and were unable to apply the lessons learnt. There was a conspicuous lack of confidence in the rifle and of the ability to use it effectively. The knowledge of the use of ground and cover, and fire control, both on the part of officers and men, or small bodies of men without a leader, were devoid of initiative.<sup>19</sup>

This thesis suggests that at the beginning of the process of learning is the practice of finding opportunities for improvement to the doctrinal approach. This is colloquially known as identifying lessons and, in military texts, is referred to as the 'lessons learnt process'.<sup>20</sup> Regardless of the nomenclature, the process of learning, within an army, is initiated when an individual or body of men first identifies an action, or reaction, that would improve their performance in relation to their adversary.<sup>21</sup> Once identified, the lesson travels on a journey of acceptance via testing, discussion and initial implementation, before being codified, or not, into formal doctrine. This chapter will analyse the process, specifically examining how new techniques or

---

<sup>19</sup> TNA, PRO, WO 95/2846, *51st Division, Lessons Learnt from the Operations from 9-15 April 1918*.

<sup>20</sup> Such as TNA, PRO, WO 95/160, *1st Army GS War Diary, 'Some Artillery Lessons to be Learnt from the Recent Operations in September–October 1915'*, November 1915.

<sup>21</sup> *ADP, Land Ops* states that lessons are experiences, examples, or developed observations that impart beneficial new knowledge or wisdom for the future. Lessons can be identified through historical study, training, operations, and the experiences of other forces. An effective lessons capability depends on a military culture that strives for continuous improvement, encouraging enquiry into and examination of what has gone well and what has not. Fundamental to this culture are leaders who engage directly and openly in the process, with humility, trust, and a willingness to learn.



procedures moved from fledgeling ideas into Army doctrine and reached the point where they were formally accepted as the norm and of such relevance that they should be shared via the training system.

General Haig alluded to the importance and benefit of learning in his annual report to the Chief of the Imperial General Staff published in the London Gazette on 29 December 1916,

Our new Armies entered the battle with the determination to win and with confidence in their power to do so. They have proved to themselves, to the enemy, and the world that this confidence was justified, and in the fierce struggle they have been through they have learned many valuable lessons, which will help them in the future.<sup>22</sup>

The situation is summed up by Gary Sheffield who opines that the battles of 1915 were defined by a race to learn and apply lessons.<sup>23</sup>

As such, the BEF's learning in 1915 can be thought of as an allegory for the overall war at the time: 'Tremendous difficulties to overcome, with differing degrees of current success, huge growth required, to lead to eventual victory.'<sup>24</sup>

As well as the formal processes and documents that supported learning, lessons also took the form of so-called Battle Wisdom, whereby what was seen to succeed became the norm without any formality; the very definition of the informal approach.<sup>25</sup> For example, shortly after the 32<sup>nd</sup> Division's action in the first days of the Somme campaign, the feedback process began. Those involved in the tactical battle, battalions, and brigades, were interviewed to ascertain their thoughts and reports were written. The resultant papers, in the

---

<sup>22</sup> This despatch was published as a supplement to the London Gazette on 29 December 1916.

<sup>23</sup> Sheffield, *The Chief*, 102.

<sup>24</sup> Todman, "The Grand Lamasery Revisited," 40-41.

<sup>25</sup> Mitchell, "An Inter-Disciplinary Study of Learning," 125.

form of narratives, were synthesised and sent up to higher headquarters where they were filtered and cohered before being passed to GHQ.<sup>26</sup>

Staff officers at each level tried to draw out the salient lessons by looking for common themes across the different formation reports. By considering the unit war diaries from brigades and divisions it seems clear that certain themes would build momentum as their commonality was established.<sup>27</sup> If a theme was evident, it gained more traction and was, therefore, more likely to move higher up the chain of command.<sup>28</sup> The credibility of a lesson depended upon many factors and while some flourished, others withered.

Several factors could theoretically account for such variance. The number of times a lesson was reported, the rank of the report writer, the rank of the lesson witness, and the support it had from the reporter's immediate chain of command, i.e. their commanding officer.<sup>29</sup> This suggestion is hard to prove definitively but by examining the divisional war diaries written during particular battles, and assessing the rates of success and failure at those battles, some links can be made with regards to the possible emergence of new ideas that could have formed the basis of lessons and, eventually, new doctrine. See chapter 8 for further details.

In the first half of the war, the BEF made progress drawing upon the lessons drawn from the Boer War.<sup>30</sup> However, it then fought itself to a standstill in the first eighteen months of campaigning as the volume of casualties impeded the BEF's ability to learn.<sup>31</sup> After the Somme campaign – which, in many ways, was the tipping point for learning lessons, as exemplified by the experience of the 32<sup>nd</sup> and 51<sup>st</sup> Divisions – there was renewed motivation to improve their doctrinal approach and tactical actions.<sup>32</sup> The casualties, loss of

---

26 TNA, PRO, WO 95/155, *1st Army General Staff War Diary*, Sir Richard Haking, 'Report on the Attack of the 1st Division from the Rue du Bois on 9th May 1915,' 16 May 1915.

27 See TNA, PRO, WO 95/1671, *8th Division War Diary and Narrative of Operations*, September 1914 – March 1915; TNA, PRO, WO 95/1707, *23rd Infantry Brigade War Diary*, November 1914 – May 1915; TNA, PRO, WO 95/1680, *8th Division War Diary*, September 1914 – December 1915, which discusses better supplies for 8th Division, better integration of artillery, and how new signs in the trenches allowed for improved movement of reserves into the front line at speed.

28 TNA, PRO, WO 95/2368, *32nd Division GS, AG 142/167*, 3 July 1916 requested brigade and battalion reports be sent to Divisional Headquarters.

29 Emir Watt, "Managing Deadlock," 55-56, 81-85.

30 Jones, *From Boer War to World War*, 23.

31 Niall Cherry, *Most Unfavourable Ground: The Battle of Loos, 1915* (Solihull: Helion, 2008), 309-321, gives successive examples of the casualty rates amongst officers and NCOs throughout 1915 and their subsequent impact on their fighting ability.

32 Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters*, 66-68.

equipment and increasing political pressure generated a more thorough approach to learning, and new staff branches were instigated to formalise the processes; including the generation of a new process that could capture lessons more readily and, specifically, a new staff branch in GHQ called the Training Directorate.<sup>33</sup>

By examining the war diaries, and various less formal reports from the Western Front, this chapter will focus on how lessons were captured and translated into new tactical actions within the new doctrine. The chapter will then consider how lessons were learnt and the processes associated with their adoption, followed by how they were distributed, and how the SS manuals were used. Finally, the chapter will highlight the main changes initiated by the lessons process. But first, an understanding of what lessons the BEF had taken into the first few months of the First World War is required.

### **What had the British Army learnt before the First World War?**

Before the Boer War, training above the battalion level was extremely rare. However, lessons from the South African campaign demanded better cooperation and integration at the divisional level. Lord Kitchener summed up the approach with a statement as Commander-in-Chief of India, that 'we must follow a system of training for war'.<sup>34</sup>

As a result of the Boer War, Army training would now follow the guidance laid out in Army doctrine. It specified that during the autumn and winter, platoons and companies would work together in preparation for the practising of battalion manoeuvres in the spring. In the summer, annual manoeuvres at Aldershot would become the norm for regular troops.<sup>35</sup> Training was expanded so that some manoeuvres were conducted at the corps level for the first time and specifically included Dominion troops, mostly Canadians. This Dominion integration forced all commonwealth troops to adopt the doctrine and organisation imposed

---

<sup>33</sup> Sheffield, *The Chief*, 209.

<sup>34</sup> JFC Fuller, *Army in My Time: The Story of Bacon's rebellion and Its Leader* (London: Scholars Bookshelf, reprinted 2006), 112.

<sup>35</sup> Captain Eric Sheppard, *A Short History of the British Army to 1914* (London: Constable and Company Ltd, 1926), 293.

by the Imperial General Staff across the British Empire and generated a coherent approach and the mutual understanding that a single doctrine provides when different armies fight together.<sup>36</sup>

As Corps Commander for Aldershot, Lieutenant-General Horace Smith-Dorrien commented upon the new training and its improvements, with the use of umpires and referees to assess performance rather than taking the word of senior officers who found it hard to be harsh on their troops. 'The training was no longer a gentlemen's affair but was observed, assessed and amended if necessary'.<sup>37</sup>

The British Army seemingly adopted the most critical lessons from the Boer War and now understood the importance of troop dispersion, the use of the ground, maximisation of infantry firepower and the value of trenches to provide cover.<sup>38</sup> The Victorian era had generated plenty of lessons, but they had almost always failed to be implemented in any meaningful way beyond the units that had experienced them.<sup>39</sup> The Boer War was different. By absorbing virtually all regular regiments of the British Army, it meant that the majority shared an equally frustrating experience. The lower level tactical lessons abounded, but the integration of the artillery with the infantry would be shown to be nowhere near adequate for modern warfare.<sup>40</sup>

Regarding artillery, the British Army found themselves woefully outgunned at almost every significant engagement of the Boer War. As pointed out by Sir Charles Dilke, a member of the Esher Commission, 'the commission failed to give good guidance concerning the poor state of British field guns regarding the rate of fire, range and numbers.'<sup>41</sup> The field artillery and heavy guns of the British forces were inferior counterparts to the Krupp and Creusot guns of the Boers. The British Army had to rely on the Royal Navy to provide mobile naval guns and their detachments to provide heavy artillery support during the war.<sup>42</sup>

---

36 Horace Lockwood Smith-Dorrien, *Memories of Forty-eight Years' Service* (London: John Murray, 1925), 351.

37 *Ibid.*, 352.

38 BFS Baden-Powell, *War in Practice: Some Tactical and Other Lessons of the Campaign in South Africa 1899 – 1902* (London: Isbister and Company, 1903), 38, 41, 50.

39 Jones, *From Boer War to World War*, 16, 18-19, 41.

40 Infantry and Artillery cooperation needed to improve.

41 Sir Charles Dilke, "The Report of the War Commission," *Journal of the Royal United Service Institution* 48, no. 2 (1904): 225.

42 Major-General HM Bengough, *Notes and Reflections on the Boer War* (London: William Clowes and Sons, 1900), 23.

Smokeless powder and an increased small arms range led to five key doctrinal lessons. The most important suggested that attacking formations had to be more open and dispersed. All troops had to be more familiar with and able to use cover from fire and view. A detailed study of the ground by leaders and staff was of great benefit and troops could make more of the increased use of entrenchment. Lastly, more had to be done about the ineffectiveness of the British Cavalry in a reconnaissance role.<sup>43</sup>

The Army also learnt lessons regarding individual equipment. The Lee-Enfield Mark 1 Short was an outstanding infantry, as well as a cavalry, rifle. With only minor changes it would see active service for the next fifty years. Bandoliers now replaced all previous methods for carrying ammunition and allowed men to carry up to 220 rounds of ammunition easily. The uniform was well regarded and maintained with minor changes throughout the 1930s.<sup>44</sup> In general, many observed that the Army must lighten the overall load of the infantryman and cavalryman to provide for better mobility, although this has always been a complaint of the infantry soldier.<sup>45</sup>

Major-General Redvers Buller complained bitterly that his staff officers were of poor quality.<sup>46</sup> Trained staff officers existed, but not in enough numbers to meet the need of the hugely expanded Army during the Boer War. Colonel Grierson, a staff officer in Pretoria in 1900, wrote, 'I think our first lesson is that we must have big annual manoeuvres and have our staffs properly trained.'<sup>47</sup> Thankfully, this lesson was followed through and the Camberley Staff College reinvigorated between 1894 and 1908.<sup>48</sup>

The British Staff College had produced an 'unprecedented number of trained staff officers' between the Boer War and the First World War.<sup>49</sup> Permanent staffs were established at battalions, brigade and corps

---

43 Ibid., 16.

44 Stone and Schmidl, *The Boer War and Military Reform*, 112.

45 Sean Rayment, "Britain's 'donkey' soldiers are losing the war in Afghanistan," accessed 21 August 2015, <http://www.telegraph.co.uk/news/worldnews/asia/afghanistan/8455741/Britains-donkey-soldiers-are-losing-the-war-in-Afghanistan.html>

46 Bond, *The Victorian Army and the Staff College*, 114.

47 Ibid., 187.

48 Bowman and Connelly, *The Edwardian Army*, 65.

49 Bond, *The Victorian Army and the Staff College*, 190.

headquarters, where previously there had been none.<sup>50</sup> Staff College had to 'train officers in staff work' as their foremost function and, in doing so, allow students to become masters of operational, administrative, and logistical functions.<sup>51</sup> Indirectly, Staff College also became a 'school of thought,' which was required to dislodge the Edwardian approach and reach into the 20<sup>th</sup> century. In this way, the British Army was able to create a sense of uniformity and harmony in the Army as a whole.<sup>52</sup>

Overall, the impact of the Boer War on the BEF allowed it to arrive in France fit to fight the initial manoeuvre war. However, more lessons needed to be learnt quickly if it was to be able to keep ahead of the German rate of change as the First World War went from one of movement to static.

### **Early lessons from the First World War**

Marksmanship and entrenchment, both lessons taken directly from the Elgin Commission, gave the BEF the advantage it needed to defend against the numerically superior German forces. Additionally, British individual marksmanship was vital to the BEF's ability to hold out against overwhelming numbers of attackers in almost every engagement of 1914.

Trained to fire fifteen aimed rounds a minute, the British Riflemen, of the Infantry and Cavalry alike, quickly overcame the counter-fire of the attacking Germans who, coming forward in closely-ranked masses, presented unmissable targets.<sup>53</sup>

The British Cavalry conducted its reconnaissance role exactly as prescribed in doctrine, with the cavalry soldiers fighting primarily dismounted with their rifles, leading their horses when on the march to maintain their mounts for when they were needed most.<sup>54</sup>

---

50 Ibid., 190.

51 Sheffield, *The Chief*, 26.

52 Bond, *The Victorian Army and the Staff College*, 258 – 259.

53 Edmonds, *British Official History*, 181-182.

54 Correlli Barnett, *Britain and Her Army, 1509-1970: A Military, Political and Social Survey* (London: Faber, 2013), 372.

Between the Boer and First World War, there was considerable debate about the precedence of attack over defence. However, while the British Army kept the offensive as the decisive action in the war, it still recognised the concept of defence in doctrine, even though *FSR 1909* was scant in detail. Furthermore, the British Army still trained for entrenchment and defence at all levels. Indeed, defence training proved decisive in the operations during the long retreat from Mons; fought as a series of rear-guard actions, the British soldiers entrenched without being prompted, a sharp contrast with the actions of soldiers in South Africa a decade earlier. Not only were trenches dug, the cooperation of the artillery and engineers was also well practised and fluent.<sup>55</sup>

Another of the lessons taken from the Boer War was the need for improved cavalry performance in reconnaissance, screening, and guard missions. As discussed earlier, before the Boer War, the British Army had placed too much emphasis on the 'arme blanche,' and not enough on other cavalry missions.<sup>56</sup> By the outbreak of the First World War, the cavalry understood its contemporary mission and roles and had practised them on exercise in and around Aldershot for the preceding six years since the publication of their new training doctrine in 1908.<sup>57</sup> In executing the reconnaissance screens, and guarding the retreat of the BEF in the autumn of 1914, the cavalry excelled in their application of new doctrine derived from the Boer War experience. Indeed, they succeeded in delaying German columns who often thought they were engaging infantry formations far larger than the small cavalry covering forces.<sup>58</sup> As such, it can be shown that the cavalry demonstrated that it had learnt the lessons of the Boer War. However, many issues were not resolved satisfactorily, many of which were compounded in 1915 by the lack of relevant doctrine, suitable training and a system to recognise the need for comprehensive change and a process of learning.<sup>59</sup>

---

55 As described in GHQ, *CDS 5, Trench Warfare* (HMSO, February 1915), 2-4, and as outlined in LHCMA, Montgomery-Massingberd Papers 6/4, *Sir Henry Rawlinson, 'Artillery Lessons' and Brigadier-General Budworth, 'Artillery Lessons,'* 3 September – 13 October 1915, 1926.

56 The French term *Arme Blanche* which translates "cold weapon," refers to the cavalry sabre.

57 Badsey, *Doctrine and Reform in the British Cavalry*, 2-3, 18-21, 56-58.

58 The Battle of Mons was the effective withdraw of the initial BEF from the Mons area in late August 1914 while it tried to maintain its flank protection with the French Army. The retreat was covered by the 2nd Cavalry Brigade.

59 Griffith, *Battle Tactics on the Western Front*, 12; Robbins, *British Generalship on the Western Front*, 132.

Up to the summer of 1916 lessons and learning were ad hoc at best, and non-existent at worst, relying upon informal methods.<sup>60</sup> A lack of formality, no dedicated staff to drive them and no senior officer championing a lessons process allowed lessons to be missed or misinterpreted. Even so, some change occurred, e.g. the utility of the rifle was overtaken by the effectiveness of the Mills Bomb for close-quarter fighting and was quickly brought into the syllabus for trench-clearing.<sup>61</sup>

Maintaining communications between headquarters and troops on the battlefield was exceedingly difficult, so considerable staff work went into planning battles. Unfortunately, this had the unintended consequence of almost paralysing the units as they feared moving too far away from the agreed plan when circumstances changed.<sup>62</sup> The positioning of the platoon commander was therefore vital if a degree of flexibility to orders was to be achieved. The expected place at the front of the platoon was a compelling location but made these junior commanders easy targets for the enemy and led to the premature failure of a tactical action as the leader became a casualty.<sup>63</sup>

Having established some of the most notable lessons from the first half of the First World war, the actual process of identifying and adopting lessons will now be examined.

## Learning lessons

The example of artillery support to the 51<sup>st</sup> (Highland) Division shows how lessons were captured in war diaries, transferred into lessons learnt submissions, and were then brought into doctrine. How artillery changed its approach to supporting the advancing infantry was articulated in *SS 199, Co-operation of Sound Ranging Sections and Observation Groups with Artillery*, and the change in firing techniques is indicative of

---

60 Foley, "Dumb Donkeys or Cunning Foxes," 291.

61 Travers, *How the War Was Won*, 8; Simpson, *Directing Operations*, 61; Sheffield and Todman, *Command and Control on the Western Front*, 16.

62 William Philpott, "Total War," in *Palgrave Advances in Military History*, eds. Matthew Hughes and William Philpott (Basingstoke: Publishing House, 2006), 139;

Nicholas Lloyd, "'With Faith and Without Fear': Sir Douglas Haig's Command of the First Army During 1915," *Journal of Military History* 74, no.4 (2007): 1051-1076.

63 TNA, PRO, WO 95/26.



the formal change process.<sup>64</sup> By studying the 51<sup>st</sup> Division report on the operation at Cambrai in November 1917, it becomes evident that changes had been made to how the artillery was moved in relation to the infantry advance.<sup>65</sup> The report specifies that instead of the barrage being moved forward at an explicit time, it was instead moved forward when certain conditions were met, usually the sighting of the forward elements of infantry at set marks identified on the ground. *SS 199* explained,

The essential principle is that the leading infantry should follow so closely on the heels of the barrage that the enemy has no time to recover or man his machine gun before they are on him. This principle will be assiduously impressed on all ranks both through lectures and in practice attacks so that every man thoroughly understands that his safety lies in getting close up to the barrage and that he must wait for no orders to advance the moment the barrage lifts.<sup>66</sup>

The initial and most important factor in the BEF lessons process was the capturing of new experiences that seemed to be of benefit. This act, by its very nature, is extremely hard to assess or comment upon more than one hundred years later. There is an undefined link between action and reaction so that the correlation is not necessarily proof of causation, but in the absence of being able to speak to the individuals of the time, it is the strongest link available. The intellectual leap required to quantify the changes in doctrine from the lessons identified is compounded by the lack of a common format of reporting or methodical system of identification. Within the unit, brigade and divisional war diaries there is enough information to understand the new approaches taken, but they rarely make any reference as to the reason why and have not been seen to reference doctrine as the cause of change. The best evidence refers to new training, invariably at new schools, where it is assumed the new doctrine was taught. Yet, this logical assumption remains the best guess hypothesis.

---

<sup>64</sup> *SS 199*.

<sup>65</sup> TNA, PRO, WO 95/2845, *51st Division G War Diary, Instructions with Regards to Offensive Operations*, November 1917.

<sup>66</sup> *SS 199*.

In outline, the four main forms of lessons capture were: war diaries, formal battle reports, informal discussion by senior officers, and the formal *SS Notes on Recent Fighting* publications.<sup>67</sup> While some of these initiated new lessons, others formalised them, but no matter how a lesson was captured, they all played their part in the foundation of the process of learning on the Western Front, which would initiate the transformation of the BEF.

### **War diaries**

The starting point for the capturing of most lessons was the requirement that units should keep a war diary, as specified in *FSR 1909 II*,

War diaries achieve two functions. Firstly, to offer an accurate record of the operations from which the history of the war can subsequently be prepared. Secondly, to collect information for future reference to effect improvements in the organisation, education, training, equipment, and administration of the army for war.<sup>68</sup>

Several copies of the diary would be made and, once compiled, they would be sent to higher headquarters and onwards to GHQ before dispatch to the War Office.<sup>69</sup> Doctrinally, war diaries were considered an integral part of the post-war appraisal system of the British Army.<sup>70</sup>

War diaries played a significant role during the war, in some cases new commanders would treat them like a post-action report to get a better understanding of what the formations had experienced before they joined them.<sup>71</sup> An example of this can be found in the personal papers of Major-General Thomas Stanton Lambert

---

<sup>67</sup> There were seven 'Notes on' SS pamphlets published during the war. The most notable being GHQ, *SS 156, Notes on Recent Operations* (HMSO: April 1917), GHQ, *SS 160, Notes on Recent Operations* (HMSO: March 1917), and GHQ, *SS 172, Preliminary Notes on Recent Operations* (HMSO: July 1917).

<sup>68</sup> *FSR II*, 174-175.

<sup>69</sup> *FSR I*, 211.

<sup>70</sup> Within the UK National Archives, these are held in the WO 95 series.

<sup>71</sup> Mitchell, "An Inter-Disciplinary Study of Learning," 20.

which include a significant collection of war diaries and official reports from the 32<sup>nd</sup> Division in the spring and summer of 1917. They cover the German withdrawal to the Hindenburg Line in April, operations close to the Belgian coast near Nieuport in July, and the Passchendaele ridge in December; all of which predated his service with 32<sup>nd</sup> Division, which only began in May 1918.<sup>72</sup>

While these papers could have been added after the war, the fact that they were filed alongside his official papers from his time in command suggests that he received them for his use. And while it is difficult to say where the files came from, their existence confirms that, at the very least, Lambert took an interest in the past successes of the Division. Additionally, the focus of the files on the Division's significant engagements, suggests that they were examined for evaluating planning, performance and relevant lessons.

As previously mentioned, the impact of casualties on reporting could have made a significant difference to the lesson capturing process. The lessons were very often a reflection of who had survived and what they had seen. If they were a junior officer who had not taken part in the planning of an assault, it would have been difficult for them to report anything other than their experience as they could not relate the outcome to the plan, and hence were unable to make tactical observations about the quality of the plan.

An example of this is the case of the 7<sup>th</sup> Seaforth Highlanders, during the Battle of Loos in 1915.<sup>73</sup> The battalion attacked the Hohenzollern Redoubt on 25 September 1915 with twenty officers and circa 800 soldiers. By mid-morning, their commanding officer had been killed and the battalion adjutant wounded. Command fell to Captain Bennett who became a casualty soon afterwards. With all the company commanders also killed or wounded, Captain Henderson took command of the 7<sup>th</sup> Seaforths until he too was killed two days later. The battalion was then commanded by Major Pelham Burn who had not taken part in the original assault on 25 September. However, as Burn's experiences of the 25–27 September was second-

---

72 IWM, Lambert Papers 80/10/1, Major-General TS Lambert, *Report on the Operations of the 32nd Division April 1917*.

73 With thanks to Emir Watt for identifying this case as outlined in "Managing Deadlock," 187-190.

hand, it fell to Lieutenant Wyndham-Green, to compile the after-action report as he was the only original officer remaining from the start of the battle.<sup>74</sup>

This seemingly typical occurrence highlights why war diaries can be either incomplete or missing key information. Lieutenant Wyndham-Green was a junior officer who had no input into the preparation of the battalion's actions on 25 September. As such, he was unable to quantify the result of the three days of fighting and so his after-action report is no more than a factual record of what he witnessed rather than an analysis of the battalion attack. Thus, researchers must be careful when examining war diaries as it is almost impossible to link reports made at battalion level and then follow them up into brigade, division, and corps, due to the mass of data that would have to be analysed.

The most easily identified lessons come in the form of artillery doctrine as they are more distinguishable and have a foundation in detailed methodologies that can be linked to infantry actions. The war diaries of the 6<sup>th</sup> Infantry Division, between their landing in France in September 1914 and up to November 1918, refer to artillery lessons that were adopted for their benefit. The Division was supported by both the 2<sup>nd</sup> and 24<sup>th</sup> Brigade Royal Field Artillery, equipped with 18-pounder and 6-inch howitzers. It is possible that due to their almost constant affiliation to the 6<sup>th</sup> Infantry Division, their ability to record lessons was better than average.<sup>75</sup>

The changes to infantry support by artillery fall broadly in line with the overarching doctrine of the First World War either side of the Somme campaign. The 24<sup>th</sup> Brigade Royal Artillery record two distinct lessons and thus new doctrines that supported the 6<sup>th</sup> Infantry Division. From their diary in April 1915 there is a clear change in ammunition nature as they supported an advance. Previously the artillery had fired a selection of high explosive and shrapnel shells in what seemed a random mixture. However, with the declaration that 'leaning

---

<sup>74</sup> TNA, PRO, WO 95/1762, *26th Infantry Brigade War Diary*, September 1915 supplement; TNA, PRO, WO 95/1765, *7th Seaforth Highlanders War Diary*, Lieutenant Wyndham-Green, 'The 7th Seaforths in Action, 25–27 September'.

<sup>75</sup> TNA, PRO, WO 158/316, *Third Army Operations Narrative and Lessons drawn from Cambrai*, October - December 1917; TNA, PRO, WO 158/344, *Fifth Army lessons learned from 1916*.

into' the barrage was more important than ever, their doctrine changed to allow the supported infantry to get closer in than ever before. By acknowledging that the terrain they were fighting over was 'boggy' they understood that shells landing in the soft ground were likely to sink fractionally before detonating and thus restricted the blast radius and lethality of the shell.

This important physical property meant that supporting infantry could take more risks and get closer in the knowledge that shell fragments would travel less. Consequently, the firing programmes from the 24<sup>th</sup> Brigade showed that at the beginning of the advance, higher levels of shrapnel shell would be used that burst in the air and had large lethal zones, but the proportion of shrapnel shell would reduce significantly as the infantry got closer to the enemy lines and would be replaced by high explosive that had reduced fragmentation due to the boggy ground. The infantry could lean in more to the barrage and get almost on top of the enemy trenches before feeling the effects of their artillery fire or being engaged by the enemy.<sup>76</sup>

### **Formal battle reports**

*FSR II*, page 174, order 139, shows how the second form of lesson capture, the formal battle reports, was to be structured,

Reports on actions by subordinate commanders should, when possible, include information on the following points.

1. Situation and strength before the beginning of the action.
2. Disposition of the troops and time when the action began.
3. Orders issued and received (written and verbal).
4. Circumstances during every critical period of the fight.

---

<sup>76</sup> TNA, PRO, WO 95/862, *24 Field Brigade War Diary*, April 1915; for details of ammunition selection see Bailey, "Artillery and Warfare 1945-2025," 25; for details of the Artillery role in the Somme offensive see TNA, PRO, WO 95/862, *X Corps BGRA diary*, April 1916.

5. Movements of neighbouring units during the fight.
6. The nature and result of the engagement.
7. Names and commands of superior officers of the ending gauged.
8. Plan of intended operations on the night or day following the action.
9. List of casualties captures arms lost or damaged and ammunition expended.
10. Gallant or meritorious actions of individuals or units.
11. Sketches should be attached to illustrate or amplify the report.<sup>77</sup>

In the days following the main offensive, a Division's feedback process would begin. Officers and men were asked to comment upon their experience, a report was written, and follow-up questions may have been asked.<sup>78</sup> The result was a set of narratives at each level of command that highlighted the sequence of events in an attempt to draw out the salient lessons. Thus, battalions wrote accounts for the brigade, who then analysed them and compiled a report of their own to be sent to the divisional staff, sometimes along with copies of the battalion reports.<sup>79</sup> The division then cohered the brigade reports to form their divisional report, which was then sent to corps headquarters, before continuing upwards to Army headquarter and then GHQ.

Unfortunately, there were two significant limitations to this system. Firstly, the originating officer had to consider an idea worthy of promotion and take the necessary time to detail the issue logically and comprehensively so that it would be understood by those who read it. Not only did this take time, it also required motivation and a thorough knowledge of current doctrine. Without enough depth of knowledge, officers were probably reticent about sending in ideas for fear of humiliation or being accused of ignorance.<sup>80</sup> Secondly, the submissions at every level required filtering at each headquarters. And the officer responsible for selecting which ideas would be promoted and which would be discarded was not constant throughout any part of the BEF. The ability of single ideas to flourish or die could be random.<sup>81</sup>

---

<sup>77</sup> *FSR II*, 174.

<sup>78</sup> Mitchell, "An Inter-Disciplinary Study of Learning," 117-120.

<sup>79</sup> *Ibid.*

<sup>80</sup> Fox-Godden, "Putting Knowledge in Power," 97.

<sup>81</sup> Pugsley, "We Have Been Here Before," 15.

An example of lessons being staffed to higher headquarters can be seen in the reports of the I Canadian Corps after the battle of Passchendaele in October 1917. They summarised their findings for their Corps headquarters and included a section on 'lessons and deductions'.<sup>82</sup> The focus of the section was on command and control, specifically that junior officers and non-commissioned officers must be knowledgeable of the chain of command and ready to take over if necessary, and that better inter-division liaison was vital.<sup>83</sup> Major-General Arthur Currie, at corps headquarters, noted these findings and submitted his report to Second Army, laying out his priorities in a set-piece attack.<sup>84</sup>

In his report, Major-General Currie 'expressed his delight' in the esprit de corps and training of his men. He stressed that the time allowed to prepare was significant as it had allowed his troops to be better supported by artillery. Furthermore, he said that this support was made possible by roads and tramlines that had been built by the corps and were key to the supply of the division, and that the sustainment of the division was improved by advanced liaison at corps headquarters.<sup>85</sup>

Major-General Currie also said that placing the assault troops in the front-line trenches twenty-four hours before H-hr would improve their chances of immediate success. Primarily because they could reconnoitre the ground over which they would assault and could then make their preparations for the appropriate use of reserves. Finally, Currie explained the problems involved in mopping up any bypassed enemy positions that offered sterner resistance than had been anticipated. And he stressed that these enemy strongpoints should only be ignored for a short time to maintain momentum but that they must then be dealt with as soon as possible.<sup>86</sup>

---

82 Ian Brown, "Not Glamorous, But Effective: The Canadian Corps and the Set-Piece Attack, 1917-1918," *The Journal of Military History* 58, no.3 (July, 1994): 421-444.

83 National Archives of Canada (NAC) RG9 111 C1, 3853, folder 68, file 3, *Lessons and Deductions, 1st Canadian Division Report on the Passchendaele Ridge Operations 4-12 November 1917*.

84 NAC, RG9 111 C1, 3854, folder 71, file 7, *Canadian Corps G724/27-3 to 2nd Army, 20 November 1917*.

85 NAC, RG9 111 C1, 3854, folder 71, file 7.

86 NAC, RG9 111 C1, 3853, folder 68, file 3.

In November 1917, Major-General Currie's Corps moved to Vimy for the winter and took the opportunity to study the operations of the previous year. While they had taken plenty of lessons from their experience of the Passchendaele attacks, the primary process of learning started post-battle, and at a slower pace, over the winter. The result of the winter study was an acceptance by I Canadian Corps that they would need to adapt to a more open style of warfare in 1918.<sup>87</sup>

A further example of lessons being captured in formal battle reports is seen in the account by the Commander Royal Artillery (CRA) of the 8<sup>th</sup> Division in respect of the lessons learnt from the Battle of Neuve Chapelle in early April 1915. Brigadier-General Holland specified in his report to the Major-General Royal Artillery (MGRA), at Corps headquarters, that the deliberate registration of the artillery to guarantee the accuracy of the first rounds was preferable for all-out surprise,

I would also again draw attention to the vital necessity of having all the batteries in position at least fourteen days before the attack takes place to enable deliberate registration to be undertaken, and during this period a wireless aeroplane should be at the disposal of the artillery daily for work.<sup>88</sup>

The 8<sup>th</sup> Division war diaries show that they established a routine to deal with the intensity of trench warfare and the rotation of troops through front line duty, then acting as a reserve, and finally into a training period.<sup>89</sup> It seems that they were proficient at studying their previous attacks and adapting their tactics accordingly. For example, at a staff symposium on 3 May 1916, the following lessons were taken forward,

1. A model of the Divisional front will be made so that officers from battalions in Divisional Reserve can study the ground of future attacks.
2. Some of the trench avenues will be renamed to reduce confusion and make the movement of reserves quicker.

---

<sup>87</sup> Charles Messenger, *The Day We Won the War. Turning Point at Amiens 8 August 1918* (London: Weidenfeld and Nicolson 2008), 17-18, 28-33, 55-56.

<sup>88</sup> TNA, PRO, WO 95/1672, *8th Division War Diary, Report G203K*, 8 April 1915.

<sup>89</sup> About rotation through the trenches.



3. Commander Royal Engineers (CRE) will commence work on a trench tramway system for carrying supplies forward to the trenches.
4. Consultations are developing to hire some ground for rehearsals at full scale.<sup>90</sup>

From the 8<sup>th</sup> Division war diaries it seems that, in practice, the reports that arrived at corps headquarters would seldom contain all the necessary criteria from *FSR II*, order 139, as some of the requisite information would be almost impossible to quantify so soon after the battle, especially if officer casualties had been high. Instead, it seems that more often than not the reports that arrived at higher headquarters contained the critical information but did so in a narrative form that omitted some of the detail laid out by the criteria.<sup>91</sup>

For example, the records of the 1<sup>st</sup> Battalion the Lancashire Fusiliers, held at divisional headquarters, contain a report outlining a raid carried out on 5 and 6 May 1916. In it are the officers' accounts of the night raid and a list of essential lessons such as the utility of the correct clothing, the darkening of soldiers for camouflage, the requirement for clubs and knives for stealthy dispatch of the enemy, and the utility of hand bombs if events become 'meaningful'. The report went on to outline the utility of the new steel helmet once the raiding teams were engaged by artillery.<sup>92</sup>

The quality of reporting was often affected by both the severity of the fighting and the length of a battle. Accordingly, during the Somme offensive reporting diminished significantly. However, during this intense battle examples of lesson transfer down and back up the chain of command can still be seen. One such example of this is in the report of *the Trench Mortars of the 32<sup>nd</sup> Division*, where it is stated that,

---

90 TNA, PRO, WO 95/1674, *8th Division War Diary, 8th Divisional Headquarters Conference, 3 May 1916*.

91 John Lee, "Some Lessons of the Somme: The British Infantry in 1917," in *Look to Your Front: Studies in the First World War by the British Commission for Military History*, ed. Brian Bond (Staplehurst: Spellmount, 1999), 81.

92 TNA, PRO, WO 95/2397, *15th Battalion Lancashire Fusiliers, Raid Carried out 5-6 May 1916*.

The general design of the Heavy Trench Mortar Emplacement brought out by the Fourth Army School of Mortars was adhered to and found entirely satisfactory. Several minor changes, however, were found to be necessary.<sup>93</sup>

The changes listed were the incorrect size of the baseplate, which they suggested should be enlarged, and the need for a more robust sighting system in instances when 'mirrors would often get distorted or covered by debris.' These notes were sent via the chain of command and would have arrived in GHQ. They are reflected in the amended notes in *SS 110, Medium Trench Mortar Gun Drill 2-inch Trench Mortars* and in *SS 130, Notes on the Employment of 4-inch Stokes Mortar Bombs*, both of which have notes on sighting systems and base plate amendments.<sup>94</sup>

This demonstrates that the collection of lessons was viewed as important and worth sharing and shows how feedback was used to inform and update doctrine. Although feedback such as this was only one facet of the overall process of learning, it was central to its success. It is also noteworthy that much of the feedback relating to artillery and mortars was written in infantry reports, which suggests that the benefit of reporting across arms within the BEF was of benefit to the overall performance.

A further example of how changes in approach were captured can be seen in the 153<sup>rd</sup> Brigade diary in November 1917 when they wrote of their experience of the battle of Cambrai that 'tank cooperation would have improved for want of a specific liaison officer in the build-up to the assault'. They also noted that tank employment required a change in artillery barrage planning as the hulks could get considerably closer to friendly artillery fire than the dismounted infantry.<sup>95</sup> Both of these comments were relayed to GHQ via 51<sup>st</sup> Division and III Corps and may have played a role in the eventual republication of the associated doctrine in *SS 214, Tanks and their Employment in Cooperation with Other Arms* in August 1918.<sup>96</sup>

---

93 TNA, PRO, WO 95/2368, 32nd Division GS, *Report on work of 32 Heavy Trench Mortar Battery During Bombardment and Subsequent Operations*, July 1916.

94 GHQ, *SS 110, Medium Trench Mortar Gun Drill 2-inch Trench Mortars* (HMSO: March 1917) and GHQ, *SS 130, Notes on the Employment of 4-inch Stokes Mortar Bombs* (HMSO: November 1917).

95 TNA, PRO, WO 95/1429, *153rd Infantry Brigade War Diary*, November 1917.

96 *SS 214*.

Commanding officers were central to the process of 'tactical learning' due to their proximity to the battle and role in planning it. Successful commanding officers all had similar traits that could be exploited, in particular they were fascinated by new tactical developments and were keen to see tactical innovation from below.<sup>97</sup> The speed at which commanding officers could have their after-battle reports sent to higher headquarters meant that a degree of distilled wisdom could be returned downwards in the form of codified learning, which they could then implement in training. This was based on the premise that, if similar reports about a given concept were received at higher headquarters from differing units, they would reinforce each other. For instance, in October 1918, the 13<sup>th</sup> Liverpool Battalion wrote a series of post-action reports from assaults and raids near Cambrai on 8 October 1918 and the River Selle on 23 October 1918.<sup>98</sup> The commanding officer, Lieutenant-Colonel WJH Howard, listed six primary lessons,

1. The importance of supporting units 'hugging the leading battalions' in attack to avoid enemy artillery barrages.
2. The issue of slow communications.
3. The usefulness of using advanced anti-tank guns when counterattack involved the use of tanks.
4. The importance of advanced machine gun companies.
5. The need for more practice in fire and movement tactics as thin artillery fire could not adequately suppress enemy machine guns.
6. The facility to withdraw without fear of censure to prevent the needless sacrifice.

These six points are significant as they now reflect a final stage in the First World War where manoeuvre had returned to the battlefield. They suggest that these findings are important enough to be sent to higher headquarters to aid better training at this pivotal stage in the war. Overall, they also reflect a more flexible approach to the warfare than was seen in earlier accounts pre-Somme and represent an engaged

---

<sup>97</sup> Patrick Brennan, "Good Men for a Hard Job: Infantry Battalion Commanders in the Canadian Expeditionary Force," *Canadian Army Journal* 9 (2006): 9-28.

<sup>98</sup> TNA, PRO, WO 95/1429, *13th Battalion King's Liverpool Regiment War Diary, November 1917*.

commanding officer, confident in making recommendations for his unit's benefit, knowing that there was a formal system to judge these recommendations and, if applicable, bring them to the attention of senior officers for potential inclusion in doctrine.

A concluding and compelling example of learning from failure comes from the 37<sup>th</sup> Brigade's reflections in their after-action review, following a series of counterattacks against the German Spring Offensive final assaults, at the end of June 1918. The 37<sup>th</sup> Brigade, part of the 12<sup>th</sup> Eastern Division, held a series of after-action reviews at the headquarters of the 6<sup>th</sup> Queens Own, Royal West Kent Regiment.<sup>99</sup> The GOC ordered that all officers who took part in the operations, all NCOs and two men per platoon would attend. The GOC seemingly then discussed all parts of the operation seeking out the thoughts of the officers and NCOs for '*any useful lessons learnt, sequence of events and reasons for our failure to hold the captured positions*'.<sup>100</sup>

The output of the review would be, '*more training in bombing is necessary, and particularly the use of all Infantry weapons in co-operation, i.e. bombs, rifles, rifle grenades and Light Trench Mortars.*' While these findings are somewhat obvious, the coherent way in which the GOC sought out ideas and improvements to substantiate his training proved that the level of learning at the end of the war had reached a satisfactory one.

### **Informal reports by senior officers**

The third way in which lessons were captured was through informal discussion by senior officers. These discussions were captured in less formal files and reports that went by the various names of lessons learnt files, after-action reports or after-battle reports; all terms which suggest a relationship and proximity to a specific tactical action. At various stages, before or in the wake of an important action, formations would reflect upon the recent events and disseminate lessons learnt reports that promoted successful practices and advice for commanders.<sup>101</sup> It seems that the process of self-examination nourished the shoots of tactical and

---

99 TNA, PRO, WO 95/1859, 37th Brigade War Diary, July 1918.

100 Ibid.

101 TNA, PRO, WO 95/2368, 32nd Division GS, Points with regard to Operations – Appendix 28, 27 October 1916.

technical improvement, which subsequently enabled the BEF to win a succession of impressive victories in the second half of 1918.<sup>102</sup>

However, the strength of these reports lay in the fact that they were not just drawn from the Division's own experiences. For example, before the 32nd Division's return to the Somme in October 1916, after being withdrawn to the Cunchy and Cambrai sector in mid-June, the Divisional headquarters published an internal memorandum to the infantry brigades and engineers. This document contained a mix of lessons from the Division's experience in July, and tactical developments made on the Somme while they were training, refitting, and line holding between mid-July and early October. The most notable of these lessons was the recognition of the role that the creeping barrage now played in offensive operations,

All ranks must be made to understand clearly that the considerable success which has been achieved in recent operations is almost entirely due to the Infantry following close behind a rolling barrage ... troops should be trained to work up close to a barrage rolling at the rate of fifty yards in the minute across the open ... in the case of villages, the barrage should roll right through and should not halt. Troops detailed to proceed through to the immediate objective on the distant side of the village must follow this barrage closely, the clearing up of houses and cellars being left to the special mopping-up parties.<sup>103</sup>

In September 1916, the 16<sup>th</sup> Lancashire Fusiliers used an intense bombardment followed by a box barrage, a tactic which had been suggested by the artillery commanding officer only two weeks previously.<sup>104</sup> Although it is possible that the timing of the manoeuvre and the commanding officers' suggestion were unrelated, two lesson transfer pathways might explain it. Firstly, new concepts such as this were being sent up the chain of command to GHQ, and then disseminated back down to Division very quickly. Secondly, it is also possible

---

102 Peter Simkins, "Building Blocks: Aspects of Command and Control at Brigade level in the BEF's Offensive Operations, 1916-1918," in *Command and Control on the Western Front – The British Army's Experience 1914-18*, ed. Gary Sheffield and Dan Todman (Staplehurst: Spellmount, 2004), 148.

103 Stuart Mitchell, "The British Army's Operations on the Somme," in *The Battle of the Somme*, ed. Matthias Strohn (Oxford: Osprey, 2016), 108.

104 TNA, PRO, WO 95/2397, 16th Battalion Lancashire Fusiliers, *Raid carried out 10-11 September 1916*.

that such lessons were being transferred horizontally, by an informal discussion between junior commanders. Either way, it appears that the BEF could capture and transfer lessons at speed.

### **Formal SS 'Notes on Recent Fighting' publications**

The fourth form of lesson capture in the BEF was the Training Directorate's publication of lessons from previous battles. Known as the 'Notes on Recent Fighting' series of SS pamphlets, they were a combination of lessons and intelligence briefings.<sup>105</sup> In 1917, GHQ had modified its structure to include a General Staff Duties section in addition to the existing Operations and Intelligence staffs, to produce the series. This new branch also provided the staff power to supervise the integration of the new divisions arriving in France and evolved into an effective system for overseeing individual and collective training. It was also the precursor to the Inspectorate of Training.<sup>106</sup>

In early April 1918, during the first phase of the German Spring Offensive, GHQ issued a long series of 'Notes on Recent Fighting' for brigades, which contained an analysis of the lessons learnt on the 21 and 22 March 1918.<sup>107</sup> Note No 7 was issued two weeks after the opening of the battles of Lys and stressed the importance of holding the flanks of an enemy breakthrough, thus enfilading the enemy and containing its advance.<sup>108</sup> These were the tangible lessons drawn from the actions of the 40<sup>th</sup> and 55<sup>th</sup> Divisions on the flanks of the German breakthrough and were examples of the speed and efficiency of the process once initiated.<sup>109</sup>

The pamphlets tended to follow a similar format with each one including an account of the actions and the units involved on both sides, an explanation of the context of the battles and their retrospective aims, a simple explanation of the positives and negatives of the battles, and a list of the casualty numbers. The second half of each pamphlet set out the lessons from the battle and covered issues such as the organisation

---

<sup>105</sup> Todman, "The Grand Lamasery Revisited," 55–6.

<sup>106</sup> Field Marshal Sir William Robertson, *From Private to Field Marshal* (London: Pickle Partners, 2013), 220-221.

<sup>107</sup> GHQ, *SS 167, Notes on Recent Fighting* (HMSO: 5 April 1918).

<sup>108</sup> *Ibid.*

<sup>109</sup> GHQ, *SS 169, Notes on Recent Fighting* (HMSO: 1 April 1917).

of units, rehearsals, and the benefit of liaison with other arms, as well as prioritising the need for sound leadership and decision-making. What they delivered, in simple, clear-cut sentences, were actions that commanders at all levels could understand.<sup>110</sup>

The 'Notes' series demonstrates how the BEF had developed a system for linking battlefield experience, the capturing of lessons, learning and the creation of new doctrine. And it is apparent that the series, such as *SS 156, Notes on Recent Operations, compiled by GS Fourth Army*, formed the central hub not only for the formalisation of doctrine but also for the transmission of experiences from the bottom upwards.<sup>111</sup>

For example, within *SS 156*, on pages 2-3, are specific orders about the communications with forward elements of own troops and how every effort should be made to maintain as good communications as possible so that reserves and forces to exploit success could be positioned as early as possible. It goes on to explain on page 4 that the cavalry should be constantly informed, via their forward headquarters, of the tactical situation and how much notice they would receive to move forward and exploit any breakthrough of the enemy lines. Finally, on page 8 are specific details about the movement of rifle ammunition into no man's land as soon as the first assault wave had consolidated, to speed up the resupply time as the second wave of infantry moved through.<sup>112</sup>

### **Dissemination of lessons**

New lessons and contemporary ideas were shared between the Training Directorate, the corps and divisions in three ways. Firstly, via formal communications both written and verbal between the various headquarters across the BEF. These included written General Orders for the entire BEF and specific orders to individual formations, as well as orders given in meetings or 'orders groups' where a senior commander explained their

---

<sup>110</sup> For example, see, GHQ, *SS 119, Preliminary Notes on the Tactical Lessons of the Recent Operations* (HMSO: September 1916), or GHQ, *SS 156, Notes on Recent Operations, compiled by GS Fourth Army* (HMSO: January 1917), or see GHQ, *SS 544, Experiences of the Recent Fighting at Verdun* (HMSO: February 1917).

<sup>111</sup> *SS 156*.

<sup>112</sup> *SS 156*, 2-4, 8.

intent by speaking directly to their subordinates. Secondly, information was shared between GHQ and the Army groups through formal visits, conferences and informal lunches and dinners. These events placed senior commanders near one another and allowed a wide range of deliberations to take place; and unlike the more formal 'orders groups,' they facilitated two-way discussion. Thirdly, lessons and ideas were discussed through informal 'back-channel' communications where officers side-stepped the formal command structure to speak to friends, colleagues, and compatriots to seek clarification, and hear about their experiences of the front line.<sup>113</sup>

For example, in January 1916, Field Marshal Sir John French, as CIGS, instigated a series of conferences at the RMC Sandhurst to consider fighting in woods and forests. The aim was to inform staff officers of new developments that had been published in *CDS 85, Lessons of the recent fighting in the Argonne*, a densely wooded area, and thus make them more competent commanders.<sup>114</sup> The conference seemingly also had a series of historical vignettes to learn from to 'train our soldierly judgement and instinctively act correctly in war'.<sup>115</sup>

Whenever the allies gained an advantage over the German Army official publications quickly disseminated the lessons for the benefit of other formations.<sup>116</sup> In late August 1918, General Sir Henry Horne's First Army issued a document that recognised the fact that some divisions had greater expertise at fire and movement in open warfare than others. It stressed the need for improving troop training so that they could act as advance guards when not actually in contact with the enemy and move 'in general lines' rather than concentrate in small bodies.<sup>117</sup>

These lessons were broadly disseminated, suggesting that the process of learning was effective. It was supported by a formal system with forms to be completed and submissions to be made. Although the process

---

113 Watt, "Managing Deadlock," 102.

114 GHQ, *CDS 85, Lessons of the recent fighting in the Argonne* (HMSO: November 1915).

115 TNA, PRO, WO 107/64, *Report of a Conference of Staff Officers held at the Royal Military College from 12 - 15 January 1916*.

116 For example, GHQ SS 218, *Operations by the Australian Corps against Hamel, Bois de Hamel and Bois de Vaire, 4 July 1918* (London: HMSO, July 1918).

117 1st Army, No 1888, *Lessons of recent fighting* (1st Army: France, August 1918).



itself was simplistic, the evidence highlights that it was adequate for converting experience into lessons, lessons into doctrine and, eventually, doctrine into BEF transformation.

No matter how a lesson was identified, captured, recorded, and articulated, it would count for little unless it was shared. The process of learning, instigated by GHQ, relied upon the 'Notes on Recent Fighting' series of pamphlets which summarised perceived lessons and answers to tactical concerns. These documents were circulated down to brigades and units with remarkable speed. For example, the 41<sup>st</sup> Division's *Lessons Learnt from Recent Operations 22 March to 1 April*, were distributed by the G-Branch to the New Zealand Division on 2 April 1918 and then onwards down to artillery brigades and infantry battalions.<sup>118</sup>

While many of the official publications were fundamental in shaping the style of fighting and hence were pivotal, the distribution of *SS 143, Instructions for The Training of Platoons for Offensive Action*, in February 1917, marked the first time that the BEF had effectively learnt from its own experiences and distributed the lessons for the benefit of the entire force.<sup>119</sup> In addition to being a distillation of the lessons from the first two years of the war, it also represented a tactical awakening. In many ways, it marked the beginning of a 'war-winning system'.<sup>120</sup>

## Conclusion

The lessons process on the Western Front enabled the BEF to modify its doctrine. The quality of the process depended upon the identification and capturing of lessons which, once documented, could be passed to higher headquarters for verification before finding their way to GHQ, being written into doctrine and, eventually, becoming part of the syllabus for one of the training schools in the BEF.

---

<sup>118</sup> Up until 1984, when it began to use the continental or NATO system, the British Army operated its system with three branches: G branch was the general branch, responsible for operations, intelligence, and training; A branch was the administration branch, responsible for all aspects of personnel management; and Q branch was the quartermaster branch, responsible for logistics and equipment support.

<sup>119</sup> *SS 143* (June 1917).

<sup>120</sup> Brown, "Not Glamourous, but Effective," 421-444.

When lessons were staffed to higher headquarters, staff officers looked for duplication of themes to ascertain which were best supported. If more than one unit or formation made the same claim of a lesson, there was an increased chance of it being accepted by GHQ. Of course, as the hierarchy absorbed more lessons, the chance of similar themes being reported increased. Themes that were not supported by other formations were less likely to be promoted and thus did not prosper. The evidence to support this putative process can be found in the war diary entries and lesson files in the WO 95 files at the National Archives. And although no formal documents outline the steps in the process, tentative suggestions can be made by tracing the lessons that went on to become doctrine in the various SS pamphlets shortly after their submission.

Although the actual mechanism for capturing ideas has been debated in the BEF historiography since the inception of the learning curve theory, discussed in chapter 2, the process is simple and involved the coherent reporting of ideas in formal reports to higher headquarters throughout the BEF. At each level, a staff officer in the G-Branch (operations) would synthesise the lessons and decide which to pass upwards. This synthesis achieved three things: it removed anything the staff felt was obvious, not required or already in progress; it brought together similar ideas into one overarching lesson; and it linked disparate ideas together to reinforce the credibility of some that may have initially seemed insignificant. Once the Inspectorate of Training was established in 1917, these lessons could be filtered into themes and, upon the agreement of Brigadier-General Solly-Flood and his writing team, became either 'Notes from' or formal doctrine in one of the SS manuals.

The overarching lessons of the First World War were clear. The BEF needed to cross no man's land with minimal casualties. The terrain and weapons favoured the defender, but defence alone could not win the war. The first lessons improved liaison between the infantry and the other arms and services that supported them. The integration of the infantry plan with the artillery was the most notable change that enabled the crossing of no man's land by fixing the enemy deep in their trenches and dugouts while the infantry crossed towards them.

Fundamentally, new lessons were born out of the experience of harsh fighting during the first two years of the war when the style of warfare transformed from almost Napoleonic to the beginning of combined arms warfare. This was the informal learning ground for the BEF and it set the conditions for success in the second half of the war. Ultimately, the lessons process proved that, without a formal cohering function at GHQ within the Training Directorate, the best of ideas could be lost and progress towards a modern style of fighting would be slow. However, once all elements of the process of learning were enabled by the arrival of the Training Directorate and, later, the Inspectorate of Training, transformation accelerated through these formal systems and allowed the BEF to fight tactically better than its enemy.

## Chapter 5 – Doctrine

The creation of new doctrine during the First World War sat at the very centre of BEF transformation, acting as the fulcrum around which the remainder of the process of learning hung. It was an articulation of the style of warfare and tactics that would act as the foundation for other factors such as technology and leadership to flourish.

The definition of doctrine that resonates most closely with the approach of this thesis is from the current British Army Doctrine primer, *ADP Land Operations*, which defines doctrine as 'a set of rules and practices that describe how military activity should be achieved'.<sup>1</sup> A set of 'fundamental principles by which the military forces guide their actions in support of objectives. It is authoritative but requires judgement in application.'<sup>2</sup> The definition stresses the rules and principles by which plans are made and actions carried out, hence it can be inferred that doctrine is the gathering of the ideas, concepts and thoughts of individuals and groups that confer an advantage in military scenarios. Accordingly, it would seem that the better the doctrine, the higher the likelihood of military success if it is distributed, used as the foundation for training and willingly prosecuted in the tactical actions of a military force.

Doctrinally, one of the most significant publications of 1914 was *Infantry Training (Four-Company Organization) (sic) 1914*.<sup>3</sup> This set the stage for a new structure for infantry battalions with the implementation of a four-rifle company structure instead of eight. The then Brigadier Ivor Maxse led the change and endorsed the new platoon organisations, having studied the lessons of various contemporary campaigns. Moreover, Maxse was experienced in navigating the complexities of introducing new concepts to potentially intransigent senior officers. He suggested that officers would command the four platoons, within each company, with four companies in each battalion. It was this change that allowed the full effects of command and control, and fire and movement to finally enter infantry tactics.<sup>4</sup>

---

1 ADP, *Land Ops*, ch 2.

2 Ibid.

3 General Staff, *Infantry Training (4 – Company) 1914*.

4 Maxse, "Battalion Organization," 53-86.

The new structure using four companies was implemented under the annual training cycle laid down in *Training and Manoeuvre Regulations 1909*, updated in 1913.<sup>5</sup> This initiated a cycle that involved the junior officer in the preparation of his command to a much higher degree than ever before. Its value was shown by the level of marksmanship in regular soldiers and their ability to manoeuvre in the field in conjunction with artillery and cavalry.<sup>6</sup>

This doctrinal development was supported by the initiation of a doctrine primer in the form of the *Army Review* which was published by the Imperial General Staff from 1911 until the start of the First World War. The *Army Review* reflected the debates that shaped the British Army and demonstrated the progressive, open-minded nature of the General Staff during the period. As General Nicholson, Chief of the Imperial General Staff, said in his introduction to the new journal,

It is only when one attempts to teach a subject or sits down to write about it that one realises how much one still has to learn; the purpose of this new journal was to encourage 'the study of the military art'.<sup>7</sup>

The tactical doctrinal changes after the Boer War fell into five broad areas. Firstly, extended lines would now be required in both offence and defence on the modern battlefield and would replace bunched formations. Where this was adopted it would affect command and control and would therefore require new thinking and trust in junior commanders who, in turn, would need to be better and more realistically trained so that they would not become a limiting factor. Reconnaissance would become the primary role of cavalry to support the extended lines, and the sword would become nugatory. There would be an increased need for higher mobility for infantry and artillery so that they would be able to react more quickly than their adversary. Lastly, the need for individual leadership at unit level would increase and there would be an emphasis on mission

---

<sup>5</sup> General Staff, War Office, *Training and Manoeuvre Regulations 1909* (London: HMSO, 1909); General Staff, War Office, *Training and Manoeuvre Regulations 1913* (London: HMSO, 1913).

<sup>6</sup> Major-General May, "Freedom of Manoeuvre," *Army Review*, vol.4 (1913): 445.

<sup>7</sup> General WG Nicholson, "Introduction," *Army Review*, vol.1 (July-October 1911): 4.

command.<sup>8</sup> In short, the interwar learning between 1900 and 1913 had moved the British Army towards a command philosophy based on centralised intent and decentralised execution. This had needed two prerequisites: an attitude of mind on the part of commanders, and practical knowledge.<sup>9</sup> It also required substantial education, training, and practice by both individuals and collectives if it was to deliver an improved fighting performance.

As discussed in chapter 3, the BEF arrived in France with some new doctrine derived primarily from the Boer War and with a small influence from the Russo-China campaign. For the first eighteen months the Army, in the guise of the BEF, maintained a broad strategy of breakthrough as articulated in principle in *FSR 1909*.<sup>10</sup> The intent of this was to force a gap in the enemy line through which a cavalry force supported by light artillery could move to destroy German logistics and engage their reserves.<sup>11</sup> However, the experience of 1914 and 1915 showed that achieving a breakthrough was almost impossible. The doctrine required more artillery than existed, and a more manoeuvrable exploitation force than was currently possible.<sup>12</sup> Several attempts were made and all too often isolated breaches were achieved, but there was no way of exploiting the situation quickly enough to achieve a breakthrough due to the primacy of the defender.<sup>13</sup>

If there was a single overarching lesson from the first twenty-four months of the First World War, it was that the doctrinal approach to achieving a breakthrough was not possible with the BEF in its current configuration. It would take the experiences of 1916 to finally confirm the approach was untenable and then provide the motivation to change and deliver a new doctrinal methodology.<sup>14</sup>

---

8 *FSR I*, Amendments 1914, Section 90, general principles.

9 ADP, *Land Ops*, 53.

10 Philip Warner, *The Battle of Loos* (Chatham: MacKay's), 16.

11 This supports the manoeuvrist approach to war in that it should shatter the enemy's will to fight.

12 The cost and time to manufacture artillery was lengthy. All expertise was based on one production line at the Royal Arsenal in Woolwich, London. Production was also slowed as many of the foundry's workers were female and not expert in their trade. However, within a few months, the quality and rate of production by the empowered female workforce were as high as it had ever been; as described in David French, "The Military Background to the 'Shell Crisis' of May 1915," *Journal of Strategic Studies* II, no. 2 (September, 1979): 192–205.

13 The cavalry was saved and placed to be the exploitation force but was invariably too far back, cut off from access to the battlefield or simply not numerous enough to exploit. See Badsey, *Doctrine and Reform in the British Cavalry in 1880-1918*, 239, 244-251.

14 Robin Prior and Trevor Wilson, *Passchendaele the Untold Story* (London: Yale University Press, 1996), 197.

A simple way to convey a new doctrinal approach or tactical change was by producing documents, books, or pamphlets which were then used to educate and train the force. The process by which the SS and CDS publications were written and distributed is, therefore, fundamental to understanding the formal process of learning. It has been studied before, recently by Aimee Fox and previously by Paddy Griffith and Jim Beach, all of whom agree that doctrine creation was a significant step towards victory while highlighting its friction and failure to deliver success quickly or efficiently.<sup>15</sup>

The graph below shows the number of SS and CDS pamphlets published during the War; 362 in total, in addition to the divisional and corps fighting manuals. While the scale of production does not necessarily correspond to success, it does demonstrate the commitment of the staff writers as the war wore on and indirectly the effort afforded the Training Directorate by the most senior commanders in the BEF.

The three most published themes were artillery, general, and tactics, which is reassuring given that the First World War is often referred to as an artillery war. And while it is difficult to know if all the pamphlets were effective, their existence indicates the emphasis on a new tactical approach in the second half of the war. How much the new doctrine was engaged with and what difference it made is discussed in chapter 8.

---

<sup>15</sup> Beach, "Issued by the General Staff," 464-491; Griffith, *Battle Tactics of the Western Front*, 179-191.

## Doctrine Generation in the BEF 1914-1918

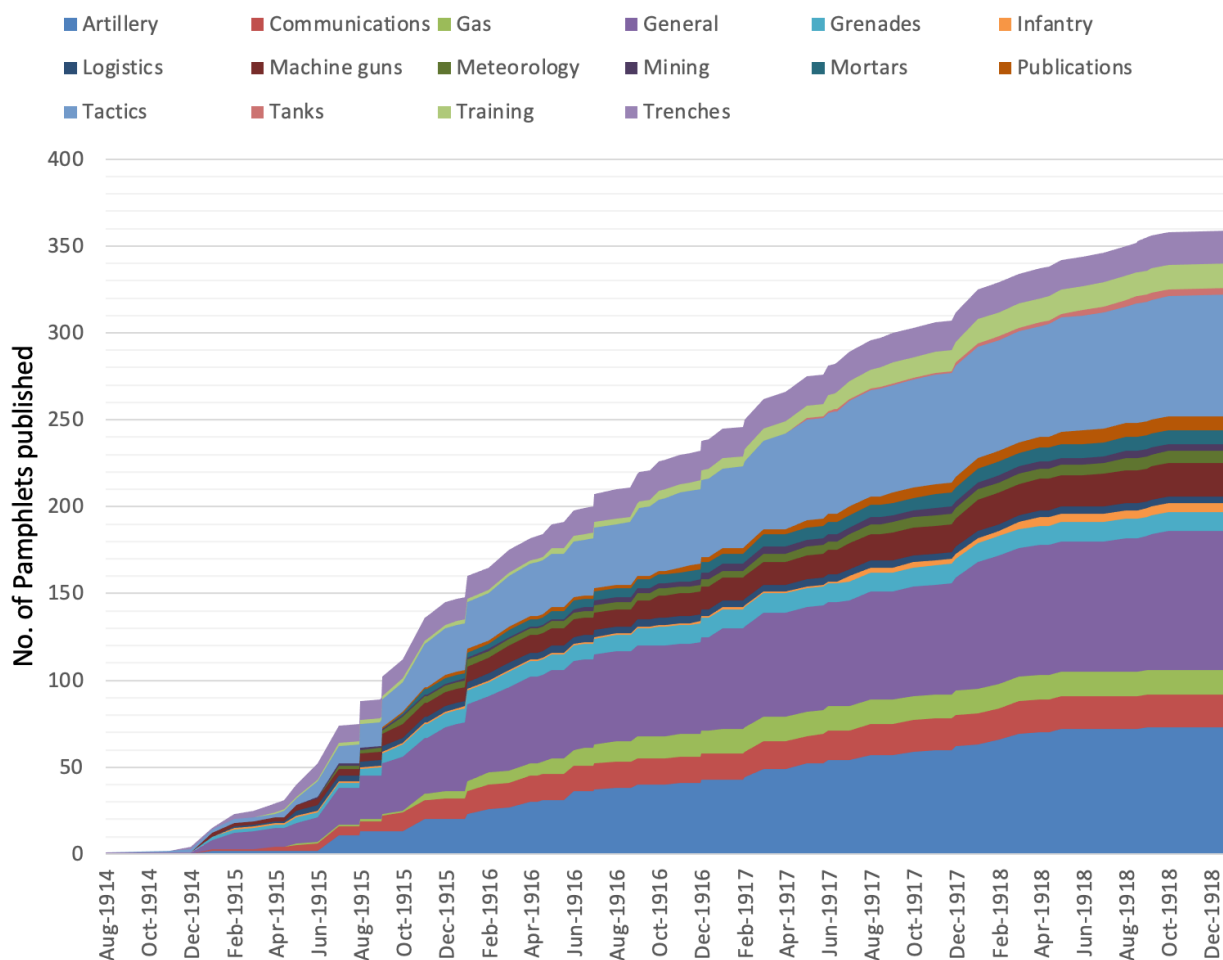


Figure 2: Doctrine Generation in the BEF 1914-1918, with thanks to Chris Henderson.

The new SS and CDS pamphlets needed an intellectual basis, which was found within *FSR 1909 I and II*. The well-established doctrinal foundation provided familiarity and a common starting point for all doctrinal development. This common doctrinal approach was possible as the British Staff College at Camberley had produced an ‘unprecedented number of trained staff officers’ who had an intellectual education and understood the theory and rationale for the FSR. They were also trained to prepare and execute plans, using the FSR as a foundation, to a far higher standard than their predecessors.<sup>16</sup> And the battalions and brigades were thus able to employ talented officers who were trained in all elements of planning. Any headquarters that had Camberley trained staff officers would benefit significantly from the changes that the Boer War had instigated.<sup>17</sup>

<sup>16</sup> Nikolas Gardner, *Trial by Fire: Command and the British Expeditionary Force in 1914* (Westport: Praeger Productions, 2003), 36.

<sup>17</sup> Bond, *The Victorian Army and the Staff College*, 229-322.



This chapter splits the First World War into two distinct phases on either side of the campaign in and around the Somme in summer and autumn 1916. The five-month campaign is viewed as the midpoint and, in many ways, a figurative turning point in the War. Accordingly, the pre-Somme period from August 1914 to July 1916 is considered as the slow beginning of the doctrinal evolution, with both belligerents raising and training their new armies and adapting to modern warfare using mostly informal learning methods. The post-Somme period is viewed as the reaction to the unmitigated losses with a changed style of warfare.

This chapter will consider how doctrine was created and what new doctrinal ideas were taken forward into the First World War. To provide context a section on the Inspectorate of Training and Lieutenant-General Sir Ivor Maxse will explain some of the processes and nuances of creating doctrine, and Maxse's influence as well as those of the German and French Armies. The subsequent sections will consider some of the most influential doctrine writers before considering the pre and post-Somme doctrinal differences. This will allow further analysis of three SS pamphlets that would become fundamental to BEF success, namely *SS 135 Instructions for the Training of Divisions for Offensive Action (re-titled The Training and Employment of Divisions, in January 1918 and then, The Division in the Attack, in November 1918)*, *SS 143 Instructions for the Training of Platoons for Offensive Action*, and *SS 152, Instructions for the Training of British Armies in France*. To provide balance, a consideration of unofficial doctrine publications will draw the chapter to its conclusion. But first, this thesis will consider the doctrinal development post-Boer War up until the start of the First World War.

### **Doctrinal development up to August 1914**

In his introduction to *Field Regulations: Combined Training 1902*, Lord Roberts stated, 'In this manual are enumerated certain principles which have been evolved by experience as generally applicable to the leading of troops in the war.'<sup>18</sup> *Combined Training* was the first in a series of regulations published under his leadership that would guide British Army doctrine between the wars. Its critical change was its emphasis on

---

<sup>18</sup> General Staff, War Office, *Combined Training 1913* (London: HMSO, 1913), 3.

combining the three arms: cavalry, infantry, and artillery. Part I stated that 'Each arm of the service possesses a power peculiar to itself; yet is dependent, to a greater or lesser degree upon the aid and co-operation of the other arms.'<sup>19</sup> Before the Boer War this was not doctrine, whereas, in the post-Boer War era, combined arms tactics became the key to solving the tactical problem of the day, namely crossing no man's land.<sup>20</sup> Hence, *Combined Training 1902* formed the basis for all the artillery, infantry, and cavalry regulations of the period.

Furthermore, *Combined Training* was the first in a series of new manuals published during this period which changed previous regulations such as *Infantry Drill 1896*. The focus of the new doctrine turned away from rigid drill and towards collective training and integration.<sup>21</sup> The same year that the War Office published *Combined Training*, it also published *Field Artillery Training* which broke away from long-range target practice to specifically supporting infantry movement.<sup>22</sup>

The next significant document to be published during this period was *Field Regulations: Infantry Training 1905*.<sup>23</sup> The fundamental changes it suggested were not tactical but training-focused and included the development of a schedule of training standards throughout the Army. It also included new machine gun doctrine and assigned this modern technology to the infantry for their intimate support, rather than passing its ownership to the Royal Artillery. By allocating the machine gun to the infantry, the four-company structure meant that each platoon had its fire support weapons under their command and control, rather than having to ask for support from others, such as the Royal Artillery.

In 1907, the War Office published *Field Regulations: Cavalry Training 1907* which detailed changes that reflected many of the lessons the British drew from the Russo-Japanese War.<sup>24</sup> These changes included

---

19 General Staff, *Combined Training 1902*, 13.

20 Jones, *From Boer War to World War*, 23-29.

21 Ramsay, *Command and Cohesion*, 96.

22 General Staff, War Office, *Field Artillery Training 1896*, revised in 1902 (London: HMSO, 1904); see also, Major JF Cadell, *The Organisation of Field Artillery* (HMSO: 1905), 347-54.

23 General Staff, War Office, *Infantry Training March 1905* (London: HMSO 1905).

24 General Staff, *Cavalry Training 1907*.

specifics such as better skirmishing tactics and how to fight off the horse, rather than on it, while simultaneously setting higher training standards for horsemanship.<sup>25</sup>

The culmination of doctrinal development in the interwar period was the publication of the new *FSR 1909 Part I – Operations, and Part II – Organisation and Administration* manuals directing the functions and responsibilities of the staff at all levels. The then Major-General Haig, who was the Director of Military Training and later the Director of Staff Duties at Camberley, heavily influenced the writing of *FSR 1909 Part I and II*.<sup>26</sup> *FSR 1909* has been described as ‘an organisational and administrative manual for the army in the field that also served as a rudimentary doctrine’.<sup>27</sup> It was to become the British Army’s core doctrine ‘for the training and the organisation in war’,<sup>28</sup> confirming its place as the foundation of further doctrinal development.

*FSR 1909 I* highlighted both the need for speed of movement with precise firepower and that it should be the local commanders who controlled it. Furthermore, it placed significant control with platoon and section commanders, imparting a new level of trust to junior ranks that had not previously been allowed.<sup>29</sup> And it deliberately promoted the use of initiative rather than standard drills, demanding that, wherever possible, every practice should be different,

It is therefore forbidden either to formulate or practise a normal form of either attack or defence. The training of troops in movements before the enemy general principles and broad rules alone are applicable, and practical knowledge of these principles and rules must be instilled by intelligent instruction and constantly diversified exercises on broken ground.<sup>30</sup>

*FSR 1909 I* codified decentralised command, relying upon sound training and tactics to win a battle in which manoeuvre had to be pre-eminent. *FSR 1909 I* further explained the 'Issue of Orders' and the process and

---

25 Lieutenant-Colonel Gunter, “The Von Löbell Reports on Military Matters in 1913,” *Journal of the Royal United Service Institution* 59 (July-December 1914): 203.

26 Barnett, *Britain and Her Army*, 363.

27 Sheffield, *The Chief*, 60.

28 Gooch, *The Plans of War*, 113-115.

29 *FSR II*, 2.

30 General Staff, War Office, *Infantry Training 1902* (London: HMSO, 1902), 191.

principles of 'centralised intent and decentralised execution'.<sup>31</sup> This approach facilitated mobility and speed through quick and well-organised command procedures. It outlined a command approach that would guide British military doctrine for another one hundred years and is now referred to as 'mission command'.<sup>32</sup> *FSR 1909 I* stated that, when orders could not be given, commanders must focus on the central concept of the plan and make whatever provisions were necessary to achieve it. And it went further,

It will often happen that local circumstances may render the precise execution of the orders given to subordinate leaders not only unsuitable but also impracticable. Moreover, when possible, the attainment of the object aimed at must be left to the initiative and intelligence of these leaders.<sup>33</sup>

It is noteworthy how *FSR 1909 I and II* set out guiding principles with clarity and logic. For example, it stated that 'a formal order should never be departed from' if it can be referred to the originator 'without losing an opportunity or endangering the command'.<sup>34</sup> It required that officers be hands-on so that, in the absence of further direction, if a subordinate did not adopt a new course of action, despite the situation warranting it, said officer would be held responsible.<sup>35</sup> In just this short sentence, a new command approach is clarified which seemingly moved the British Army out of the Edwardian era and firmly into the contemporary style of command, where officers were responsible to their men for their actions.

*FSR 1909 I* went into far more detail than the 1905 version and touched on topics such as 'inter-communication and orders', while still maintaining a central focus on command philosophy.<sup>36</sup> Meanwhile, *FSR 1909 II* set out mobilisation procedures and war organisation, stating that 'the duties and functions of

---

<sup>31</sup> *FSR I*, 12.

<sup>32</sup> Mission command is defined by British Army doctrine as the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations.

<sup>33</sup> *FSR I*, 1902, 6.

<sup>34</sup> *FSR I*, 1905, 9.

<sup>35</sup> *Ibid.*, 11-12.

<sup>36</sup> *FSR I*, 27-28.

officers, units, and commands in the Lines of Communication, and at the base should be as clearly defined as those of a Division or a Brigade in the Field Army.<sup>37</sup>

It combined the organisational changes occurring in the British Army at the time and the establishment of new divisions and corps in expectation of a commitment to the Empire or a continental war. If a BEF was to be deployed, it was suggested the force would be made up of 120,000 men, based on two army corps, containing six infantry and one cavalry division.<sup>38</sup>

General Haig's involvement in creating the British Army's doctrinal foundations in 1909 suggests he was well placed to judge future doctrinal change during the First World War as he had an intimate understanding of the original doctrinal foundation. While it is hard to isolate the exact motivation for change, General Haig's incentive appears to have been preparing the British Army for continental warfare while staying within financial bounds.<sup>39</sup>

The publication of *FSR 1909 I and II* led to the subsequent publication of corresponding arms and services manuals, including *Infantry Training 1911*, *Manual of Field Engineering 1911*, *Royal Army Medical Corps Training 1911*, *Field Artillery Training 1912*, and *Cavalry Training 1912*, all of which were linked to *FSR 1909 I and II* providing a comprehensive doctrine for the British Army.<sup>40</sup> Each document made the most of junior officer leadership and decision-making and was predicated on dispersion, fire and movement, and the power of artillery, all lessons from the Boer War. There was a final revision to infantry tactics in late 1914 with both the issue of *Infantry Training (Four-company Organization)* and further detail being added to *The Training of an Infantry Company, 2<sup>nd</sup> edition, 1914*.<sup>41</sup>

---

37 *FSR II*, 20.

38 Strachan, "The British Army, its General Staff and the Continental Commitment," 75-94.

39 Gooch, *The Plans of War*, 113-115.

40 General Staff, War Office, *Infantry Training 1911* (London: HMSO, 1911); General Staff, War Office, *Cavalry Training 1912* (London: HMSO, 1912); General Staff, War Office, *Field Artillery Training 1912* (London: HMSO, 1912).

41 General Staff, *Infantry Training (4 – Company) 1914*.

## The Training Directorate – creating doctrine

The Training Directorate was initiated within GHQ in January 1917 and was initially led by Brigadier-General Arthur Solly-Flood. It was established in reaction to the Somme campaign and reinforced by events at the Third Ypres campaign in late 1917, which had both been considered at length by General Haig and recorded in his diary.<sup>42</sup> The Directorate was split into two parts, one creating doctrine, the other coordinating its application within the school's system.<sup>43</sup>

Brigadier-General Solly-Flood's mission was to design a system for the creation, agreement and distribution of better doctrine for the BEF. While this mission is not set down clearly in any of his correspondence, it was alluded to in Lieutenant-General Sir Ivor Maxse's letters to Brigadier-General Kentish in February 1917.<sup>44</sup> The Training Directorate was to provide 'for the coordination of all training whether carried out under GHQ, the Armies, the Corps or the Divisions'.<sup>45</sup> With front line experience, and as a former Commandant of the Third Army Officers' School, Brigadier-General Solly-Flood was keen to experiment with new infantry tactics in late 1916.<sup>46</sup>

The March 1917 publication of *SS 148, Forward Inter-Communication in Battle* provides an example of the standard doctrine writing process overseen by Solly-Flood. Due to a lack of ability to counterattack and reinforce success on the Somme, there was a need to standardise communication procedures. A four-day 'Staff and Signal Conference' was held in response to the need, following which a new doctrine was created in just four further days, and was then agreed and distributed within two weeks.<sup>47</sup> It seems that Solly-Flood's team were both the organisers, drafters and distributors of this typical SS pamphlet.

---

42 Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters 1914-1918*, 299-300.

43 Sheffield, *The Chief*, 209.

44 IWM, Maxse Papers 69/57/7, *Brigadier-General Kentish to Lieutenant-General Sir Ivor Maxse*, 21 - 22 February 1917.

45 Edmonds, *British Official History*, 571-572.

46 Major-General JFC Fuller, *Memoirs of an Unconventional Soldier* (London: Ivor Nicholson and Watson, 1936), 242.

47 Priestley, *Work of the RE in the European War*, 180-181.

As doctrinal documents left the printing press, a comprehensive distribution system sent them to their required locations.<sup>48</sup> In most cases copies were sent simultaneously to both army and corps headquarters, and the UK training establishments. They were also distributed to divisional and support headquarters so that, officially, every commanding officer was able to obtain a copy of the new doctrine. There was a second route for doctrine transfer, as most SS pamphlets were also sent to the army and corps training schools, separate to the functional command headquarters of the BEF.

### **Brigadier-General Arthur Solly-Flood**

Born in January 1871, the son of Major-General Sir Frederick Solly-Flood, he was educated at Wellington College and Sandhurst and commissioned into the South Lancashire Regiment in 1891.<sup>49</sup> Like most of his peer group, he served in South Africa during the Boer War and was the Adjutant of the South African Light Horse, gaining a Distinguished Service Order.<sup>50</sup> Solly-Flood graduated from Staff College in 1903, where he had been noticed by Major-General Haig as a man of ability, and between 1904 and 1908 he worked in the Department of Military Training at the War Office. At the time, the then Major-General Haig was the Director of Military Training, and it is reasonable to assume that due to the nature of appointments and small size of the staff, Solly-Flood helped Major-General Haig with the writing of *FSR 1909 I and II*, gaining early exposure to the thinking of his future Commander-in-Chief.<sup>51</sup> Following this, he developed his staff ability while working for General Julian Byng as his Chief of Staff in Egypt between 1909 and 1913.<sup>52</sup>

During the First World War Solly-Flood commanded the 4<sup>th</sup> Dragoon Guards between November 1914 and November 1915, and was Brigadier-General of 35<sup>th</sup> Brigade, within 12<sup>th</sup> Division, in the run-up to and during the Somme in 1916. His next appointment was as the Commandant of Third Army School at Chalons-sur-

---

48 Most SS pamphlets list the intended recipients on the inside of the front covers.

49 For Brigadier-General Solly-Flood's biographical details, see Solly-Flood, Arthur, [www.angloboerwar.com](http://www.angloboerwar.com); and *The Times*, 15 November 1940, obituaries.

50 Army List (HMSO), 1896, available at [www.digital.nls.uk/100849814](http://www.digital.nls.uk/100849814), accessed 24 May 2018.

51 John Terraine, *Douglas Haig. The Educated Soldier* (London: Cassell Military Paperbacks, 1963); 40-43.

52 42nd Division fought as part of IV Corps in Byng's Third Army from 23 March 1918 until the end of the war.

Marne in November 1916, where he was responsible for the education of majors and Lieutenant-Colonels.<sup>53</sup> He was appointed to the Training Directorate just two months later in January 1917. In later life, he said that this appointment was,

In charge of the Schools of Instruction directly under GHQ – a good deal of time visiting divisions – learning their experiences to keep everyone up to date with any tactical developments that take place by sending round pamphlets on subjects of interest and generally helping the staffs of Armies and other formations with training work.<sup>54</sup>

On the completion of his assignment to the Training Directorate in January 1918, Brigadier-General Solly-Flood was promoted to Major-General and appointed to be the GOC 42<sup>nd</sup> (East Lancashire) Division, a role he remained in until the end of the war. Overall, his time in the Training Directorate is considered to have been an 'outstandingly successful appointment'.<sup>55</sup>

### **New doctrinal ideas**

In February 1917, Brigadier-General Solly-Flood immediately began testing new platoon organisations based on his experiences at Chalons-sur-Marne. The doctrinal changes proposed in *SS 143 Instructions for the Training of Platoons for Offensive Action*, may well have been derived from this series of experiments.<sup>56</sup> His training regime, doctrinal approach and associated tactics were observed by Field Marshal Sir Douglas Haig and approximately 200 staff officers representing all the divisions and brigades of the Third Army.<sup>57</sup> Using a generic demonstration infantry company, commanded by Captain Bennet, Solly-Flood put on 'a

---

<sup>53</sup> Fuller, *Memoirs of an Unconventional Soldier*, 82.

<sup>54</sup> Churchill Archive Centre (CHC), *General Sir Charles Bonham-Carter* (BHCT) 2/2, *Solly-Flood letter to his to wife*, 8 October 1917.

<sup>55</sup> Sheffield, *The Chief*, 209.

<sup>56</sup> LHCMCA, JFC Fuller Papers 1/1/27, Third Army Infantry School of Instruction, *Notes on Battle Drill*, March 1917. Chalons-sur-Marne was the location of both the Third and Fourth Army training school in the First World War, with the changeover of command not known. However, it remained a central school location until the end of the war and was often referenced as a centre of new training initiatives.

<sup>57</sup> TNA, PRO, WO 95/1853, *7th Norfolk's War Diary*, 2 February 1917.



demonstration of the co-operation of all Infantry weapons in the attack and the organisation of a company to that end'.<sup>58</sup>

General Haig's diary entry records that the,

operation was well carried out, but I think the Lewis Guns might be handled more effectively if they were all grouped in one platoon under a commander. Brigadier-General Solly-Flood was in charge of the whole.<sup>59</sup>

The following day, General Haig met with General Rawlinson, commanding the Fourth Army at the time, to discuss what he had seen and he 'approved of the form shown me... as the normal one.'<sup>60</sup> And on the 4 February 1917, General Haig met with General Plumer, Commander of Second Army, and directed that Brigadier-General Solly-Flood was to be made responsible for the creation of *SS 143, Instructions for the Training of Platoons for Offensive Action* and *SS 144, The Normal Formation for the Attack*.<sup>61</sup>

In February 1917, Solly-Flood modified the GHQ structure and placed the doctrine writers alongside the operations cell so that they could obtain a first-hand understanding of the situation in the trenches. Solly-Flood also borrowed experienced staff officers as he assembled a full-time pool of writers, thus providing the staff to create and produce the doctrine needed.<sup>62</sup> While the extra impetus he gave the directorate is hard to quantify, it seems from his account that he was determined to make a difference.<sup>63</sup>

## French and German influence

---

58 TNA, PRO, WO 256/15, *Sir Douglas Haig Diary*, 2 February 1917.

59 Ibid.

60 TNA, PRO, WO 256/15, *Sir Douglas Haig Diary*, 3 February 1917.

61 This is substantiated by Robert Graves, who wrote after a visit to a French Army school that the author was said to have been 'Solly-Flood.' See, Robert Graves, *Goodbye to All That* (London: Penguin, 1929; 1960), 256. See *SS 143* (June 1917); and GHQ, *SS 144, The Normal Formation for the Attack of February 1917* (HMSO: February 1917).

62 Robertson, *From Private to Field Marshal*, 220-221.

63 Sheffield and Todman, *Command and Control on the Western Front*, 39-70.

By September 1916, the French infantry company had also been transformed into four self-contained platoons, reflecting the BEF's approach from the summer of 1914, and each was trained by their commanders to use the new infantry weapons. Each French platoon was organised into four sections: one section of grenadiers (bombers); one section of fusiliers (armed with a lighter version of the Lewis gun); and two sections of voltigeurs (multi-skilled skirmishers or riflemen), each containing two rifle bombers.<sup>64</sup> Having an extra manoeuvre unit at both platoon and company level allowed the French company commanders an additional opportunity to launch attacks, block in defence, or reinforce success. The flexibility facilitated by these changes was witnessed by Brigadier-General Solly-Flood,

It would seem that in this training, a solution has been found of the task of dealing with situations in the second stage of the assault, which comprise the most difficult operations against obstacles that are often unknown. Each Platoon of a Company being self-contained is capable of manoeuvre and of working to the best advantage on a general plan... The scheme of training adopted by the French is very strongly recommended ... the number of automatic rifles which the French have far exceed the number of our Lewis Guns per company.<sup>65</sup>

It appears likely that the new French platoon tactics of 1916 may have inspired Brigadier-General Solly-Flood as they are broadly reflected in *SS 143, Instructions for the Training of Platoons for Offensive Action* in 1917. Several other principles used by the French may also have found their way into *SS 143*, such as,

1. Every group of men, specialists or not, must have a definite commander.
2. Every man in the ranks not armed as a specialist must be trained to replace casualties amongst specialists.
3. The training of all the men in a platoon must be carried out by the leader of that platoon.

---

<sup>64</sup> Jonathan Krause, *Early Trench Tactics in the French Army: The Second Battle of Artois, 1915* (Farnham: Ashgate, 2013), 22-29.

<sup>65</sup> LHCMA, JFC Fuller Papers 1/1/30, *Notes on an exercise carried out near Chalons by the Fourth French Army to demonstrate the new training of Infantry Units introduced in 1916*.

4. The commanders of platoons in the front lines of an attack must not go forward at the head of their platoons but with the second wave, as it had been found too expensive to allow them to lead the first wave.

The sharing of information between the French and British Armies seems widespread; in March 1915, General Ferdinand Foch, the commander of the French Northern Army Group, and his senior staff officer General Weygand visited the then Lieutenant-General Haig to learn about the First Army's recent attack at Neuve Chapelle and the lessons the French could draw from the experience.<sup>66</sup>

Lieutenant-General Sir Douglas Haig subsequently produced a written report which was sent to Marshal Joseph Joffre, Commander in Chief of French Forces on the Western Front, who forwarded it to all his corps commanders.<sup>67</sup> It seems likely that the lessons were applied in the Second Battle of Artois, May-June 1915, before being more formally enshrined in French Army doctrine through a paper known informally as 'Note 5779'.<sup>68</sup> Note 5779 contained early thoughts on the new doctrine that would shape French offensive tactics for the rest of the War.<sup>69</sup> It specifically described infiltration techniques and harassing patrols that were designed to prevent the enemy from settling into a routine between major battles.<sup>70</sup>

In June 1915, GHQ published a translation of Note 5779, called *SS 23, Preliminary Deductions, for Instruction, from Recent Engagements*, and focused on 'simultaneous and coordinated attacks, delivered on a broad front'.<sup>71</sup> This is particularly noteworthy given that 5779 was, in fact, a French understanding of BEF tactics, and suggests a circular process of learning based on similar foundations.<sup>72</sup>

---

66 The battle of Neuve Chapelle was fought 10-13 March 1915. The BEF did well initially, breaking the German lines comprehensively.

67 National Library of Scotland (NLS), Haig Papers 3155/101, *Diary Entry*, 19-20 April 1915.

68 Krause, *Early Trench Tactics in the French Army*, 10, 24-26.

69 Note 5779 was dated 16 April 1915.

70 Krause, *Early Trench Tactics in the French Army*, 22-23.

71 GHQ, *SS 23, Preliminary Deductions, for Instruction, from Recent Engagements* (HMSO: November 1915), 2.

72 The original translated version of Note 5779 was called GHQ, *SS 24, Object and Conditions of Combined Offensive Action* (HMSO: November 1915), its successor was GHQ, *SS 23, Preliminary Deductions, for Instruction, from Recent Engagements* (HMSO: November 1915).

A further example of the cooperation between French and British formations can be seen in the role of Captain Edward Spiers, the liaison officer between General Rawlinson's Fourth Army and General Marie-Émile Fayolle's (French) Sixth Army.<sup>73</sup> On 2 July 1916, he authored a report on recent French success and how some of their methods applied to the BEF.<sup>74</sup> The report is interesting for two reasons. Firstly, because it was sent directly to Lieutenant-General Sir Launcelot Kiggell, Chief of the General Staff at GHQ, who decided to distribute it down to brigade level within a week, highlighting its perceived importance.<sup>75</sup> The French findings suggested greater emphasis on overwhelming artillery preparation and specific counter-battery tasks, as well as the use of mopping-up parties, and tactical reserves who could move quickly enough to make a difference.<sup>76</sup> While these are not new deductions, it was probably pleasing for the BEF to find that their allies had drawn the same conclusions from similar evidence, substantiating their new approach.

More formally, the sharing of tactical and doctrinal changes between British GHQ and the French Grand Quartier General (CQG), was the responsibility of Lieutenant-General Sir Henry Wilson and Colonel Victor Huguet, the senior liaison officers in respective national headquarters. Lieutenant-Colonel Clive, a British staff officer attached within CQG, recalled the ability of General Sir Douglas Haig to discuss tactical approaches and wider doctrine with his French counterpart in fluent French, earning him respect and without the reduction in clarity that a translator may have generated.<sup>77</sup>

As the Somme campaign wore on, three SS documents were released to feed back from the first month. *SS 478, Experiences of the IV German Corps in the Somme During July 1916* was released at the end of August 1916 and provided almost immediate feedback on how the German defences were organised and how they intended to repel BEF attack.<sup>78</sup> It contained details on their defensive depth, reaction times to bombardment and the speed at which they could counterattack BEF incursion.

---

73 With thanks to Stuart Mitchell for establishing this connection in his, "An Inter-Disciplinary Study of Learning," 90.

74 Edward Spiers changed the spelling of his name to Edward Spears in 1918.

75 Mitchell, "An Inter-Disciplinary Study of Learning," 90-91.

76 TNA, PRO, WO 95/2368, AG 142/167, 3 July 1916.

77 John Charteris, *Field Marshal Earl Haig* (London: Kessinger, 2010), 152.

78 GHQ, *SS 478, Experiences of the IV German Corps in the Somme During July 1916* (HMSO: August 1916).

*SS 480, Lessons Drawn from the Battle of the Somme by Stein's Group* was published in October 1916 and was a further analysis of the operational methods being used by both sides and how the respective counter-battery and sustainment processes compared to each other.<sup>79</sup>

Finally, at the end of October 1916, *SS 486, German 'Lessons Drawn from the Battle of the Somme'*, a translation of German doctrine that had been captured and interpolated, was published.<sup>80</sup> It provided yet more evidence of the German change to a deeper defensive laydown, the reliance upon deeper dugouts, more concrete overhead protection, and the stocking of more ammunition and supplies even further forward in case of being cut off.

Hence, it seems clear that the BEF were keen to engage with their French allies to ensure they remained doctrinally aligned while monitoring the German tactical developments. They shared information formally, visited each other's training and with the judicious use of liaison officers were able to monitor potential doctrinal changes before either Army set off in a new doctrinal direction.

### **The Inspectorate of Training and Lieutenant-General Sir Ivor Maxse**

One of the consequences of the limited in-depth research on the training element of the BEF has been a simplification of the contribution of the Inspectorate of Training to the overall success of the BEF, and the specific role of Lieutenant-General Sir Ivor Maxse.<sup>81</sup> There is widespread confusion over the achievements of Maxse and Solly-Flood's, especially after Maxse's arrival as Inspector General Training.<sup>82</sup> Contemporary commentators suggest that Maxse's accomplishments have, perhaps, been overstated and that the Inspectorate came into being too late in the war to have had a major impact on the development of training and tactics.<sup>83</sup>

---

<sup>79</sup> GHQ, *SS 480, Lessons Drawn from the Battle of the Somme by Stein's Group, October 1916* (HMSO: October 1916).

<sup>80</sup> GHQ, *SS 486, German 'Lessons Drawn from the Battle of the Somme', October 1916* (HMSO: October 1916).

<sup>81</sup> See for example Bidwell and Graham, *Firepower*, 43; and Travers, *How the War Was Won*, 33.

<sup>82</sup> Baynes, *Far from a Donkey*, 213-214.

<sup>83</sup> Robbins, *British Generalship on the Western Front*, 97; and see Mythen, "Revolution in British Battle Tactics," 105.

Lieutenant-General Sir Ivor Maxse's impact can be judged by his contribution as both an author of pamphlets, and as the Inspector of Training. Maxse's pamphlets were seemingly written to appeal to junior officers through their light reading style. The pamphlets listed below were all widely available and built seamlessly on the existing doctrine.

1. No. 1 Sample of a Day's Training for a Company.
2. No. 2 Programme of Training for a Battalion out of the Line for Ten Days.
3. No. 3 Battalion Commander's Conference.
4. No. 4 Attack Formations for Small Units.
5. No. 5 The Action of Artillery in Close Support of Assaulting Battalions.
6. No. 6 Hints on Training for Artillery Brigade and Battery Commanders.
7. No. 7 Combined Training of Artillery and Air Force in Open Warfare Methods.
8. No. 8 Artillery Mounted Patrols with Infantry.
9. No. 9 Artillery Notes for Pilots and Observers, RAF.
10. No. 10 Questions and Answers on the Practical Application of *SS 131* for the training of Pilots and Observers, RAF.
11. No. 11 A Wet Day in the Training Area (Artillery).
12. No. 12 Infantry and Tanks.
13. No. 13. The Soft Spot. An Example of Minor Tactics.

Numbers 1-3 were released in late August 1918; 4-6 in early October 1918; 7-13 in late October 1918.<sup>84</sup> The fact that training was further developed by these documents, did not mean that all senior officers followed them. Indeed, it seems from various diary accounts that many divisional and corps commanders felt they knew better than those who had written the doctrine.<sup>85</sup>

---

<sup>84</sup> IWM, Maxse Papers, PP/MCR/C42, File 59.

<sup>85</sup> Such as GOC 32nd Division, Major-General Shute who adopted his ideas on defensive tactics, see TNA, PRO, WO 95/2371, *32nd Division GS, 'Defensive Training,'* 27 December 1917.

Lieutenant-General Sir Ivor Maxse had disseminated his contemporary views on training throughout the BEF as soon as he took up his appointment. In his opening remarks at the Inspectorate's launch conference, he stated that 'we are concerned with how to teach quickly rather than with what to teach.'<sup>86</sup> He had developed his guidelines for company training in the spring of 1917, and published them in what would become known as the *Brown Book*.<sup>87</sup> This early doctrine underwent subtle changes and was subsequently known as *Hints on Training*, issued by XVIII Corps. Much of the *Brown Book* is reflected in *SS 143, Instructions for the Training of Platoons for Offensive Action*, showing that he had an influence on its contents and that his original ideas remained applicable.<sup>88</sup>

Maxse's *Brown Book* had an advantage over the early SS pamphlets in that it gave illustrative examples from which officers could train their men, and it was distributed en masse at the initial training conferences; a circulation of some 22,000 copies was achieved, a number far higher than comparable SS pamphlets at the time.<sup>89</sup>

The success of these documents is evident from the comments in correspondence that Maxse recalls in his papers. Letters from commanders such as Generals Hunter-Weston, Haldane, Rawlinson, Plumer, and Shoubridge all state that the Inspectorate of Training leaflets were extremely useful and filled a much-needed tactical and training requirement.<sup>90</sup> General Hunter-Weston's VIII Corps mentions the virtues of the training doctrine by suggesting that 'we are still very backward in the matter of the proper organisation and training of platoons', and went on to urge his divisional commanders 'to redouble your already strenuous endeavours.'<sup>91</sup>

---

86 IWM, Maxse Papers, 69/53/13, File 56.

87 IWM, Maxse Papers 69/53/13, *Training Infantry Companies*.

88 LHCMA, Montgomery-Massingberd Papers 7/33, *Hints on Training and Training Leaflets*, Notes on Tactics and Training as issued by 4th Corps, September 1918.

89 IWM, Maxse Papers 69/53/13, File 56. The Inspectorate distributed the *Brown Book* at its conference on 23 July 1918, to all five armies.

90 IWM, Maxse Papers, 69/53/13, File 56.

91 IWM, Maxse Papers 69/53/13, File 54, and IWM, VIII Corps No GS 81/10, from Bonham-Carter to its Divisions (8th, 20th & 24th). Lieutenant-General Sir Aylmer Gould Hunter-Weston was GOC VIII Corps 1915–1918.

Lieutenant-General Sir Ivor Maxse facilitated the production of timely and comprehensive doctrine which met with the approval of many front line commanders, such as Lieutenant-General Hunter-Weston, VIII Corps, who called it 'one of the finest moves we made for the improvement of our Army'.<sup>92</sup> And Major-General Hastings Anderson, MGGs, First Army, referred to the doctrine as providing 'the benefit of uniform organisation in the battalion and training'.<sup>93</sup>

The next step in promoting the new training doctrine was for Maxse's team of inspectors to liaise directly with the fighting troops in the front line. Maxse refers to two such visits in his papers, both of which illustrate what was being achieved.<sup>94</sup>

Maxse's indirect influence on the new training regime can be seen via his Assistant Inspector of Training, Major-General Lord Dugan. On a seemingly typical visit, he recommended that the Commandant and Chief Instructor of the X Corps School be removed because they were not fit for purpose. Their Corps Commander, Lieutenant-General Stephens, was against the sacking but was overruled by Lieutenant-General Sir Ivor Maxse who appealed to the CGS, General Lawrence, to demand their removal, demonstrating his power and drive for unity and quality of instruction.<sup>95</sup> This degree of influence, if used judiciously, would help drive commonality of purpose and drive up standards of training.

### **Writing doctrine – Gorell, Grigg, and Headlam**

The Training Directorate was responsible for creating a new doctrine. There were many writers of the new pamphlets but it seems that three made a more significant contribution than the others. They were Lord (Captain) Gorell, who worked between the spring of 1917 and the summer of 1918; Captain Edward Grigg, who wrote in the autumn of 1917; and Major Cuthbert Headlam, who was active between the spring of 1918

---

92 IWM, Maxse Papers 69/53/12, *Lieutenant-General Sir Aylmer Hunter-Weston to Lieutenant-General Sir Ivor Maxse*, 18 October 1918.

93 IWM, Maxse Papers 69/53/12, *Major-General WH Anderson to Lieutenant-General Sir Ivor Maxse*, 14 October 1918.

94 IWM, Maxse Papers 69/53/13, File 56.

95 IWM, Stephens Papers 69/70/1, *Major-General Lord Dugan's visit to X Corps School*, 28 August 1918; *Lieutenant-General Sir Ivor Maxse to General Sir Herbert Lawrence*, 29 August 1918; *General Sir Reginald Stephens to Lieutenant-Colonel JCH Hamilton*, 25 September 1918.



and the November armistice. The three authors stand out as it seems that all took or were given the authority to be the sole writers for some important doctrine pamphlets, rather than the Inspectorate creating doctrine via committee. Further research will be required to establish why, but a trend emerges that the better doctrine was written by the gifted writers, whilst the less useful doctrine seems to have been derived from the committee.<sup>96</sup>

Lord Gorell was injured during his early service but returned to active duty in April 1917 when he was appointed to the Training Branch.<sup>97</sup> Gorell had been a news editor so was well qualified for the task of writing doctrine. Indeed, in the thirteen months before his arrival GHQ published twenty-six pamphlets, in the eleven months afterwards they produced thirty-nine. There is evidence that Gorell's talent was for tidying up other people's work, yet his speed and volume of work suggest a talented doctrine writer.<sup>98</sup> Gorell was specifically the joint author of several significant publications including *SS 202, The Organisation of Shell-Hole Defences*, in December 1917, and the June 1917 edition of *SS 143, The Training and Employment of Platoons*.<sup>99</sup> The latter was referred to by Gorell as 'the Platoon Commander's Bible'.

Lord Gorell also acted as a secretary for various doctrinal committees charged with producing doctrine.<sup>100</sup> He described one such occasion in his papers when, in January 1918, a committee comprising Major-General Hugh Jeudwine, Brigadier-General Cyril MacMullen, Brigadier-General Alexander Baird, and Colonel James Edmonds met for a half-day to discuss *SS 210, The Division in Defence*.<sup>101</sup> His papers record that he was not impressed with the output, noting that he 'found the conference full of talk and little else and that I shall have to do all the spade work'.<sup>102</sup> The group met again the following day before dispersing and Lord Gorell commented that the committee's work had progressed at a leisurely pace owing to continued 'disagreements

---

96 Discussed later in this chapter, Grigg's sole efforts with *SS 198*, and Headlam's probable singular authorship of *SS 135* in the summer of 1918.

97 Sheffield and Todman, *Command and Control on the Western Front*, 55–56.

98 Beach, "Issued by the General Staff," 466.

99 *SS 143* (June 1917).

100 Bodleian Library (BoL), Gorell Papers, box 22, Diary entries, 24, 25 and 30 January 1918.

101 Ibid.

102 BoL, Gorell Papers, box 22, Diary entries, 24, 25 and 30 January 1918.

and criticisms'.<sup>103</sup> This provides an interesting insight into creating doctrine by committee rather than by empowered individuals who may have been more efficient. Gorell recognised that momentum for the new doctrine was building by early 1918, noting that 'it was then decided that the production of doctrine manuals had become important'.<sup>104</sup>

Captain Edward Grigg joined the doctrine team in September 1917. He had been commissioned in February 1915 and served with the Grenadier Guards, having been a *Times* sub-editor before the war. He quickly became a brigade major and was known as 'the Scribe' due to his prolific staff work. He worked as a General Staff Officer within XIX and XXVIII Corps, before moving into the operations staff at GHQ in September 1917.<sup>105</sup>

His abilities as a writer of doctrine prompted Winston Churchill to note that he had 'won universal confidence' and that he was 'one of the best officers the New Army [had] produced'.<sup>106</sup> Grigg was the officer responsible for the creation of *SS 198, Tactical Instructions for the Offensive of 1918*, a pamphlet initially drafted by GHQ in October 1917 but ultimately never published even though it contained a blueprint of the future of warfare, highlighting Grigg's understanding of a new doctrinal approach and his talent for conveying it. *SS 198* is discussed in detail in chapter 6.<sup>107</sup>

Major Cuthbert Headlam was not a volunteer for staff but he settled in quickly in May 1918 and was suited to the necessary precision of doctrine writing, having been a clerk in the House of Lords while holding a pre-war commission in the Yeomanry. Headlam thought he brought a new intellectual perspective to doctrine writing within the Training Directorate which, upon reorganisation in late 1918, had become responsible for the Training Branch, itself established in the March of that year.<sup>108</sup> Within the shake-up, a publications

---

103 BoL, Gorell papers, box 22, Diary entry, 13 March 1918.

104 BoL, Gorell papers, box 22, Retrospective diary entry, 9 July 1919.

105 Grigg worked for Lieutenant-General Sir Ivor Maxse, who would eventually become the BEF's Inspector General of Training in June 1918, from Baynes, *Far from a Donkey*, 55-57.

106 TNA, PRO, WO 339/31633, *Secretary of State for War to Military Secretary*, 4 July 1919.

107 *SS 198*.

108 Todman, "The Grand Lamasery Revisited," 60.

subsection was established where Headlam served.<sup>109</sup> However, before Gorell, Grigg and Headlam contributed to the new doctrine post-Somme, some early doctrine was created pre-Somme which was important.

### **Pre-Somme publications**

In early December 1914, *CDS 2, Notes from the Front I* was released, featuring analysis to support both the need for continued movement and the utility of trenches and digging.<sup>110</sup> It expressed the static approach to defence which would be adopted for the remainder of the war. It clarified new rates of rifle fire and the need to fix the enemy because in almost every engagement of 1915 individual marksmanship had been vital to the BEF's ability to hold out against overwhelming numbers of attackers.<sup>111</sup>

The emphasis on marksmanship was directly tied to comments made in the Esher Commission ten years previously, which had led the Army to correct the deficiency in marksmanship of the Boer War to the point where the British soldier now excelled at what had once been a weakness. The ability to produce devastating fire was explicitly directed in *FSR 1909 I*, and further expanded upon in *CDS 2*, where ranging and accuracy methods were outlined.<sup>112</sup>

At the end of December 1915, *CDS 3, Notes from the Front II* was published, refining the December 1914 commentary, *Notes from the Front I*, with expanded sections about the benefit of better coordination between the artillery and machine guns in support of the infantry.<sup>113</sup> These new sections discussed planning with the artillery commander, rates of fire and overall coordination measures to ensure that the infantry could get as close to the enemy trenches as possible.

---

109 BoL, Gorell papers, box 22, The notion of forming a specific publications subsection was first mentioned in a 'Memoranda' in his diary 14–20 January 1918.

110 GHQ, *CDS 2, Notes from the Front Part I* (HMSO: November 1914).

111 Ibid.

112 *FSR I*, 'The General conduct of the attack', 139.

113 GHQ, *CDS 3, Notes from the Front Part II* (HMSO: December 1914).

In February 1915, *CDS 4, Notes from the Front III*, was released containing comment on field defences, specifically the use of wire and how it should be covered with machine gun fire.<sup>114</sup> Although this CDS had been due for release with part II and was dated February 1915, it was not available to the units until June 1915, so it is titled part III.

At the beginning of April 1915, *CDS 303, Experiences Gained in the Winter Battle in Champagne*, was released.<sup>115</sup> It was written from the perspective of the enemy and examined the BEF lines of defence and how the German Army could pierce them. Written by Third Army headquarters, it was a straightforward narrative assessing enemy movement and intentions as they prepared for an assault into BEF territory. Furthermore, it made observations about how reserves were controlled and moved and the rate at which they could be expected to fill gaps made by an attack. Indirectly, this specified the timings and speed required to break through the enemy line and was used as a target in future publications until late 1917, when a more general approach to the front line arrived and a bite-and-hold approach was accepted as preferable to breakthrough.<sup>116</sup>

At the end of April 1915, *CDS 304, Proposals for the technical methods to be adopted in an attempt to break through a strongly fortified position*, was published by Third Army headquarters.<sup>117</sup> It focused on the use of reserves and how to commit them at a critical time, and included notice to move timings and planning yardsticks for unit moves into the front line from reserve trenches.

The end of this first tranche of publications saw the arrival in July 1915 of *CDS 50, Tactical Notes*, which differed from the others as it was an amalgam of notes taken from other formations.<sup>118</sup> It covered many

---

114 GHQ, *CDS 4, Notes from the Front Part III and Further Notes on Field Defences* (HMSO: February 1915).

115 GHQ, *CDS 303, Experiences Gained in the Winter Battle in Champagne* (HMSO: November 1915).

116 Bailey, "The First World War, and the Birth of Modern Warfare," 132–53.

117 The full title of CDS 304 was *Proposals for the technical methods to be adopted in an attempt to break through a strongly fortified position, based on the knowledge acquired from the errors which appear to have been committed by the French Army during the winter campaign in Champagne*.

118 GHQ, *CDS 50, Tactical Notes* (HMSO: August 1915).

aspects of combined arms warfare developed out of the experience of 1914 and early 1915. It is noteworthy that the entire document was only 1,500 words, making it easy to read and absorb.

Part I of *CDS 50* concerned the maintenance of communication with the infantry after it had advanced in the assault. Experience had shown that once the assaulting force lost touch with the artillery barrage, the chance of success reduced significantly.<sup>119</sup> Part II listed methods for dealing with hostile machine guns, how to approach them using the dead ground, how to draw their fire, and how to conduct the final assault to dispose of the enemy position.<sup>120</sup> Part III discussed ways of indicating points reached by the attacking troops so that artillery and mortars could be used safely without fear of shelling friendly troops. Part IV concerned methods for reinforcing the front line in the face of a successful enemy assault so that any breach could quickly be filled, and Part V covered miscellaneous questions. Overall, the five sections were concerned with covering open ground before the trench assault and how to deal with sticking points such as enemy machine guns. The level of detail in the document demonstrated an understanding of the developing best practice and presented ways to deal with common obstacles. Accordingly, it codified an approach to the most significant problem for the BEF in the first half of the war, how to cross no man's land.

Towards the end of 1915 came two further publications. In November 1915, *SS 23, Preliminary Deductions, for Instruction, from Recent Engagements*, was translated from the original French.<sup>121</sup> It contained short training programmes on coordinating rifle fire with short movements in bounds and gave some detail on fire and movement drills and training. In December 1915, *CDS 333, A Study of the Attack in the Present Phase of the War: Impressions and Reflections of a Company Commander* was produced.<sup>122</sup> This was also a French translation and looked at better coordination through thorough planning and use of schematics to pass planning information between the various combat elements. Not only did it prescribe who had to be informed, but it also initiated sequencing of tasks so that, even without communications, the basic premise

---

119 Brigadier Henry Wynter, "The Revival of the Barrage," *Journal of the Royal Artillery* 70, no. 4 (1943), 273.

120 Bailey, *Field Artillery and Firepower*, 12.

121 *SS 23*.

122 GHQ, *CDS 333, A Study of the Attack in the Present Phase of War: Impressions and Reflections of a Company Commander*. (HMSO: December 1915).

of the plan would occur. It also solidified the sharing of doctrinal approaches that bode well for further cooperation between the French and British later in the war.

January and February 1916 saw the arrival of six CDS pamphlets on artillery.<sup>123</sup> They covered close shooting and wire cutting while *SS 98, Artillery in Offensive Operations* went further by including an explanation of why some shells fell short in the advance.<sup>124</sup> These six CDS pamphlets and *SS 98* seemingly contain the doctrine that was at the forefront of commanders' minds as they entered 1916, looking for a tactical breakthrough. This search for greater coordination and tactical success is mirrored in army commanders' diaries that linked the artillery and infantry assault to crossing no man's land to create a breach of the enemy line.<sup>125</sup>

The publication of *SS 109, Training of Divisions for Offensive Action*, in May 1916, arrived in time to reconfigure the infantry battalion establishment before the Somme campaign.<sup>126</sup> Signed off by Lieutenant-General Sir Launcelot Kiggell, the Chief of General Staff at GHQ, on 8 May 1916, *SS 109* was a summary of the structural changes to the BEF, their new tactics and overall doctrinal approach for the Somme campaign. *SS 109* stated on its opening page, 'Success depends on preparations for all the phases of an attack.'<sup>127</sup> It went on to say that success required seven factors to be implemented,

1. Trenches for the assembly of the attacking force must be organised and cleared.
2. The artillery bombardment must be adequately planned and communicated.
3. The crossing of the area between the front trenches and the enemies must be known.
4. The capture of the enemy's defensive systems and artillery positions.

---

123 GHQ, *CDS 98/1, Artillery Notes No 1: Close Shooting in the Field* (HMSO: January 1916), and GHQ, *CDS 98/2, Artillery Notes No 2: Field Artillery Ammunition* (HMSO: January 1916), and GHQ, *CDS 98/3, Artillery Notes No 3: Counter Battery work* (HMSO: February 1916), and GHQ, *CDS 98/4, Artillery Notes No 4: Artillery in Offensive Operations* (HMSO: April 1916), and GHQ, *CDS 98/5, Artillery Notes No 5: Wire Cutting by Artillery* (HMSO: February 1916), and GHQ, *CDS 98/5, Artillery Notes No 5: Wire Cutting by Artillery* (HMSO: June 1916), and GHQ, *CDS 98/6, Artillery Notes No 6: Trench Mortars* (HMSO: March 1916).

124 *SS 98*.

125 Field Marshal Sir Archibald Montgomery-Massingberd, "The autobiography of a Gunner," *Journal of the Royal Artillery*, LXXIII, no. 4, 292.

126 GHQ, *SS 109, Training of Divisions for Offensive Action* (HMSO: May 1916).

127 *Ibid*.

5. The consolidation against counterattack of ground won and planned for with troops allocated.
6. A plan for exploitation if successful.
7. Train to attack from trenches against enemy strongpoints, and to exploit success when a hostile system of defences had been taken.

The raft of pre-Somme publications discussed above does suggest that even though doctrine publication was to increase post-Somme, the doctrine writers of the day were busy. In *SS 109* there was a concerted effort to summarise the learning to date and provide some coherence. That there was no effective training system in place at that stage may well explain why the Somme campaign was so unsuccessful.

### **Post-Somme publications**

Before 1916, there was little interest in changing the BEF's fighting style, structure or equipment, as it was assumed good enough for the tasks ahead and, while it was focused on open manoeuvre warfare, GHQ still believed that a breakthrough would come and the ability to move quickly would be key.<sup>128</sup> The pre-Somme doctrine publications made adjustments and new structures but did not challenge the foundation of *FSR 1909* or seek a new way of warfare.

While *FSR 1909 I* remained extant and laid down the fundamentals of warfare for the campaign, 1917 required some new principles, and methodology for training, as well as a raft of new techniques, tactics, and procedures. For most officers, it seems that *FSR 1909 I* was far too general because, having been based on Boer War experience, it did not relate well to the war of attrition and minimal manoeuvre encountered in 1917.<sup>129</sup> However, it did provide an enduring and overarching set of principles, such that General Kiggell wrote to the army commanders on 8 May 1917, stating,

---

<sup>128</sup> RA Lloyd, *Troop Horse and Trench, The Experiences of a British Life-guardsman of the Household Cavalry Fighting on the Western Front during the First World War 1914-1918* (London: Leonaur, 1938), 16, 28-29, 71.

<sup>129</sup> John Terraine, *Mons: The Retreat to Victory* (Ware: Wordsworth Editions, 2000), 24-28.

It must be clearly understood that the pre-war manuals remain in force and that the instructions issued by GHQ are merely amplifications of these manuals to meet the varying requirements of this campaign.<sup>130</sup>

Over 130 doctrine pamphlets would be published after the Somme offensive, but four stand out as excellent examples of doctrinal change that facilitated transformation: *SS 135, Instructions for the training of divisions for offensive Action*; *SS 143, Instructions for The Training of Platoons for Offensive Action*; *SS 152, Instructions for the Training of the British Armies in France 1917 UK*; and *SS 198, Tactical Instructions for the Offensive of 1918* – which is the focus of the next chapter.<sup>131</sup> They require examination as they facilitated progression towards a more effective way of fighting that allowed the use of new technology and better command, and generated overall transformation by driving change in all three components of fighting power.

## **SS 135**

The first edition of *SS 135, Instructions for the Training of Divisions for Offensive Action* was published and distributed throughout the BEF in December 1916. It was refined the following year and underwent two further rewrites in January and November 1918.<sup>132</sup> *SS 135* engendered a system of divisional training and understanding common to the entire formation which, in turn, increased interoperability and allowed the generals to expect similar performance from each formation. It seemingly offered just enough direction to establish common divisional training schools, without forcing the generals into uncomfortable conformity. It articulated popular tenets of contemporary experience such as,

The man on the spot is the best man to judge when the situation is favourable for pushing on, and higher commanders in the rear must be prepared to support the man on the spot to the

---

<sup>130</sup> General Kiggell was the Chief of General Staff for the British Armies in France under Sir Douglas Haig between late 1915 to 1918 and see LHCMA, Montgomery-Massingberd Papers 7/32.

<sup>131</sup> *SS 135* (December 1916), *SS 143* (June 1917), and *SS 152* (1917).

<sup>132</sup> *SS 135*, first published in December 1916, then August 1917, January 1918 and finally November 1918.



fullest extent by adjusting the movements of the artillery barrage and bombardment and by continually pushing forward reserves.<sup>133</sup>

The final version of *SS 135* was written by Major Cuthbert Headlam in the spring of 1918 when its name was changed to *The Division in the Attack*. It is different from the previous three versions in its style and contents.<sup>134</sup> While the creators of the first three editions are not known, they were probably the output of committees, whereas the final version was that of a single empowered author. It would go some way to explaining its concise nature and new ideas that may have been filtered out by a committee that could not agree.<sup>135</sup> Chapter 6 will explain that some of the contents of the 4<sup>th</sup> edition contained elements of unpublished *SS 198, Tactical Instructions for the Offensive of 1918*.

The 1917 versions of *SS 135, Instructions for the Training of Divisions for Offensive Action*, allowed local commanders to take a tactical pause and not rush into secondary attacks which could fail through lack of preparation, it said,

In the case of a total failure, where pressure from the flanks has failed to improve the situation, it is a waste of men to put in fresh troops, hurriedly, to make another assault without any further artillery preparation, or to attempt a second attack with troops who have already failed.<sup>136</sup>

Crucially, *SS 135* stated that 'quick actions' against prepared enemy fortifications were not to occur – an assertion which may have saved the lives of many thousands of soldiers.<sup>137</sup> What was allowed, however, was the use of reinforcements to engage enemy positions from a flank to cement initial success.<sup>138</sup> This small change allowed junior commanders the option of taking a step back and considering their options instead of

---

<sup>133</sup> *SS 135* (January 1918), 22.

<sup>134</sup> *SS 135* (November 1918).

<sup>135</sup> This thesis assumes that the work of an individual is less likely to be compromised, whereas the work of a committee will invariably defer to consensus at the lowest level of agreement; i.e. if an agreement can't be made contentious items are left out. Thus, if progress is required, single empowered authors do better.

<sup>136</sup> *SS 135* (August 1917), 22-23.

<sup>137</sup> *Ibid.*, 16.

<sup>138</sup> *Ibid.*, 22.

making rushed, and potentially futile, attacks into defensive fire.<sup>139</sup> As such, *SS 135* legitimised a more considered approach and deliberate mission command. However, the 4<sup>th</sup> edition of *SS 135*, published in November 1918, changed this philosophy by instigating quick counterattacks, which will be discussed in chapter 6.

*SS 135* was groundbreaking due to its formalisation of how infantry and artillery liaised.<sup>140</sup> Brigadier-General James Jardine was one of many officers who had championed the tactic of the infantry getting in close behind a predictable curtain of shellfire.<sup>141</sup> By leaning into the barrage, the infantry minimised their exposure time to the enemy once the barrage lifted and, even though they suffered some friendly artillery casualties, they prevented the enemy from maximising its effect.<sup>142</sup> As stated in *SS 135*,

Success in recent operations has been due, more than to anything else, to the Infantry keeping close up to the artillery barrage and entering the enemy's trenches immediately it lifts from these trenches, and before the hostile garrison have time to man their defences.<sup>143</sup>

Building on the success and practical application of *SS 135*, the BEF increased their doctrine production over the winter of 1916-1917, the main tactical focus of which was small-unit training at the platoon and company level.<sup>144</sup>

In 1917, the doctrinal training focus switched from the rifle, bayonet, and bombing, to learning to use all the weapons available in the platoon. The war diary of the 115<sup>th</sup> Seaforths shows that by February 1917 platoon and section training was taking place in a broader context as well as being included in brigade training manoeuvres.<sup>145</sup> The change from everyone having a speciality, to all ranks being able to use all weapons, was

---

139 *SS 135* (August 1917), 23-25.

140 *Ibid.*, 7, 14, 38-40.

141 Mitchell, "An Inter-Disciplinary Study of Learning," 37.

142 *SS 135* (August 1917), 22.

143 *Ibid.*, 4.

144 TNA, PRO, WO 95/2866.

145 TNA, PRO, WO 95/2866.

a tactic that produced more firepower when needed within the platoon and company, speeding up its manoeuvre.

The significance assigned to training and individual initiative echoed the new doctrine designed to return mobility to the BEF. By using small, flexible, well-trained units, rather than successive massed waves of poorly trained troops, coordination was simpler and the crossing of no man's land easier to achieve. The new doctrine, such as *SS 131, Cooperation of Aircraft with Artillery*, shifted the focus on to combined arms training, with techniques such as better communications and liaison plans between aircraft and artillery now mandated.<sup>146</sup>

### **SS 143**

*SS 143, Instructions for The Training of Platoons for Offensive Action* was first published in February 1917, and almost immediately revised, the second edition arriving in June 1917.<sup>147</sup> The arrival of seminal equipment, such as the Mark IV tank, Sopwith F1 Camel aeroplane and L106 artillery fuze, can be viewed as one of the key factors leading to the physical component of fighting power and the eventual transformation of the BEF.<sup>148</sup> So, also, could the writing and publication of *SS 143* as it took the most significant step forward in doctrinal approach, tactical application and training regimes; indirectly helping the integration of new technologies on the battlefield.<sup>149</sup>

*SS 143* was a platoon commander's guide to 'on the job' training. With nineteen pages of text in three parts, it was easy to read, easy to understand for novice commanders and provided answers to their questions. Its

---

146 GHQ, *SS 131, Co-Operation of Aircraft with Artillery* (HMSO: December 1917), and GHQ, *SS 132, Co-operation Between Aircraft and Infantry* (HMSO: April 1918).

147 GHQ, *SS 143*, was published in February 1917 and June 1917.

148 The Sopwith Camel was a single-seat biplane introduced in 1917 and though exceedingly difficult to handle it provided unmatched manoeuvrability and was credited with shooting down 1,294 enemy aircraft. See Alan Clark, *Aces High: The War in The Air Over The Western Front 1914 - 1918* (New York: Putnam's Sons, 1973).

The Shell Crisis of 1915 leads to improved manufacturing but also the adoption of a new fuze for each shell, L 106 Grazing, which had a more robust and reliable means of detonation whereby approx. 95% would detonate on impact, rather than the approx. 50% before the new fuze. See General Sir Martin Farndale, *History of the Royal Regiment of Artillery. Western Front 1914-18* (London: Royal Artillery Institution, 1986). The Mark IV tank was considered the first fit for purpose tank on the Western Front as it had the protection, firepower and mobility that allowed it to support the infantry and achieve more than shock and surprise. See, David Fletcher, *The British Tanks, 1915-19*. (Marlborough: Crowood Press, 2001).

149 Whitmarsh, "The Development of Infantry Tactics," 40.

simplicity and broad appeal were probably fundamental to its success and acceptance. Furthermore, it not only explained how to assault an enemy position but also how to train for the endeavour, linking tactical actions to training plans and providing a degree of reassurance to new and naive subalterns.

Part I contained direction on organisation and tactics, while Part II covered training and specifically 'The Spirit of the Platoon' and opened with the direction,

All Commanders are responsible for leading and training their commands. They must therefore never forgo their functions of guidance and control. At the same time, the development of the initiative in subordinates is of vital importance. The initiative is the power by the soldier of whatever rank acting with the decision on his responsibility in the face of an emergency and true discipline should aim at the development and not the repression of intelligence of the individual.<sup>150</sup>

The June 1917 issue of *SS 143* devolved responsibility down to the section commander for the first time and combined new command arrangements with a new structure for the infantry battalion. Additionally, it changed the roles within the fighting platoon, giving it a range of weapons that endowed it with the firepower of a 1914 company. *SS 143* also addressed the need for new training to accompany the new platoon arrangement formed of four fighting sections and a headquarters, with the platoon split into different capabilities that could fight together. The sections were now specialist, containing one section of riflemen, one of bombers, one of rifle grenadiers and the platoon's Lewis gun;<sup>151</sup> each section was commanded by a corporal and contained approximately eight men.<sup>152</sup> The result was a permanently constituted platoon with four specific sections which represented a fighting team that any officer might be able to control.<sup>153</sup> Instead of companies advancing in line, attacking infantry could manoeuvre against an enemy post that held them

---

<sup>150</sup> *SS 143* (June 1917), part II, section 3. 3.

<sup>151</sup> *SS 143* (June 1917), 6-7.

<sup>152</sup> Griffith, *Battle Tactics of the Western Front*, 22.

<sup>153</sup> Desmond Morton, *When Your Number's Up: The Canadian Soldier in the First World War* (Random House: Canada Ltd, 1993), 17-18, 88, 112, 118-119.

up.<sup>154</sup> It was a very similar approach to the French system that *Note 5779* had initiated in April 1915 and *SS 23, Preliminary Deductions, for Instruction, from Recent Engagements in November 1915*, had articulated.

*SS 143* was the BEF's low-level pamphlet for training that inculcated new tactics for a new approach and made their delivery part of the junior officer's remit. In doing so, the pamphlet promoted the relationship between the platoon and its commander and produced a simplified doctrinal approach that could be replicated no matter how inexperienced the platoon was. In doing so, it bound the platoons together and allowed a higher commander to deploy their platoons with an expectation of how they would perform. It was a simple progression but, as suggested by the official history, when exercised for the first time at the battles around Arras in spring 1917 it resulted in 'increased tactical skill on the part of the infantry'.<sup>155</sup>

## **SS 152**

Published as a provisional document in June 1917, *SS 152, Instructions for the Training of the British Armies in France*, set out the Army's 'general policy of training', and the system it would use to ensure 'uniformity of doctrine'.<sup>156</sup> In particular, it confirmed the establishment of each platoon and company, together with the equipment required, so that any platoon, in any division in the BEF, could be employed in the same fundamental way, regardless of battalion or division differences.<sup>157</sup>

*SS 152* established three fundamental principles on the opening page of chapter II. Firstly, it stated that 'Directives laid down in the training manuals of the various arms are in no way superseded.'<sup>158</sup> This meant that individual arms and services still had primacy in setting their doctrine, but that *SS 152* was there to coordinate them all. Secondly, that a Brigadier-General (Solly-Flood) General Staff (Training), had been appointed at General Headquarters, and that general staff officers of grade one and two were now

---

<sup>154</sup> While *SS 143* (June 1917) explained the employment of the platoon, it was *SS 144* that outlined the new structure and its training.

<sup>155</sup> Edmonds, *British Official History I*, 239.

<sup>156</sup> *SS 152* (1917), 4.

<sup>157</sup> A revised version of *SS 152* was published in January 1918.

<sup>158</sup> *SS 152* (1918), 8.

established at all army and corps headquarters to coordinate training in line with *SS 152*.<sup>159</sup> This led to the first formalisation of training as a separate staff branch in all formation headquarters. Thirdly, that the training of each division must be carried out under the personal guidance of its GOC, and that they should seek to 'inspire their unit with energy and fighting spirit'.<sup>160</sup>

*SS 152* stated on page 4 that Army schools established by GHQ were explicitly for training instructors, the classes being used to train those who would go on to train the troops, which represented an approach to the dissemination of training not seen before. Confirmation was also given about who would be trained and where the training should take place – staff officers would attend Clare College Cambridge for staff training, infantry battalion commanding officers would attend Aldershot, and artillery officers would attend Salisbury Plain for their formal instruction.<sup>161</sup>

The details of training were also brought together in lists which all commanders had to consider when conducting battalion training,<sup>162</sup>

1. Advance to win; always aim at forward movement.
2. Reconnoitre before movement, move by bounds.
3. Whether halted or on the move, always guard your front, flanks, and rear.
4. Combine fire and movement.
5. Remember that a bombing attack unaccompanied by an attack above ground is seldom of any value.
6. Reinforce by the envelopment of one or both flanks, after personal reconnaissance.
7. Send back information; remember that negative information is as valuable as positive.

---

<sup>159</sup> *SS 152* (1918), 8.

<sup>160</sup> *Ibid.*

<sup>161</sup> *Ibid.*, 12-14.

<sup>162</sup> *Ibid.*, 11.

*SS 152* comprised sixteen sides of A6 paper with fourteen further appendixes. The appendixes covered syllabus, student loading, student to instructor ratios, and the equipment needed for training. It is noteworthy that in Appendix II, which outlined the commanding officers' course and its objectives, of the eight themes to be taught, exchanging ideas, better cooperation between arms and services, and the provision of a debating area, all substantiated a move away from the anti-intellectualism of the pre-war years. Overall, *SS 152* was a concise outline of how to train an army for war in France and Belgium. It had the potential to be at the very centre of doctrinal change in the BEF but would count for nothing if it were not put into practice via the school's system. This will be explored in chapter 7.

### **Other SS pamphlets**

It is semantical to claim that one SS pamphlet was more important than the other, but some were written for army-wide distribution and others for specific parts of the Army. However, just because a pamphlet was not destined for the widest distribution did not mean it could not have a BEF wide impact.

Created to help platoon commanders to train their units, *SS 159, Tactical Schemes to Train Junior Officers and NCOs*, was staffed by the Fourth Army headquarters in May 1917 and provided a set of detailed field exercise examples.<sup>163</sup> The Fourth Army had identified the need for such a manual in November 1916.<sup>164</sup> It was felt that all soldiers in the platoon needed to be retrained in the combined use of the bullet and the bayonet and this was the subject of *SS 185, Assault Training*.<sup>165</sup>

Published in September 1917, *SS 195, Scouting and Patrolling*, laid down training for the specialists within the rifle section of the platoon, providing tactics on the use of ground, the principles of scoutcraft and the use of snipers.<sup>166</sup> In its third chapter, which considered 'Movement', it explained how small patrols could use

---

<sup>163</sup> GHQ, *SS 159, Tactical Schemes to Train Junior Officers and NCOs* (HMSO: May 1917).

<sup>164</sup> LHCMA, Montgomery-Massingberd Papers 7/4, *Fourth Army No 4.14(G)*, 10 November 1916.

<sup>165</sup> GHQ, *SS 185, Assault Training* (HMSO: September 1917).

<sup>166</sup> GHQ, *SS 195, Scouting and Patrolling* (HMSO: December 1918).

artillery bombardments to distract the enemy, and how to use long flanking moves to approach the enemy from a novel direction.<sup>167</sup> These suggestions were a change of tactic from the direct approach of crossing no man's land of 1915 contained in *CDS 5, Trench Warfare. Notes on Attack and Defence*, and highlighted the fact that lessons from the trenches were now being drawn into doctrine.<sup>168</sup>

In May 1917, three more SS pamphlets were produced. *SS 161, Instructions for Battle* identified three principles for success on its front page: the spirit of determination, skill and foresight, and being focused on the defeat and destruction of the enemy.<sup>169</sup> Not only do these three principles evoke an Edwardian spirit of trying hard and bloody sacrifice, but there is also scarcely any talk of innovation and evolution. It is evident that not all doctrine produced was a step forward and that some pre-Boer War values held firm even in the face of industrialised warfare.

In May 1917 *SS 164, Notes on the Use of Tanks*, was published and stated that tanks had to 'work hand in glove with the other arms' and that successful cooperation could not be achieved without a rapid and efficient communications system.<sup>170</sup> This continuing emphasis on improved tank-infantry liaison paid off at the Battle of Cambrai the following month. As a report from 1<sup>st</sup> Tank Brigade noted, 'The success of the early part of the battle was largely due to the close cooperation with the infantry'.<sup>171</sup>

The final pamphlet from May 1918, *SS 210, The Division in Defence*, was published too late to be effective because of a staff changeover from Gorell to Headlam and the fact that by summer of 1918 the BEF was no longer in defence, but attack.<sup>172</sup> But, it did contain a blend of static and elastic defence that epitomised the learning nature of the BEF at this stage of the War.

---

167 *Ibid.*, 34.

168 *CDS 5*.

169 GHQ, *SS 161, Instructions for Battle* (HMSO: May 1917).

170 GHQ, *SS 164, Notes on the Use of Tanks* (HMSO: May 1917), 12-14.

171 LHCMA, Fuller Papers 1/4/2, *1st Brigade Tank Corps Summary of Operations, 20 November to 23 November 1917*, 9 December 1917.

172 GHQ, *SS 210, The Division in Defence* (HMSO: May 1918).



*SS 214, Tanks and their Employment in Cooperation with Other Arms* arrived in August 1918, written by Major Headlam, more than two years after the tank's arrival on the battlefield.<sup>173</sup> It was not well received by the Chief of Staff of the Tank Corps headquarters, JFC Fuller, who expressed his dissatisfaction with the sudden interest being shown in tanks, saying that the investigation was being carried out by someone, namely Headlam, who knew nothing about tank fighting. However, it seems *SS 214* was well-received elsewhere as, in Headlam's words, 'It managed to be accepted by all that read it'.<sup>174</sup>

The final group of doctrinal publications of the war were those that blended intelligence on German operations with training hints. In the last two years of the war, GHQ issued twelve separate examinations of German tactics, experience and overarching strategy, with four being of particular interest.<sup>175</sup> They presented clear information on what to expect from German defence, counterattack and how the Germans would seek to repulse BEF advances. Of the twelve, five pamphlets together conveyed an accurate understanding of the German way of warfare and showed its progression through significant changes, such as the adoption of an elastic defence.<sup>176</sup>

In January 1917, the release of *SS 537, Summary of Recent Information Regarding the German Army and its methods*, outlined how the German Army was now quicker at deploying its reserve divisions and how it now had its artillery in support, rather than relying on the artillery already committed to the battle. Elsewhere, it was essentially a recap of *SS 486, German Lessons Drawn from the Battle of the Somme*, and outlined the German laydown, construction of defences and details such as the depth of overhead concrete of machine-gun positions, gun batteries and sniper posts. In chapter IV, it covered armaments and equipment to describe the laydown and numbers of German defenders so that BEF artillery could plan effectively, while chapter V discussed the German approach to gas warfare and chapter VI looked at German assault tactics overall. It

---

<sup>173</sup> *SS 214*.

<sup>174</sup> Durham County Record Office, Cuthbert Headlam, Letter to Beatrice, 3 July 1918.

<sup>175</sup> GHQ, *SS 356, Handbook of the German Army in War* (HMSO: April 1918); GHQ, *SS 574, The Construction of German Defensive Positions* (HMSO: August 1918); GHQ *SS 714, The German Tank 'Elfriede'* (HMSO: June 1918), 1

<sup>176</sup> GHQ, *AEF, German lessons of 1918* (HMSO: August 1918), and GHQ, *AEF, A survey of German Tactics 1918* (HMSO: August 1918), and *SS 356*, and GHQ, *SS 537, Regarding the German Army and its methods* (HMSO: January 1917), and *SS 574*.

should be noted that the summary of the German defences outlined in *SS 198, Tactical Instructions for the Offensive of 1918* (to be covered in chapter 6), is effectively a summary of *SS 486* with new contemporary information of the day.<sup>177</sup>

*SS 537, Summary of Recent Information Regarding the German Army*, had a useful description of a new German style of division and what was contained within it and, simultaneously, significantly increased the level of understanding of the enemy in 1917 compared with 1914. *SS 537* was updated in summer 1918 when *SS 356, Handbook of the German Army in War*, later to be the *German Army Handbook*, was published.<sup>178</sup> Overall, the pamphlets that explained the German approach to warfare and their tactics would play a part in the success of the Hundred Days campaign in summer 1918, as they ensured that the BEF had a better understanding of how the German Army would react.<sup>179</sup>

### **Unofficial doctrine publications**

While there were many official documents, there were also some unofficial documents from senior officers, and articles from credible authors, which became popular. Although it is impossible to judge which of these was the most popular or even most useful, one that is mentioned continuously, especially by the Territorial Force, is *Quick Training for War*, by Lieutenant-General Sir Robert Baden-Powell, 1914.<sup>180</sup> The book was not officially sanctioned and seemed to have been written quickly between August and September 1914, as Baden-Powell refers to the Belgian defence of Liege (4-6 August 1914). The book was revised five times in September 1914 alone.

*Quick training for War* distilled soldiering down to 'the four Cs' of Courage, Common sense, Cunning and Cheerfulness. Baden-Powell covered all practical aspects of military service, including digging trenches and

---

177 *SS 486*.

178 *SS 356*.

179 Tim Lupfer, "The Dynamics of Doctrine: The Change in German Tactical Doctrine During the First World War," *Combat Studies Institute, US Army Command and General Staff College*, No. 4 (January, 1981): 1-73.

180 Baden-Powell, *Quick Training for War*.

earthworks to 'inculcating cheerfulness in your men'.<sup>181</sup> The book promoted a training system that encapsulated contemporary military thinking and army tradition, and gave examples of the type of campaign that the British expected to fight according to the training events held at the Staff College Camberley in the early 1910s.

The second example of an unendorsed publication is General George Harper's, GOC IV Corps, '*Notes on Tactics and Training*' which went into great depth about the new platoon organisation and how the tactical handling of the Lewis gun section would be achieved.<sup>182</sup> In particular, it extolled the virtue of a two-gun Lewis section within the new formation.<sup>183</sup> General Harper also asserted that when free to 'think', the senior officers of the BEF could instigate sensible change.<sup>184</sup>

## Conclusion

This thesis suggests that victory in the First World War was underpinned by a process of learning that centred on formal doctrinal changes that took place after the Somme campaign. The new doctrine within the conceptual component, underpinned the change in the physical and moral components. Furthermore, the importance and centrality of new doctrine was masked, but regardless, it allowed other factors, such as leadership and technology, to flourish.

This chapter has highlighted that, in 1914, the BEF used *FSR I and II* to prepare, train, mount and deploy the BEF successfully.

Before February 1917, the creation of doctrine was one of many tasks for the hard-working operations staff within GHQ.<sup>185</sup> Writers were assigned as and when needed in addition to their primary responsibilities and

---

181 Baden-Powell, *Quick Training for War*, 32.

182 LHCMA, Montgomery-Massingberd Papers 7/33.

183 IWM, Maxse Papers 69/53/14, *Letter from Lieutenant-General GM Harper to Lieutenant-General Sir Ivor Maxse*, 20 October 1918.

184 General George Harper, *Notes on Tactics and Training* (London, 1919), 2-3.

185 Beach, "Issued by the General Staff," part IV. Reflection, 1.

this ad hoc process understandably produced poor and late doctrine. However, once the Training Directorate, and latterly the Training Branch, was created, it took ownership of the doctrine and made it its primary purpose.

While coherence was required, it was style that also precipitated change with the appointment of Lord Gorell as the first full-time professional doctrine writer. While his style is evident from the newer doctrine, it was clear that as his sole responsibility was doctrine writing, the pace at which new tactics were written allowed for faster change to be made in the BEF's doctrinal foundations.

It has been suggested that the British Army's doctrine remained 'semi-formal' during the war because 'although vast numbers of pamphlets and training documents were issued, the doctrine was never properly codified'.<sup>186</sup> While potentially valid for 1916 and early 1917, this statement is harder to justify from the autumn of 1917 when doctrine production began to expand with a new level of focus on an overarching aim of cooperation and integration in order to solve the tactical problem of the day – crossing no man's land and then exploiting.

The change in doctrine can also be seen in the development of infantry battalion structures, training, tactics, and equipment. By late 1918, each unit had been reduced from 1,000 to 500 men while its weight of fire had been maintained.<sup>187</sup> Similarly, the four Lewis Guns per battalion in 1916 had expanded to thirty, augmented by eight 80 mm light trench mortars and sixteen rifle bombers.<sup>188</sup> While these may seem to be merely structural changes, they were the result of the process of learning that promoted change for a better structure for the infantry, so that it was more self-reliant and able to answer its tactical problems.

The doctrinal revolution delivered a nascent combined arms warfare capability, by promoting the role of the artillery as the corps that defeated the enemy. The new Tank Corps invented a novel way of crossing open

---

<sup>186</sup> Sheffield, "British High Command in the First World War," 21.

<sup>187</sup> As per the changes outlined in *SS 143* (June 1917).

<sup>188</sup> Prior and Wilson, *Command on the Western Front*, 311.

ground that tactical reform had spent three years trying to achieve. The doctrine contained in *SS 135, Training of Divisions*, *SS 143, Training of Platoons* and *SS 152, Training British Armies*, promoted joint planning and far broader and more robust communications. The SS documents outlined the change in the structure of platoons, companies, battalions, brigades, divisions, and corps and set the conditions for them to adopt new equipment and tactics, and to train better. However, the fundamental change was the scale of infantry and artillery integration that *SS 135* set out.<sup>189</sup>

By early 1918, the SS pamphlets had consolidated much of the doctrine required to enable the BEF to deliver combined arms warfare. More specifically, the SS pamphlets outlined a doctrine where command could be decentralised and set overall tactics within a divisional framework. Furthermore, by the beginning of the Hundred Days Offensive, the doctrine proposed that a division should have relative freedom of operations within the corps framework, as well as the corps within that of an army. This was not an Edwardian army shorn of intellect, but a responsive and bold fighting force that had truly evolved its approach over the first three years of war.<sup>190</sup>

The role of the doctrine writers working for Brigadier-General Arthur Solly-Flood and Lieutenant-General Sir Ivor Maxse should not be underestimated; they represented a professionalisation of doctrine production and the singular focus of the BEF to expand and cohere its fighting methodology. They could transcribe the information coming into GHQ, synthesise it and then rationalise it to generate doctrine. Lord Gorell, Captain Edward Grigg, and Major Cuthbert Headlam are not duly recognised in the historiography for their role in the First World War as the authors of some of the most useful doctrine.

In conclusion, the comprehensive doctrine produced by the Training Directorate blended the early war informal lessons with formal lessons post-Somme to deliver a comprehensive doctrinal premise for the BEF. The new doctrine became part of the foundation of the conceptual component of fighting power and, in

---

<sup>189</sup> *SS 135* (August 1917), 8-9 and *SS 143* (June 1917), 7.

<sup>190</sup> Pugsley, "We Have Been Here Before," 11.

concert with changes in technology, supported the physical component. Finally, the demise of the cult of the offensive, described in chapter 3, supported the change in the BEF's ethical foundation, thus supporting change in the moral component. The transformation of the BEF was underway, centred on the doctrinal change that facilitated wider opportunities for better leadership and new equipment.

However, *SS 198, Tactical Instructions for the Offensive of 1918*, was never published, and its detailed study suggests that in many ways it is the 'lost volume' that articulated the doctrinal nirvana, something akin to General Foch's *bataille générale*. Hence, chapter 6 considers its development and its contents in detail to establish the doctrinal premise it set out and what it might have achieved.

## Chapter 6 – SS 198 Tactical Instructions for the Offensive of 1918

By the end of 1917, the motivation, formal structures, and personalities were in place within the BEF to meaningfully improve its doctrinal approach. It is important to recognise that by late 1917, and certainly by early 1918, the operational methods that Marshal Ferdinand Foch, General Henri-Philippe Pétain, John Pershing and General Sir Douglas Haig followed had already changed significantly from the pre-Somme method. Counter to the original planning assumptions emphasising the retaking of ground and ousting the German Army from France and Belgium, there was a realisation that the German centre of gravity was its fighting power and the morale of the army itself.<sup>1</sup> Thus attrition was no longer a means to an end and an approach that captured and held ground was needed.

There was also a realisation that the mechanisation of the Western Front rendered the original tactics of 1914-1916 inefficient, and too costly for armies to pursue. The tactic of trying to break through the enemy front line so that cavalry could exploit in depth had become synonymous with failure and expense.<sup>2</sup> Marshal Foch believed it had been proved that assaulting troops lost momentum and could not be reinforced as quickly as the defenders could counterattack.<sup>3</sup> Instead, he wished to achieve a series of sequential thrusts along the same narrow axis which could be developed laterally in what he called the *bataille générale*.<sup>4</sup>

Something beyond breakthrough and more nuanced than bite and hold was needed, and this may have been the aim of *SS 198, Tactical Instructions for the Offensive of 1918*, especially when the influence of General Haig can be established from a manuscript note, in his handwriting, within Gorell's papers.<sup>5</sup>

---

1 Boff, "British Third Army," 37.

2 Ibid., 284-285.

3 For Marshal Foch's thoughts on the relevance of breakthrough see Philpott, *Bloody Victory*, 98-100, 141, 170-171.

4 Philpott, "Marshal Foch and Allied Victory," 38-53.

5 BoL, Gorell papers, box 8. Manuscript note of Sir Douglas Haig's direction on the contents of *SS 198*, titled "Tactics in the attack", part I, General principles of German defence and deductions ... required in our methods of attack. As highlighted to me by Jim Beach.

Gorell states that *SS 198* 'kept on being discussed [and] revised [and] eventually was rewritten' by Grigg.<sup>6</sup> It is therefore probable that Haig's note, shown below, was his initial direction on what *SS 198* should contain, based on the current situation during the Third Ypres offensive.<sup>7</sup>

1st Air supremacy ... Dominate hostile artillery ... defeat the hostile advanced troops holding shell holes, but this is only a means towards the 2nd objective, the subsequent destruction of the enemy's main force which will try & counterattack ... These distinct objectives necessitate a division of the attacking troops according to their roles. To make suitable dispositions rapidly to meet tactical situations as they occur and to effectively influence the action of our reserves, the Commanders position of Battalion, Brigade & Divisional Commanders is of very great importance. When the strategical situation permits the ground point chosen for attack should be primarily selected on account of the advantages offered by the ground for the advance of our leading detachments. As soon as the advanced troops have gained a suitable defensive position, it is to be fortified etc. without delay steps are to be taken to move forward the necessary means for exploiting the success, thus gained for parrying such counter strikes as the enemy may make. Fresh troops, Machine-guns prepare fire positions etc. field companies – a few field guns etc. Barrage plans to be worked beforehand for further advance.<sup>8</sup>

This advice is seemingly timed after the unsuccessful battles of Pilckem Ridge, 31 July – 2 August 1917 and Langemarck, 16–18 August 1917. Hence Haig's guidance could be his doctrinal response to these battles and his interpretation of a better way of warfare. If the timing is correct, then the writing of *SS 198* by Grigg occurred during the Battles of Menin Road Ridge, 20–25 September 1917, and Polygon Wood, 26 September – 3 October 1917, while General Plumer commanded the Second Army.

---

<sup>6</sup> Beach, "Issued by the General Staff," 478.

<sup>7</sup> Ibid. Gorell kept the note from Haig as a souvenir.

<sup>8</sup> Ibid.



General Haig's note may be interpreted as a developed form of the bite-and-hold doctrine, embellished with extra instructions for counterattacks and the use of reserves. This is then a potential turning point in the formal move away from the breakthrough that had already transferred into a form of bite and hold and towards this new way, that was to be a more nuanced form, with shorter advances, better coordination, and quicker responses to counterattacks – all based upon better intelligence from the RAF.

This thesis argues that the unpublished *SS 198* may well have been the doctrinal high point of the First World War, and the closest the BEF got to '*combined arms warfare*'. On the basis that *SS 198* offers an insight into what war may have looked like in 1919, it is important to examine the detail within it, and how it could have changed the BEF's doctrinal approach. It sheds light upon not only a potential end-state to doctrinal development, but also on the tactical nirvana that was never realised and the doctrinal thoughts of General Haig.

In short, *SS 198* offered an in-depth assessment of the new German defence and how to counter it with greater integration of the infantry, artillery, and RFC. This chapter will explain why the publication was so important as both a doctrinal work and as a reflection of the development of the formal process of learning.

### **The doctrinal solution**

With the formal structures of the Training Directorate established in late 1917, it is perhaps no surprise that a potential solution to trench warfare was finally written. The tactical problem of crossing no man's land had endured since late 1914 and the proliferation of lethal technology had only cemented this tactical problem in the minds of the Army commanders.<sup>9</sup> Lessons had been captured, see chapter 4, that now allowed the infantry to cross no man's land credibly, but they continued to struggle to exploit further.<sup>10</sup> However, the

---

<sup>9</sup> Hubert Johnson, *Breakthrough! Tactics, Technology, and the Search for Victory on the Western Front in World War I* (Novato: Presidio, 1994), 247.

<sup>10</sup> The reorganisation of the company and redistribution of weapons meant that by late 1916 each infantry battalion had its integral fire support. When combined with infiltration tactics, the divisions of 1917 were able to cross no man's land, but still struggled to consolidate their gains. See *SS 143* (June 1917) for how each platoon was established.

new tactics were contained in current infantry pamphlets such as the August 1917 issue of *SS 135, Instructions for the Training of Divisions for Offensive Action*, but were yet to be cohered for the entire BEF.<sup>11</sup>

### Staffing and context

*SS 198, Tactical Instructions for the Offensive of 1918* was written by Edward Grigg between September and November 1917.<sup>12</sup> Lord Gorell suggests that it was continuously revised and never gained the traction it deserved due to these constant revisions. The only known copy is found in Lord Gorell's papers in the Bodleian Library Oxford and was first highlighted by Jim Beach in his work, *Issued by the General Staff: Doctrine Writing at British GHQ, 1917–1918*.<sup>13</sup> As the doctrine was never published, it has remained relatively unknown and it is, therefore, possible that evidence for the BEF's doctrinal end state through the First World War may have been missed by historians of the First World War.

It seems that *SS 198* is based on what GHQ considered tactically desirable during the latter stages of the Third Ypres offensive and the preceding six months. The timing suggests it was written to complete the other key doctrinal documents in 1917, namely *SS 135, Training of Divisions*, *SS 143, Training of Platoons* and *SS 152, Training British Armies*, and *SS 119, Preliminary Notes on the Tactical Lessons of the Recent Operations*.<sup>14</sup> As a group of four, they would have articulated the training and fighting approach for the BEF in 1918 on the Western Front, with *SS 198* substantiating the combined arms approach.

When *SS 198* was drafted, the basis for the current doctrinal change was the reissued August 1917, *SS 135, Instructions for the Training of Divisions for Offensive Action*, the success of which had been based on its ease of reading, and how it outlined divisional training uniformly.<sup>15</sup> *SS 198* was 59 pages long and opened with an

---

<sup>11</sup> *SS 135* (August 1917).

<sup>12</sup> BoL, Gorell papers, box 8. Draft copy of *SS 198*, there is a pencil note on the front cover of the copy that states, "not got beyond this stage, as by Nov 1917 it was realised suddenly that what was XXXXX (illegible) for the spring of 1918 was a book on defence."

<sup>13</sup> Beach, "Issued by the General Staff," 464, 476-478.

<sup>14</sup> Beach, "Issued by the General Staff," 475, and see *SS 109, SS 119*.

<sup>15</sup> *SS 135* (August 1917).

update of the current enemy tactics, which set the foundation for why BEF doctrine had to change. *SS 198* comprises four chapters:

- Chapter I - Notes on major tactics in the present stage of the war.
- Chapter II - The Infantry plan.
- Chapter III - The Artillery plan.
- Chapter IV - The Royal Flying Corps plan.

It is interesting to note what is not included; namely, there is no mention of cavalry, engineers, signalling or sustainment. One possible interpretation of this is that the authors had agreed which parts of the BEF would deliver tactical victory and which, by their absence, would not.<sup>16</sup>

#### **Chapter I - Notes on major tactics in the present stage of the war**

Chapter I, 'Notes on major tactics in the present stage of the war,' is a key chapter of *SS 198* as it outlines the overall approach to warfare, focusing primarily on the offensive. Broken down into eight sections, it articulates the enemy's approach, and how the BEF must react to their new defensive systems. Drawing upon captured documents, *SS 198* noted that, instead of continuous, linear, and parallel trench systems, the German Army was now holding their front line 'more lightly and fighting for it rather than in it'.<sup>17</sup> This fact has been corroborated recently by Robert Foley who outlines how the German defences adapted their methods mid-war.<sup>18</sup> Hence, it makes sense that a new method of penetrating the German defences was required, and *SS 198* set out to address this task.

---

<sup>16</sup> *SS 198*, 1-4.

<sup>17</sup> *Ibid.*

<sup>18</sup> Foley, "A Case Study in Horizontal Military Innovation," 799-827.

Over the first two pages, it references the significance of the doctrinal foundation within *SS 135*, which laid out the '*Instructions for the Training of Divisions for Offensive Action*' and, on the next page, the exploitation of the recent German defensive doctrine contained in *SS 574, The Construction of German Defensive Positions*.<sup>19</sup>

Part 1 of chapter I narrates the enemy's change in tactical approach and outlines the task at hand for the BEF in early 1918. It explains that the enemy's tactics had altered in 1917 around the battle of Messines.<sup>20</sup> More specifically, it notes that the German Army had focused on holding a continuous line of trenches, and that, to achieve this, the forward trenches were organised in parallel with intermediate strong points designed to prevent an attack from building momentum.<sup>21</sup> Furthermore, it described the trench system which also allowed for sections to be captured as it had interconnected switch lines that could be used to cut out an occupied system and form a defensible front line. It could also connect their second line with the uncaptured portion of the first. Ultimately, the German defensive doctrine was designed to preserve a continuous, front line and prevent a breakthrough. As such, the BEF could predict that the main weight of the German defence would be encountered in the first and second lines of the trench system.<sup>22</sup>

The BEF approach to warfare in late 1916 and early 1917 was articulated in *SS 135* and was designed to counter the German static but continuous defended trench line. The doctrine focused on the methodical destruction of the first two lines of German trenches with overwhelming artillery.<sup>23</sup> The infantry assault would then be directed against the two front lines under the protection of a moving artillery barrage, designed to suppress the defenders and stop them from occupying their defences before the BEF assaulting troops were upon them. If the two front lines were captured, the cost in lives and equipment was generally high. Therefore, the second stage of the assault into the third and fourth lines of trenches would be

---

<sup>19</sup> *SS 574*, paras 4, 5.

<sup>20</sup> *SS 198*, 5.

<sup>21</sup> *Ibid.*, 5-8.

<sup>22</sup> *Ibid.*, 6.

<sup>23</sup> *SS 198*, 7-8.

undertaken with fewer troops, exposing them to counterattack as they reached enemy reserve locations, while still within enemy artillery range and moving out of their artillery protection.<sup>24</sup>

The way artillery was employed in positional warfare was key as the ability to take the third and fourth line of trenches depended upon artillery suppression to allow the few remaining troops to advance. The German field artillery was usually placed 2,000 to 4,000 yards behind its front line so that they could cover the first and second trench lines, hence the capture of the second line often led to the capture of some enemy artillery.<sup>25</sup> Consequently, the enemy was usually quick to withdraw its artillery from close to the second line so it could be brought to bear further in the rear. Therefore, the last stage of the assault onto the second line was less likely to be harassed by an artillery fire plan than the first line, which gave the BEF assaulting troops time to consolidate and dig down for further protection.<sup>26</sup>

After the battle of Messines, the German commanders interpreted the BEF's success as proof of 'the weakness of the rigid methods of defence hitherto practised.'<sup>27</sup> They adopted a new defensive approach to occupy the front two lines more lightly and fight for them, rather than fight in them. The difference was evident at the Ypres salient on 31 July 1917, and in and around Hill 70 on 15 August 1917 whereby fewer German troops were seen to occupy their front line of trenches.<sup>28</sup> The next and final stage of the change in German defence was witnessed in September 1917 when the German defences adopted the new methods in full in what was seemingly a change from trench defence to a more open defence. The details of this were laid down in General Sixt von Armin's order of 30 June 1917, three weeks after the battle of Messines.<sup>29</sup>

---

24 Ibid., 7.

25 German artillery had a range of between 2,000 yards and 8,200 yards at the tactical level.

26 SS 198, 7-8.

27 SS 574, which contained a translation of a captured order by General Sixt von Armin, 'The construction of Defensive Positions,' about BEF defences.

28 31 July 1917 was the opening day of the Battle of Passchendaele. The Battle for Hill 70 lasted from 15-25 August 1917 and was an attempt to divert German resources from the overall Third Ypres assaults, and see Paddy Griffith, *Fortifications on the Western Front 1914-1918* (Oxford: Osprey, 2004), 10-11.

29 SS 198, 9.

Under General Sixt von Armin's new defensive system, the German Army no longer tried to maintain a single line of trenches facing the BEF front line.<sup>30</sup> Instead, the focus fell upon a set of reserve trenches that acted as an 'artillery protective line'. These were positioned about 1,650 to 2,200 yards behind the old front line, in front of which there was now only 'a zone of defence organised in-depth,' where the German Army placed small groups of concealed infantry in various strong points so that they offered mutual support.<sup>31</sup> It seems that this approach aimed to reduce the effect of BEF artillery fire as it had nowhere to concentrate. Consequently, when the BEF infantry attack started, the new German tactic was for small groups of men to disrupt the unity of the BEF assault, and either destroy it altogether, or, at the very least, inflict many casualties, and slow it down.<sup>32</sup>

German reserves were then positioned behind the 'crater zone' in whatever cover from view they could find so as not to be seen by aircraft. When the BEF assault reached the final trenches, it was now more likely to be exhausted and disorganised and would encounter in place fresh German troops who would seek to drive them backwards, forcing the relinquishment of recently captured ground.<sup>33</sup>

According to the new doctrinal approach, the German Artillery was also employed differently; in particular, they were deployed at far greater depth from the BEF front line to reduce the effects of BEF counter-battery fire.<sup>34</sup> This also reduced the risk of capture and the need to change position before they could deal effectively with the final stage of any assault. Finally, the German Army also attached mobile batteries to their reserve units that could be pushed into advanced positions in support of counterattacks.<sup>35</sup>

The effect of this new artillery disposition was a reversal of the original tactical situation. Thus, once the front line had been broken through, instead of the threat from artillery reducing, which allowed a degree of

---

30 General Friedrich Bertram Sixt von Armin was in command of the Fourth German Army in 1917.

31 As described in *SS 198*, 7-10.

32 *Ibid.*, 7.

33 *Ibid.*, 7-8.

34 *SS 198*, 8-9.

35 *SS 198*, 7-8.

unrestricted exploitation, the assaulting troops faced even greater enemy artillery fire. Furthermore, the BEF assault troops also had to be ready to repel counterattacks far sooner, thanks to the forward disposition of reserve troops now with their integrated artillery.<sup>36</sup>

### **Countering German defence in depth**

This new German doctrinal defence required a revised approach by the BEF, and *SS 198, Tactical Instructions for the Offensive of 1918*, can be seen as providing it. The German changes meant that the capture and destruction of their artillery were significantly harder as it was deployed further back. However, as their infantry was now exposed due to being in smaller groupings that could be engaged in isolation, this became the focus of the BEF approach. In short, while the German doctrine now relied upon breaking up BEF attacks and swift counter-attacks, in doing so their infantry became more vulnerable to BEF artillery and machine-gun fire across open ground.<sup>37</sup>

The BEF artillery also took the opportunity to plan the counter barrage to the German counterattack, staying one step ahead of the enemy and producing devastating fire when needed. Meanwhile, the German artillery had to plan ad hoc due to their defensive posture, not knowing where the potential breakthrough and own counterattack would be positioned. It quickly became apparent that German counter-attacks tended to falter due to a lack of artillery support and the precision and preparedness of BEF artillery.<sup>38</sup>

The BEF's two fundamental reactions to the German defensive depth approach were:

- Better communications between the artillery, infantry, and Royal Flying Corps.<sup>39</sup>
- Rapid consolidation in depth by the infantry and careful disposition of immediate reserves.<sup>40</sup>

---

<sup>36</sup> Ibid., 8.

<sup>37</sup> Ibid., 9.

<sup>38</sup> *SS 198*, 9-10.

<sup>39</sup> The Royal Flying Corps became the Royal Air Force on 1 April 1918.

<sup>40</sup> *SS 198*, 9-10.

The first prevented German counter-attacks from succeeding and the second meant that any local success for the German Army would have been small and of no serious consequence.<sup>41</sup>

Part 2 of chapter I outlined the 'General Method of the BEF Offensive' and used an eight-step method of continuous offensive, which developed into a four-phase securing of the area, and further exploitation plan. The eight steps equated to combined arms warfare and explained what needed to be coordinated to cross no man's land. The premise was obvious but powerful, as it explained how much coordination was required for tactical success and, indirectly, that the infantry was just one part of the plan that relied on the artillery firepower and RFC observation.<sup>42</sup>

The new battle sequence was to initially gain control over the enemy aircraft and artillery, followed by setting a moving barrage of artillery ahead of the advancing infantry for their protection. This seems to be drawn directly from General Haig's specific direction referenced earlier in this chapter.<sup>43</sup> This would allow for the careful planning of intermediate objectives, giving the advancing troops a tactical pause where they could reorganise in the heat of battle.

Next, junior commanders in situ would pick secondary objectives that were achievable and defensible once captured, so that fewer attacks were repelled quickly. The second stage of the assault would then require more troops allocated to the initial objectives so that they could repulse any German counterattack while simultaneously organising their defence-in-depth to endure any German artillery fire. Finally, the local reserves were to be used to repulse local attacks, while the initial assault force prepared for their next attack which would continue to pressure the enemy with a series of rapid blows.<sup>44</sup>

---

41 Ibid., 10.

42 Ibid., 10-11.

43 Beach, "Issued by the General Staff".

44 SS 198, 11.



This system was far ahead of the methods of late 1916; it showed greater levels of cooperation and assumed that all parts of the BEF had improved their communications so that this new tactical approach could be achieved. The power of *SS 198, Tactical Instructions for the Offensive of 1918*, was in linking tactical success to operational exploitation, and building strategic success from successive small tactical achievements. In many ways, the definition of operational art.<sup>45</sup>

The eight-step approach was to be used as a series of 'carefully prepared attacks' that would be initiated a few days before the main objective was engaged. In this way, it sought to achieve shallow objectives that would force the enemy into committing their reserves and unmasking their guns. Not only did this allow better planning for the main assault, but it also wore down the German defences to a degree as it purposefully engaged them in the days preceding the main battles. Whether or not General Haig consciously combined the benefit of bite and hold with breakthrough is immaterial as the new doctrinal approach was neither one nor the other, but a new tactical system based on a reaction to the enemy's defence in depth.

In many ways, it was akin to General Foch's *bataille générale* which sought to wear down the enemy, while not directly seeking a total breakthrough.<sup>46</sup> And while it did focus on limited gains, to say it was an amalgam of bite and hold and breakthrough, is to miss the nuance of a new tactical approach that was a combination of both former tactics into a new one.<sup>47</sup>

Part 3 of chapter I discussed the necessity of methodical preparation and the need for 'rapidity' to guarantee catching the enemy off guard. The doctrinal approach focused on acting faster than the enemy could react; a simple approach but one that had neither been articulated before nor given any sense of priority. By having the second, third and fourth phase plan already organised, the BEF could not only react quickly to the German counterattacks but also have their artillery pre-positioned and supplied with ammunition. In this way, the

---

45 Ibid., 11-12. Operational art is a contemporary term the militaries use to describe the actions that link tactical actions to strategic success, see ADP, *Land Ops*, 8-10.

46 For an understanding of General Foch's *bataille générale*, see Philpott, "Marshal Foch and Allied Victory," 38-53.

47 The articulation of the combination of bite and hold and breakthrough is considered in Gary Sheffield's work in Haig's Diaries; see Sheffield, *The Chief*, 109-111, and see Harris and Marble, "The Step-by-Step Approach," 18-31.

BEF's actions became quicker than those of the German Army and they built and maintained momentum.<sup>48</sup> With this degree of pre-planning, the BEF could also launch sequential phases of attack far faster, as reserves were pre-positioned, which offered a consistent tactical advantage that would seemingly overwhelm the enemy.

Parts 4-7 of chapter I outlined how the scheme of manoeuvre for BEF assaults could now be considered in four phases which, when planned together and resourced correctly, would lead to enemy capitulation if all the effects of each arm and service were imposed upon one another simultaneously. In the first stage of exploitation, when fighting into German dispersed defence, the BEF would focus on occupying ground of tactical significance, not just all the trench lines to their front. No longer would they advance in parallel across no man's land to take the opposite trench system, but instead they would focus on strong points, hill features or junction points, where the most benefit could be drawn.

The small gains would be the focus of small groups, with artillery support, and not attacked *en masse*. But, once occupied, they would provide a significant advantage as they would start to 'unpick' the enemy defensive positions in depth.<sup>49</sup> Larger patrols would aim to fight their way deeper into the German defended zone, bypassing the front elements of their defence, and trying to locate depth positions whose occupation would prevent enemy reinforcement. These actions would be coordinated with artillery and sequenced as soon after the main assaulting phase as possible, taking place before enemy reinforcements were available. In summary, the objectives in the first stage of exploitation were limited to tactically significant locations which lay within the range of BEF artillery, and could be conducted before enemy reinforcement.<sup>50</sup>

The second stage of exploitation would be reached as soon as assaulting troops had occupied the enemy's former first-line trench system. The speed of occupation and movement onwards would be decided by the availability of BEF artillery to move forward and continue its support, and the positioning of reserve infantry

---

48 *SS 198*, 13-15.

49 Unpick means to reduce the overall effect of their defence. To compromise it significantly.

50 *SS 198*, 16-17.

forces who could move forward to continue the attack. The artillery would need to be prepared to continue the counter-battery fight into depth and the infantry reserves would be able to exploit forward, having made the most of RFC reconnaissance photography to gain an understanding of the ground they were to occupy. The size of front and depth of attack would be decided beforehand so that the divisions who led the assault could train over similar ground and at a similar rate of advance.<sup>51</sup>

The third stage of the proposed exploitation was to be focused on limited depth objectives which would be within the range of BEF artillery. The range of the guns would also dictate the speed at which the infantry had to assault to prevent enemy counter-battery units from moving into range, and enemy reserve infantry being moved to block such deep penetrations. The protection of BEF troops now relied more than ever on the accuracy and ferocity of the artillery barrage to its front which was used systematically to keep the enemy away from the leading elements of the advance. All preparations for this stage of exploitation, the movement of the artillery forward, and the selection of targets and their registration, were to be conducted before the main assault to offer a degree of guarantee. While the launch of this phase would only occur once enemy counter-attacks had been stopped or if they never occurred, phase three was not to be prohibited by concurrent enemy advances.<sup>52</sup>

An additional, and fundamental, aspect of the third stage of exploitation was that authority of the timing and order in which objectives were taken was delegated to corps headquarters. Poor communications, previously held at army or even GHQ level, often prevented the timely passage of information so that exploitative opportunities were lost. By delegating the orders to a lower level, the authority to advance could be held closer to the battle and confirmed in a timelier manner so that fleeting chances were not missed. Furthermore, the ability to launch subsequent assaults was often now authorised using a single codeword which would initiate a new assault based on rehearsals and a deep understanding of the army commander's

---

<sup>51</sup> *SS 198*, 18.

<sup>52</sup> *Ibid.*, 19.

intent. This increase in momentum would have made a significant difference as it meant the BEF could react to opportunity before the enemy could place reserves in their way.<sup>53</sup>

The fourth and final stage of exploitation focused on the use of reserves. The new technique was to forward position reserve divisions as closely as possible to the assaulting divisions and give them orders to prepare to pass through the assault troops and be fed directly into the second wave of the offensive, making a seamless wave of attack. These reserve divisions would now be grouped with their artillery and paired with cavalry for rapid exploitation deep into enemy rear areas. The forward placing of the reserve divisions was possible as the enemy artillery had been withdrawn a few thousand yards for its protection; consequently, the reserve exploitation force could loiter just out of artillery range near the assaulting force.<sup>54</sup>

Part 8 of chapter I contained the training and preparation for the offensive. It is here that the link was made between the new doctrinal approach to the assault and the training that would enable it, building on *SS 135, Instructions for the Training of Divisions for Offensive Action*.<sup>55</sup> It firstly stated that all training must be conducted to achieve the new doctrinal approach and, in doing so, cohere the methods of all parts of the BEF. And it substantiated the importance of *FSR I* as the foundation for all else and pointed to the chapters, V Protection, VI Information, and VII The Battle.<sup>56</sup> More specifically, it focused upon the need to provide better artillery support for the advancing troops and make better preparations for ammunition supply.

A subsidiary task emphasised local commanders making local decisions and taking the initiative. The doctrine was for tactical commanders, brigade and below, to make the best use of machine guns for maintaining superior firepower wherever possible. Lastly, a new emphasis was to be placed on every unit to take responsibility for its local protection, sustainment and communications, instead of relying upon other supporting units. This new, self-help approach would allow for greater independence and for lower-level

---

<sup>53</sup> *SS 198*, 20.

<sup>54</sup> *Ibid.*, 21-22.

<sup>55</sup> *SS 135* (August 1917).

<sup>56</sup> *FSR I*, ch V on 91, ch VI on 119 and ch VII on 131.

commanders to be able to deal with local problems without higher headquarters agreement which may have cost time and opportunity.<sup>57</sup>

In conclusion, Chapter I of *SS 198, Tactical Instructions for the Offensive of 1918*, outlined a new tactical approach, a blend of bite and hold and breakthrough, with an emphasis on greater self-reliance, a more phased approach, and a far greater emphasis on training for the specific actions to follow. Based on the enemy's new defence-in-depth, this may have proved a superior doctrinal approach to crossing no man's land and exploiting. In many respects, it was enabled by the German Army reducing the density of its front two lines, moving its artillery further to the rear, and not fighting quite so hard for their front positions. One tactic was a reaction to the other and the overall devastation inflicted upon the German Army in the first three and a half years of the war may well have pushed it into this approach through the consistent losses of men and materiel.

With a deep understanding of how the German Army was now approaching defence on the Western Front in mid-1917, chapter I of *SS 198* had outlined the BEF response as a doctrinal theory. The second half of *SS 198* contained the tactical details that the infantry, artillery and Royal Flying Corps would need to train, organise, and integrate the new approach. While in-depth, these details were never intended to be used in isolation and were meant to be considered alongside the existing *FSR I* and the training plans in *SS 135 Training Divisions, SS 143 Training Platoons, and SS 152 Training Armies*.<sup>58</sup>

## **Chapter II - The Infantry Plan**

Chapter II was dedicated to the infantry and articulated how they should choose their objectives and how deep they should plan to attack. It contained practical advice on what would work and what would not gain from the lessons process and the gradual development of new tactical techniques.

---

<sup>57</sup> *SS 198*, 22-23.

<sup>58</sup> *SS 135* (January 1918); *SS 143* (June 1917); and *SS 152* (1918).

The new doctrine for attacks directed that no more than 2,000 to 2,500 yards should be planned upon for day one of an assault,<sup>59</sup> and specified that where the ground was less favourable, only 1,500 yards should be planned for.<sup>60</sup> It also articulated that the final objective of a day should be chosen with the beginning of the second day in mind, not just as a convenient place to stop as the sun set on day one. Accordingly, it stated that the final objective of a day should be the strongest possible to withstand counterattack, and the best possible as a stepping off point that could facilitate artillery fire, communications, and the proximity of reserves.<sup>61</sup> In essence, the final objective of any given day was now focused upon maintaining momentum for day two so that the BEF would be neither repulsed nor bogged down.

The detail in *SS 198* regarding the assault refers directly to *FSR I*, section 103-104, suggesting that pre-war doctrine was still seen as fit for purpose.<sup>62</sup> This concise reference to the foundation doctrine also suggests a conscious move by the authors, and those directing them, to give *SS 198* a lower standing than *FSR I*; confirming the Training Directorate approach of building a hierarchy of doctrine.<sup>63</sup> *SS 198* also detailed six secondary considerations; namely, the intended depth of attack, the nature of the enemy's defences, the relative strength of the enemy, the state of the ground, the attacking strength of the BEF, and the procedure for placing boundaries between assaulting troops on the ground to prevent fratricide.<sup>64</sup> The detail in these six considerations instructed staff planners at every level to maintain the same coherent approach across a frontage and to make arrangements concerning boundaries that would ensure better cooperation and thus prevent the enemy from gaining any ad hoc advantage through poor liaison.<sup>65</sup>

---

59 *SS 198*, 24.

60 *Ibid.*

61 *Ibid.*, 25.

62 *FSR I*, 136-140.

63 *SS 198*, 25-26.

64 *Ibid.*, 26.

65 *Ibid.*, 25.

The high degree of doctrinal coherence between *SS 198* and *FSR I* is further supported in part 11 which considered the 'Distribution of Troops in the Attack.'<sup>66</sup> Once again, six principles were articulated that advised planners and trainers to maintain momentum but not overcommit their troops.

- The distribution of attacking troops must maintain the tactical unity of battalions and companies.
- Each objective must have allocated units before the assault begins.
- That troops that 'leapfrog' through initial assaulting troops are strong enough for their task and augmented if necessary.
- The allocated troops must be adequate in strength for the intermediate objectives.
- Enough troops must be left for the final objective of each day.
- The tactical reserves must remain close by and be ready for immediate use.<sup>67</sup>

These considerations all pointed to closer coordination using intermediate goals and final objectives so that the assaulting forces could prepare for counterattack and maintain their artillery support, all reflected in *SS 135*. The tactical issues that had vexed the BEF for the first three years of the war, were now being answered with credible solutions born of practical experience and the lessons process.<sup>68</sup>

A significant step change regarding command and control of the fighting brigades was proposed whereby the focus would switch to finishing each day well, rather than starting the initial assault well. Consequently, in a three infantry brigade division, the first objective would now be allocated to just one brigade, rather than the traditional two, so that upon its capture, two brigades were available to take the final position of the day and consolidate accordingly.<sup>69</sup> In this way, reserves could be used for the first objective, but two brigades

---

<sup>66</sup> *SS 198*, 27.

<sup>67</sup> *Ibid.*

<sup>68</sup> Such as who to coordinate with, who had ownership of the tactical plan, the infantry or artillery and how to suppress the enemy long enough to establish a foothold in their trench system.

<sup>69</sup> *SS 198*, 31.

would always be available to close out the day, be resilient to counterattack and prepare for the following day's objectives.<sup>70</sup>

In terms of relief, the new approach detailed in *SS 198, Tactical Instructions for the Offensive of 1918*, advocated continuity of command and, more specifically, that, if necessary, the divisions should reduce their frontage so they could still command all aspects of the battle.<sup>71</sup> The continuity of command was more likely than previous methods to improve the tactical application of all arms and services working within the division as they would have trained together. Additionally, it specifically avoided units from other divisions being brought into the attacking division's area during a battle, as it usually only increased misunderstanding between existing troops and those new to the formation.<sup>72</sup>

In part 13, 'Direction', there is a focus on simplicity, it states that, 'too much importance cannot be attached to making the infantry plan as simple as possible,'.<sup>73</sup> Simplicity had not previously been a noted trait of battle planning and lack of it had potentially prevented tactical success when the complexity of an operation reduced momentum in attack. The new doctrine explained that all boundaries should be 'drawn at right angles to the line of advance,' and that they should never be oblique or attached too firmly to a road or wood feature simply for convenience.<sup>74</sup> The use of intermediate objectives was also addressed and instructions were given for any physical change of direction on the battlefield to be focused upon an intermediate objective so that, on successfully reaching the object, all fighting units would understand that it was a physical point at which a new direction to the assault was to be taken.<sup>75</sup>

In part 14, the 'The Method of Advance', the new doctrine focused upon both the need to maintain a timeline and the need for the infantry to maintain its proximity to the artillery barrage and press on.<sup>76</sup> The doctrinal

---

70 *SS 198*, 31.

71 *Ibid.*, ch II, part 12, 31-34.

72 *Ibid.*, 33.

73 *Ibid.*

74 *Ibid.*, 34.

75 *Ibid.*, 35.

76 *Ibid.*



approach to advancing in *SS 198* now referred to maintaining a formed line across brigade and divisional boundaries, stating that 'the best method of supporting a neighbour unit is to advance'.<sup>77</sup>

More specifically, this level of momentum was to be instilled by continuing to advance but with command now vested with section commands and corporals, rather than only platoon commanders and lieutenants, so that the most appropriate tactical decisions could be made.<sup>78</sup> Ultimately, local commanders were now to develop their tactics while complying with the divisional orders. And when doing so, they were to remain guided by the following principles:

- Capture each objective as rapidly as possible.
- Leapfrog reserves through the foremost troops to maintain momentum.
- The timing of leapfrogging is key and must be chosen carefully.
- Towards the end of the assault, amid confusion, leapfrogging may add to the disorganisation of the brigade area; care must be taken.<sup>79</sup>

Part 15, 'Economy of Troops', provided new direction on how to preserve the force and not waste manpower. Assaulting troops were only to be brought up to the assembly areas at the very last moment as they risked 'exposure to shell-fire and consequent casualties before the attack, and a lack of rest and sleep in the 48 hrs before the attack'.<sup>80</sup> Accordingly, troops would now not move forward until the artillery counter-battery fire-plan had succeeded in silencing the enemy artillery.

To preserve the fighting force, part 15 stated that troops involved in the first stage of an attack should not carry too much equipment and instead be prepared for speed of movement.<sup>81</sup> Together with the requirement

---

<sup>77</sup> *FSR I*, 105.

<sup>78</sup> *SS 198*, 35.

<sup>79</sup> *Ibid.*, 39.

<sup>80</sup> *Ibid.*

<sup>81</sup> *Ibid.*

that troops should not be exposed to the front line for longer than necessary, the new doctrine ensured that attacking troops would now be potentially fresher and able to move quicker.<sup>82</sup>

In terms of consolidation, two new tactics were specified that could have been particularly useful.<sup>83</sup> Firstly, upon consolidating an objective, troops were no longer to dig down for their protection as this was too tiring and often of little value. Instead, troops were to be positioned for local defence.

Secondly, the disposition of troops upon consolidation was to be based upon battalion and company groups to maintain command and control. As such, continuous lines of trenches were no longer required – a change which also had the potential benefit of keeping the men fresher.<sup>84</sup> Troops were also no longer required to bring forward wire for local defence as it was now considered wasteful in terms of the number of carrying parties, and of little use in deterring a counterattack.<sup>85</sup>

Part 16, of chapter II, was titled 'Machine Guns'. It stated that their utility remained as high as ever but that they must be coordinated with the artillery and used primarily to maintain BEF freedom of movement by neutralising the enemy machine guns.<sup>86</sup> Furthermore, the machine gun sections were now also directed to be the last form of indirect fire support if the artillery was out of range or could not find their targets. Reliance on this level of support would have been expected to prove of huge benefit as it could be controlled within the companies and battalions involved in the front elements of the assault; therefore, what the machine guns engaged and when was of direct relevance to the assaulting troops.<sup>87</sup>

---

82 *SS 198*, 40.

83 *Ibid.*, 39-44.

84 *Ibid.*, 41.

85 *Ibid.*, 42.

86 *Ibid.*, 44.

87 *Ibid.*, 44-45.

Finally, part 17, 'Communications', built on *SS 191, Inter-communications in the Field*.<sup>88</sup> It specified that all commanders abide by four principles:<sup>89</sup>

1. All plans for an attack must also contain a plan for communications.
2. Commanders should specify where forward command posts, brigade headquarters and communications centres will be placed.
3. Battalion orders must contain contingency plans.
4. A corps reporting centre was to be established and information sent to it as soon as possible.

These principles could have improved communications in the assault and allowed more senior commanders to deploy their reserves in a timelier manner. This, in turn, would have given them a far better understanding of the battle as it developed, and prevented them from having to rely on their military intuition.<sup>90</sup>

In conclusion, chapter II of the draft *SS 198* set out the principles by which the attack would take place now that the German defensive system was better understood. It set out pragmatic objectives, contained plans to retain momentum and communications, maintained the need to stay close to the barrage, and placed reserves in closer proximity so that they could be employed more quickly. Overall, the approach detailed in *SS 198, Tactical Instructions for the Offensive of 1918*, was the culmination of three years of learning to fight on the Western Front. The new methods built cooperation and integration to enable more effective fighting. As discussed below, exactly how this was to be achieved was outlined in the remaining chapters of the pamphlet.

---

<sup>88</sup> GHQ, *SS 191, Inter-communications in the Field* (HMSO: September 1917).

<sup>89</sup> *SS 198*, 46.

<sup>90</sup> *Ibid.*

### Chapter III - Artillery Integration

Chapter III of the draft *SS 198* was titled the 'Artillery Plan' and contained six pages of details for general staff planners and divisional commanders to ensure that the artillery supported the infantry appropriately.<sup>91</sup> It led to the codification of responsibilities for Royal Artillery commanders, and the divisions and corps they supported. It specifically expressed that, 'the artillery plan for the battle is worked out by the GOC RA or corps under the GOC RA of the Army'.<sup>92</sup>

There was a small but significant change to the approach outlined two years earlier in *Artillery Notes No. 4* which had stated that the respective CsRA were equally responsible for the overall plan with the divisional GOC, but now *SS 198* specified that the artillery commander owned the artillery plan on behalf of the infantry.<sup>93</sup> Accordingly, in *SS 198*, the direction given remained that, 'the more open becomes the defensive tactics of the enemy, the more essentially becomes the close cooperation between all arms, both in the attack itself and in the repulse of counterattacks'.<sup>94</sup>

To further aid this level of joint planning between the infantry and artillery, part 19 of *SS 198* stated that, 'it is their (general staff) duty to see that the artillery plan is understood by the commanders of the attacking troops and that the views of those commanders regarding it are expressed, and, so far as they are approved, incorporated in the plan'.<sup>95</sup> This was the first time that such explicit orders had been given to link the artillery plan to the infantry movement as, in *SS 139/4 Artillery in Offensive Operations*, there had been no such delineation of the relationship between the artillery commander and the infantry.<sup>96</sup>

---

<sup>91</sup> *SS 198*, 47-52.

<sup>92</sup> *Ibid.*, 47.

<sup>93</sup> *CDS 98/4*, 3-8.

<sup>94</sup> *SS 198*, 47.

<sup>95</sup> *Ibid.*

<sup>96</sup> GHQ, *SS 139/4, Artillery Notes No. 4, Artillery in Offensive Operations* (HMSO: February 1917), 2, 4-5, 14-17.

Indeed, up to this point, the artillery commander had been relied upon to interpret the infantry plan and design a system to support it which could then be briefed to the infantry. Despite this, the artillery commanders had little say in the artillery plan's broad implementation, and even though local arrangements could be made, much of the overarching scheme was fixed at a corps or army level that was arguably too far from the realities of the tactical battle. Artillery plans were now to be broken down into eight specific tasks thus:

1. The preliminary bombardment.
2. The creeping barrage.
3. The protective barrage.
4. Counter-battery work.
5. Cooperation between the general and artillery staff.
6. Intelligence.
7. Artillery orders.
8. Resting the artillery.<sup>97</sup>

This represented a significant change from previous artillery battle management which had focused on suppression of enemy infantry and some degree of enemy mortality. Instead, plans were now to be focused on counter-battery, reduction of enemy morale, destruction of enemy strong points and, importantly, the prevention of enemy resupply and communications.<sup>98</sup> With improved liaison between the artillery and infantry, the preliminary bombardment could have achieved all these factors.<sup>99</sup>

The creeping barrage was now to contain a series of different speeds to suit the ground and a binding principle that it was better to be too slow than too fast, as the latter could risk the bombardment running

---

<sup>97</sup> *SS 198*, 52.

<sup>98</sup> *Ibid.*, 48.

<sup>99</sup> *Ibid.*

away from the infantry.<sup>100</sup> Measures were also to be put in place to ensure that the bombardment could be amended during firing, thus enabling tactical changes to be accommodated. The bombardments were also to be deeper so that they covered the enemy in their subsequent defensive lines and prevented them from interfering with the initial assault. This extra depth effectively isolated the first line of enemy defence and contributed to a reduction in their morale and willingness to stand and fight.<sup>101</sup>

A protective barrage was also to be used, as a new tactical technique, to ensure that the enemy could not reconfigure for a counterattack from launch positions in depth.<sup>102</sup> Upon capturing the initial objective, artillery observers were to assess where such launch positions might be and then engage them with protective barrages. These artillery missions would often include smoke shells to both aid deception and provide cover from view, and potentially push the enemy into donning gas masks.<sup>103</sup>

The work of the Garrison Artillery in support of the counter-battery was also redefined. Building on the doctrine in *SS 199, Co-operation of Sound Ranging Sections*, the Garrison Artillery were now to work closely with the sound-ranging batteries so that the enemy guns could be quickly identified and immobilised as soon as the infantry assault had begun.<sup>104</sup> Using larger calibres and longer ranges, the Garrison Artillery's improved ability to find the enemy guns and neutralise them would have meant that the assaulting infantry would be less likely to become casualties in crossing no-man's-land, and that the enemy would have found counter attacks much harder to prosecute without their artillery support.<sup>105</sup>

Meanwhile, the new levels of cooperation between staff planners and artillery commanders would have meant that it was no longer acceptable for the artillery plan to be imposed upon the infantry; instead, the assaulting commanders would have been able to ask for artillery support that was nuanced to the ground

---

100 Ibid., 48-50

101 *SS 198*, 49.

102 Ibid., 50.

103 Ibid., 50-51.

104 *SS 199*, 6, 8-12, 15.

105 *SS 198*, 51.

and recent training. As such, the assaulting troops would have been able to practise with the specific details of the artillery plan.<sup>106</sup>

The counter-battery task would also have been made easier by the new intelligence approach in *SS 198* which dictated that artillery reconnaissance officers and General Staff Intelligence officers work hand in hand. RFC reports were also added into the intelligence briefings so that a far more detailed understanding of enemy firepower would have been formed, and hence a more bespoke counter-battery plan could have been developed.<sup>107</sup>

The penultimate doctrinal change in the artillery plan was for artillery orders to be released early enough for the infantry to train with them. By using artillery officers and 'flag barrages', the infantry commanders would have been able to practise how the bombardment would move and turn to face an enemy position, which would have increased confidence in the plan.<sup>108</sup>

Finally, and for the first time in artillery doctrine during the First World War, *SS 198* referenced resting the guns and gunners of the Royal Artillery to protect their accuracy and efficiency. Previously, the artillery had been employed until it either ran out of ammunition or the casualties from friendly artillery became too high.<sup>109</sup>

The extra rest time would also have allowed the artillery to dig into their positions, thus aiding their survival and consequently their ability to maintain support to the infantry. Their longer-term health would also have

---

106 Ibid.

107 *SS 198*, 51.

108 A flag barrage was no more than artillery personnel walking ahead of the infantry in training, waving large flags to signify the location of the falling shells and thus replicate the speed of advance necessary. It was particularly useful to show how a barrage would change direction on the ground, which section would hold firm and which section would swing into a new direction. More detail can be found in, Marble, *British Artillery on the Western Front*, 157.

109 An example of the effects of artillery dropping short can be found in Peter Robinson, "A Welsh Response to the Great War: The 38th (Welsh) Division on the Western Front 1914 – 1919" (MA diss., Cardiff University, 2017), 110.

been aided by joining the system of taking time out of the line to rest and recuperate like their infantry brethren.<sup>110</sup>

The doctrinal policies prescribed in chapter III built upon those in the previous two chapters, ensuring that the artillery would be better placed to support the infantry, and the infantry better placed to understand how to achieve a more integrated plan. As a doctrinal step forward this was significant because it brought the new infantry approach based on a new German defensive posture, together with greater artillery involvement in the planning stage, which enabled the latter to make a better contribution towards victory.

#### **Chapter IV - The Royal Flying Corps plan**

Chapter IV of the draft *SS 198*, 'The RFC Plan' covered the employment of the RFC in battle and was the first doctrine for the RFC that related to wider offensive operations; their doctrine to this point had been scant and consisted of just three publications. The first two of these, *CDS 33, Co-operation of aeroplanes with other arms* and *CDS 40, Co-operation of aeroplanes and artillery when using wireless* were published in August 1915. And the third, *SS 120, Co-operation between Aeroplanes and Artillery during an Advance*, a single publication updating the previous two, was published in September 1916.<sup>111</sup> All three publications had focused on communications and support rather than integration with the infantry plan and how to shape and respond to it. Indeed, up to late 1917, the RFC's focus had been split between offensive and defensive operations. Offensive operations had included reconnaissance and the destruction of enemy aircraft, while defensive operations had been aimed at preventing the enemy from flying over BEF positions for their reconnaissance.<sup>112</sup> *SS 198* changed that focus with a specific new doctrine that would have made the RFC more applicable to the assaulting infantry divisions.<sup>113</sup>

---

<sup>110</sup> *SS 198*, 52.

<sup>111</sup> *CDS 33*; GHQ, *CDS 40, Co-operation of aeroplanes and artillery when using wireless* (HMSO: July 1915); and GHQ, *SS 120, Co-operation between Aeroplanes and Artillery during an Advance* (HMSO: September 1916).

<sup>112</sup> James Pugh, *The Royal Flying Corps, the Western Front, and the Control of the Air, 1914–1918* (Abingdon: Routledge, 2017), 42-51.

<sup>113</sup> *SS 198*, 53-56.



The RFC chapter was split into four parts that outlined a new integrated approach to their flying operations in support of the infantry:<sup>114</sup>

- The Employment of the RFC in Battle.
- The Responsibility of (RFC) Commanders.
- The Responsibility of the (Infantry) General Staff.
- The RFC in Moving Warfare.

Concerning the 'Employment of the RFC in Battle', *SS 198* differentiated from previous approaches by outlining the various ways in which the aircraft could support offensive operations. The emphasis was placed primarily upon intelligence gathering, with a secondary focus upon offensive action.<sup>115</sup> More specifically, the RFC's contribution to understanding the German Army's approach would now have been expected to focus on aligning the efforts of those in observation balloons with the reconnaissance aircraft to observe enemy action, the placing of their reserves, the location of their artillery, and the disposition of their supplies.<sup>116</sup>

The focus for the RFC would have been twofold; firstly, that they give early warning of enemy counter-attacks so that they could be repulsed, and secondly, that they give early warning of wider enemy troop movements and artillery sightings.<sup>117</sup> Additionally, communications were to be explicit; to the artillery by wireless, and to the lead infantry using coloured flares dropped in their proximity. If an enemy counterattack was seen to succeed, then the RFC was to warn the BEF reserves of the likely location of the enemy, gaining valuable preparation time.<sup>118</sup> However, the new doctrine also warned of the RFC's high attrition rate and how intelligence gathering must be managed so as not to expend the asset.<sup>119</sup>

---

114 *Ibid.*, 53.

115 *SS 198*, 53-54.

116 *Ibid.*, 54.

117 *Ibid.*, 54-55.

118 *Ibid.*, 55.

119 *Ibid.*

Meanwhile, their secondary focus on offensive action would have involved the provision of offensive machine gun fire to support assaults, and the occasional aerial bombing.<sup>120</sup> Whilst important, this offensive action was to remain secondary to the provision of information for forewarning about counter-attacks and ensuring that the infantry assaults were well placed and well-timed. In this way, *SS 198* would have provided the bridge to intelligence gathering that had previously been *ad hoc*.<sup>121</sup>

'RFC Commanders' Responsibilities' were now to include the integration of the RFC's capabilities at army and corps levels of command, while being located close to the artillery commander. While both the RFC and artillery remained separate, it seems that they would now have worked in tandem to support the infantry plan of attack. This, in turn, would have made it possible for the level of command, and the place at which it would be executed, to be aligned, making integration far easier.<sup>122</sup> The balance between supporting the infantry assault and suppressing the air arm of the Imperial German Army remained delicate.<sup>123</sup>

*SS 198, Tactical Instructions for the Offensive of 1918*, proposed that the General Staff, who prescribed the infantry attack plans, would now be responsible for the overall coordination between the assaulting troops, the artillery, and the RFC. This was the first time an explicit order to plan combined offensive operations using these three parts of the Army had been made. It is noticeable that neither the cavalry nor the fledgeling tank corps was included, and a possible indication that the battle-winning entities in late 1917 were the infantry, artillery, and RFC.<sup>124</sup>

The final part of the RFC chapter concerned support to 'Moving Warfare' and how the RFC could help the infantry assault as it broke into more open ground. The emphasis was now to shift from counter-battery spotting to prevention of enemy communications and harassment of the enemy in its retreat. In short, this

---

120 *Ibid.*, 54-55.

121 *Ibid.*, 53.

122 *SS 198*, 54.

123 The air arm of the Imperial German Army was known as the '*Die Fliegertruppen des Deutschen Kaiserreiches*'.

124 *SS 198*, 54.

presented a new approach that, in effect, tasked the RFC with maintaining pressure on the enemy while it retreated to afford the local infantry commanders time to make their preparations.<sup>125</sup>

The contents of *SS 198* establish a new way of warfare born of better cooperation and resultant integration, and focusing on the infantry assault with significant artillery support. The infantry was to plan for closer and smaller objectives but be far better prepared to repulse counterattacks and simultaneously be prepared to move forward to exploit the less dense German defence. In this method, we see a development of bite-and-hold tactics but with an ability to consolidate taken positions in order not to be forced back repeatedly. By allocating artillery to reserves and by employing the RFC for early warning, the infantry could be prepared for the enemy reaction. While the effect of the doctrine will never be known, some of its ideas were published at the end of the war in the last version of *SS 135, The Division in the Attack*. Potentially, the new doctrine was released, although at a stage in the war when it may not have been engaged with.

### **SS 135 born of SS 198**

As already discussed, the specific reason *SS 198* was not published is not recorded but there are possible causes, supported by a degree of evidence. A pencil note on the front cover of the copy in the Bodleian library states, 'what was wanted for the spring of 1918 was a book on defence', and this seems a good enough reason.<sup>126</sup> This notwithstanding, it may also have been due to a changeover of staff in the Inspectorate of Training, or a senior officer within GHQ may have decided *SS 198* did not articulate an appropriate style of warfare. Equally, an ally may have objected to its contents.

It is well recognised that a debate over doctrine circulated in the BEF, and specifically in GHQ, after the Third Ypres campaign in late 1917. Should attacks be focused and narrow or should they be wider and expansive? Should the attack seek to break the enemy line or were small consolidations of enemy trench a more

---

<sup>125</sup> Ibid., 56.

<sup>126</sup> BoL, Gorell papers, box 8, draft *SS 198*, dated October 1917. As identified by Jim Beach, the pencil marks suggest it was a late draft for printing in October and dissemination in November.

pragmatic approach?<sup>127</sup> The official record of the war does not feature any reference to the doctrinal debate, but that does not equate to a lack of discussion. It is possible, but not demonstrable, that while there was a desire to challenge and change, it was not considered 'gentlemanly' and that the discussion regarding how change might evolve was consequently restricted to informal situations, such as supper or in casual conversation rather than formal meetings or commanders.

It is also plausible that Field Marshal Haig, in his role as Commander in Chief of the BEF, was under considerable personal pressure in late 1917. He had not been aware of the deal struck by the British Government, on 25 September 1917, for the BEF to take over more line from the French, until the Chief of the Imperial General Staff wrote to him on 3 October 1917. That he had not been consulted, and the information had not been leaked to him, probably undermined his position.<sup>128</sup> We also now know that the BEF would be taken under a unified commander in the spring of 1918 and that the political wrangling required to agree on this transfer of command was probably apparent to him. Further, Field Marshal Haig would have been aware that Czar Nicholas II was under pressure in Russia to withdraw from the War, which would allow the German Army to consolidate on the Western Front. Overall, it is reasonable to assume Haig was under pressure over the winter of 1916-1917.

As already established, Grigg and Gorell made mutually agreeable statements that *SS 198* was overseen by Lieutenant-General Sir Launcelot Kiggell, General Haig's Chief of Staff, and Brigadier-General Solly-Flood, but it was written exclusively by Captain Edward Grigg.<sup>129</sup> The benefit of a single author, whilst working to a small committee, was potentially a quicker writing process with fewer levels of inspection – factors which enabled Grigg to adopt the best of the previous year's works, compiling an informative description of the German defensive methods of the day.<sup>130</sup>

---

127 For the balance of decisions about the specific tactics see Captain Cyril Falls, *The First World War* (London: Pen and Sword, 2014) 285.

128 Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters*, 331.

129 BoL, Gorell papers, box 8, letter from Lieutenant-General LE Kiggell to General Sir H Lawrence, 8 March 1918; letter from Lieutenant-General LE Kiggell in reply to Lord (Captain) Gorell, 16 March 1918.

130 *SS 198* contained elements of *SS 710* on defensive tactics, *SS 214* concerning tank cooperation and *SS 132* regarding the cooperation of infantry and the RFC.

However, while Haig may have had a vision for the 1918 style of battle, as exposed in his memorandum of 26 June 1917, it seems equally reasonable that he might have changed his mind when faced with the prospect of a series of German attacks in early 1918 and that, as a result, he might have directed the Training Directorate to refocus their effort on defensive doctrine.<sup>131</sup> So the pencil notes on the draft *SS 198* asking for a defensive doctrine, such as *SS 710, New Defensive Tactics* published in November 1917, and the completely revised in *SS 210, The Division in Defence*, published in May 1918, seem apt.<sup>132</sup>

*SS 198* was, nonetheless, indirectly published in November 1918 within the final revision of *SS 135*, probably written earlier that month by Major Cuthbert Headlam.<sup>133</sup> It is feasible to think that he would have shared office space with Grigg and Gorell in the Training Directorate the year before, and therefore reasonable to suggest that the three writers would have shared a common intellectual approach to the problems of the day – working on individual pamphlets but sharing their overarching ideas and best practice.

With the delay in the publication of *SS 198*, it is possible that Headlam spotted an opportunity to take its best parts and fit them into the revision of *SS 135* for which he would be solely responsible. Using *FSR 1909 I* as *SS 135* foundation, the draft contents of *SS 198* would have been available to him for inclusion in the updated *SS 135* without extra effort. *SS 135* was a 'concise document, and uncompromising in nature,' suggesting it was not watered down by committee.<sup>134</sup> For a quickly written pamphlet, it would have been useful for its author to have existing work on which to base new ideas.

Overall, the November 1918 version of *SS 135, The Division in the Attack*, bears many similarities to *SS 198, Tactical Instructions for the Offensive of 1918*, and can be seen to take much of its contents from other earlier pamphlets. For instance, the opening page of *SS 198* is remarkably like that of *SS 135*, both focusing on the divisions' schemes of manoeuvre.<sup>135</sup> The similarities between *SS 198* and *SS 135* become even clearer from

---

131 Edmonds, *British Official History: 1917*, vol. 2, 128–130.

132 *SS 210*; and GHQ, *SS 710, New Defensive Tactics* (HMSO: November 1917).

133 Beach, "Issued by the General Staff," 488.

134 BoL, Gorell papers, box 22, Diary entry, 13 March 1918.

135 *SS 135* (November 1918).

page 44 of *SS 135* onwards where the format of the assault and counterattack are taken almost verbatim from *SS 198*.<sup>136</sup>

The most significant difference between *SS 198* and *SS 135* is that the latter contains instructions for all parts of the BEF, whereas *SS 198* only focused on the infantry, artillery, and RFC. It is also structured differently overall, being in two distinct parts. Part I contains the preliminary measures of training, plan of attack and preparations for the attack, followed by part ii, which contains the execution of the attack, split into each constituent part of the BEF.<sup>137</sup>

Part II of *SS 135* (November 1918) lists the procedures for the coordination of the infantry with artillery, machine guns, tanks, mortars, cavalry, aircraft, intelligence, and communications. *SS 135* appears to cover the highlights of *SS 198* and then expand the core ideas of cooperation and integration to the entire BEF. While the evidence is thin, it is feasible to argue that although *SS 198* was never published, its intellectual premise was distributed in the last edition of *SS 135* and the BEF benefited from the change in doctrine *SS 198* put forward just as the war concluded.<sup>138</sup>

## Conclusion

The draft *SS 198* drew together the lessons learnt from 1916 and early 1917. It appears to react to the premise that because the German Army had lost so many men and so much materiel it had to adopt a new defensive system. It proposed far higher levels of integration and explained how the new doctrinal approach would unlock the enemy's defensive posture. This new tactical approach was seemingly an interpretation of Foch's *bataille générale* that sought smaller, but more significant, gains that could be built upon and then exploited while denying the enemy the chance to counterattack. The experience on the Somme had established the

---

<sup>136</sup> *SS 198*, 35-39.

<sup>137</sup> *SS 135* (November 1918), pamphlet index on 3-4.

<sup>138</sup> The transfer of ideas from *SS 198* into the revised *SS 135*, (November 1918) was an idea first brought to my attention by Jim Beach in conversation in August 2020, for which I am grateful.

conditions and motivation for these changes to emerge, and *SS 198* brought them together for the first time because of the lessons process. In doing so, it is possible that *SS 198* could have changed the way of warfare for the BEF and conferred a significant advantage.

Crucially, *SS 198* would have worked hand in hand with the thematic training pamphlets of the time, namely, *SS 135, Instructions for the Training of Divisions for Offensive Action*, *SS 152, Instructions for Training of the British Armies in France*, and *SS 143, Instructions for the Training of Platoons for Offensive Action*.<sup>139</sup> And, as *SS 198* would have linked the training schedules in these pamphlets and the tactical approach that was being proposed, this thesis argues that it could have been the missing link in the training and doctrinal change for the BEF in late 1917. The lack of publication, arguably due to a need for defensive doctrine in preparation for the German Spring Offensive in 1918, was probably not a deliberate act as a result of its unsuitability, but more likely a reflection of the changing dynamic of the First World War and a conflict of priorities.

The layout of *SS 198* and its contents are telling; by focusing on the integration of the infantry with artillery and the developing Royal Flying Corps, the authors of *SS 198* confirmed who they considered to be the battle-winning parts of the BEF. By outlining how these three components were to work together to counter the German defensive methods, the authors of *SS 198* had codified combined arms warfare for the mechanised age; designing a force capable of significant integration, which would have provided significant firepower and the ability to react quickly to the situation on the battlefield as it developed.

Overall, had it been published, *SS 198* may have been the capstone of doctrinal achievement in the First World War. A short publication but outstanding for two key reasons; the ease with which it described German defensive tactics, and the clarity with which it described an integrated approach for the combat arms of the BEF. Even though it was not published, it nonetheless provides strong evidence for the premise that the doctrinal transformation of the BEF could have occurred earlier than thought. In its 54 pages, it showed the future of warfare, as seen just over two decades later, on the Western Front, enabled by even more

---

<sup>139</sup> *SS 135*, (January 1918), *SS 152* (1918), and *SS 143* (June 1917).

mechanisation and the technical advances of engineering, in what Jonathan Boff describes as a campaign of 'rolling attrition'.<sup>140</sup>

---

<sup>140</sup> Boff, "British Third Army," 290.



## Chapter 7 – Training and the schools' system

The need to train well and inculcate new doctrinal methods to an army are typified by General Sir Douglas Haig's letter to Leopold de Rothschild in October 1915, 'we won quite a big success here ... great opportunity missed ... all we wanted was some reserves at hand to reap the fruits of victory and open the road for our cavalry to gallop through! The main lesson I learned from all this is that we must take more pains to train our divisions before sending them to fight the Germans.'<sup>1</sup> General Haig was also aware that GHQ had a *laissez-faire* attitude to training as late as June 1916, seeing it as something the divisions and corps could arrange themselves.<sup>2</sup>

The ability to learn, enabled by the combination of lessons, doctrine and training, is key to this thesis as it enabled other influences on performance, such as technology, leadership and growing alliances, to flourish. The process of learning centred on the creation of better doctrine, but that doctrine would count for nothing if it was not distributed and then acted upon. Some of the SS pamphlets were destined to be sent into the hands of the commander directly, but others were the basis for training in the schools' system throughout France and Belgium.

Thus, training was the final step in inculcating change in the BEF and part of the process of learning that actually delivered the change to the fighting units of the BEF and facilitated its transformation from a small, inefficient army, into a large, mechanised force capable of combined arms warfare. It should also be noted that training affects all three components of fighting power, acting as the agent of change. Having identified the lessons in chapter 4 and recorded them as doctrine in chapter 5, it is now necessary to examine how knowledge was imparted to the BEF.

The reason the BEF spent so much resource on training is complex; it is much more than just providing a means to fight better. It impinges on the ethos and culture of an entity because the propensity to change is

---

<sup>1</sup> Letter to Leopold de Rothschild from Douglas Haig on Monday 18 October 1915, in Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters*, 166.

<sup>2</sup> Sheffield, *The Chief*, 147.

mired in the preconceptions of the military leaders of the day whose own experience as junior officers was from another century that did not know the technology of the early 20<sup>th</sup> century. 'Training in a professional army, by contrast, aims not merely to teach individual skills but crucially to unite troops around shared collective drills. Indeed, as close-quarters battle drills indicate, one of the central aims of even purely individual training is to inculcate a single shared template of action on everyone.'<sup>3</sup>

This thesis proposes that the BEF did not have the mechanisms, lessons process or culture to accept a Training Directorate until the failure on the Somme motivated it to do so. It is easy to suggest that change came too late, but that is assuming that the BEF was ready for change. The informal systems of 1914-1916 could only change the BEF so far, and it would take correctly resourced formal systems to nudge the BEF into the combined arms warfare that would be required to defeat the German Army in the autumn of 1918.

The establishment of the formal systems of learning required the denouement of the cult of the offensive.<sup>4</sup> It also needed a new breed of officer, that was not tainted by the wrong sort of experience, and who recognised the tactical problem of the day, crossing no man's land, and that it could be achieved with better cooperation. When combined with the new technologies and sound leadership experience, Haig's decision at the Army Commander conference in January 1917 was timely. It seems he reconciled the need to train better with the apportionment of adequate resource at a time when the BEF had an overall desire to transform. His timing, in many ways, was perfect. Had it been initiated any earlier, it may have failed from a lack of support; any later, and the War may have been over. This view has been continuously challenged, as has the view that much of the BEF improvement came from 'on the job' training, but this ignores the formal training systems that were instigated in 1917 and the benefit they delivered.

The first half of the First World War provided little training development of note, but by late 1916 the dynamic of the war was changing and with it the requirement for more credible training. Motivated by high casualty

---

<sup>3</sup> Anthony King, *The Combat Soldier: Infantry Tactics and Cohesion in the Twentieth and Twenty-First Centuries* (Oxford, Oxford University Press, 2013), 8.

<sup>4</sup> See Van Evera, "The Cult of the Offensive," 58-107.

numbers, commanders at all levels began to try and intellectualise the problem of crossing open ground and minimising the effects of machine guns and artillery. However, even with better ideas, the poor state of training meant that many parts of the BEF could not change their doctrine sufficiently to make a difference. Major-General Sir Aylmer Haldane, while GOC of 3<sup>rd</sup> Division, expressed his frustration in his war diary, stating that,

The authorities quite forget that one's officers are young and those in command of companies have only about one year's service and cannot, therefore, show the knowledge and initiative of those we had earlier in the war.<sup>5</sup>

Indeed, owing to rapid promotion, 'most of the brigadiers and COs now are not competent to teach'.<sup>6</sup> His diary continued over the next few weeks to deliberate on the state of his division's battle casualty replacements, 'that troops have been badly trained at home, there being few people with knowledge to do the work.'<sup>7</sup> The problem was recognised in GHQ when outlined in the first draft of *SS 109, Training Divisions for the Offensive*, which stated that,

Officers and troops generally do not now possess that military knowledge arising from a long and high state of training which enables them to act promptly on sound lines in unexpected situations.<sup>8</sup>

GOC 3<sup>rd</sup> Division was not the only officer to condemn the perilous training situation. Major-General Henry de Lisle, while in command of the 29<sup>th</sup> Division, also complained about the lack of quality training as he was 'short of some good battalion commanders and the consequences would be seen in the next few months'.<sup>9</sup>

---

5 NLS, Haldane Papers, *General Sir Aylmer Haldane War Diary*, 6 April 1916.

6 NLS, Haldane Papers, *General Sir Aylmer Haldane War Diary*, 22 June 1916.

7 NLS, Haldane Papers, *General Sir Aylmer Haldane War Diary*, 25 February 1916.

8 *SS 109*, 2.

9 TNA, PRO, WO 256/10, *Sir Douglas Haig Diary*, 10 May 1916.

At the highest level, General Henry Rawlinson, commander of the Fourth Army, wrote in his diary that, on arrival in France, the troops 'were very green and their officers want a good deal of training'.<sup>10</sup>

As well as the physical training, soldiers required the mental resilience to overcome the fear of killing and being exposed to killing. The French military theorist Ardant du Picq wrote of the mental training and conditioning required before the Franco-Prussian War and suggested that firing at an enemy was predominantly a psychological problem.<sup>11</sup>

In December 1916, Major-General Sir Aylmer Haldane suggested that 'at last GHQ had woken up' as it searched for an answer to the perfect organisation for an attack. Previously, the Army Headquarters had assumed that subordinate headquarters would make such organisational decisions. They allegedly felt that, because those ultimately in command had 'no experience of the fighting at first hand', it was safer if 'the initiative comes from below and not from above'.<sup>12</sup>

After the Somme campaign, the records of the Fourth Army determined that 'one of the principal lessons of the fighting of the last four months' was 'the need for more tactical training for company and platoon commanders'.<sup>13</sup> This would give them 'the necessary tactical knowledge and initiative to take advantage of initial success'.<sup>14</sup> In April 1917, Fourth Army issued a collection of tactical vignettes to facilitate the training of its company, platoon and section commanders. They provided a basis for discussion to help solve the local tactical challenges. The vignettes were so successful that they were reproduced and adopted by GHQ and issued to the entire BEF to engender intellectual debate.<sup>15</sup>

---

10 LHCMA, Montgomery-Massingberd Papers 7/14, General Sir Henry Rawlinson diary entry, 9 March 1917.

11 Charles Ardant du Picq, 19 October 1821 – 18 August 1870, a French Army officer and military theorist whose writings had a profound effect on French military theory.

12 NLS, Haldane Papers, *General Sir Aylmer Haldane War Diary*, 9 December 1916.

13 LHCMA, Montgomery-Massingberd Papers 91, *General Sir Henry Rawlinson to GHQ (Training)*, *Fourth Army GT 107*, 28 October 1918.

14 LHCMA, Montgomery-Massingberd Papers 48/4, Major-General AA Montgomery, MGGs Fourth Army, to Third, 14th, 1st Anzac, and XV Corps, Fourth Army No. 4.14(G), 10 November 1916.

15 *Ibid.*, and see SS 159.

The propensity to train better and make it a priority is summed up in Brigadier-General Charles Bonham-Carter, BGGs of VIII Corps, and his saying, 'always T the T before T T T,' i.e. always teach the teacher before the teacher teaches Tommy.<sup>16</sup> A prescient phrase that underlines the need to have a sound doctrinal foundation for training at the forefront of commanders' minds.

Further evidence of the training system improving is also seen in the way that corps headquarters delineated the training requirement. By December 1916 training was split between GHQ, army, corps, and divisions into the relevant level of responsibility so that each level covered its training.<sup>17</sup> This meant that corps could focus on the operational level, leaving the divisions to focus on the tactical training, which seems to have been more efficient.<sup>18</sup>

However, delegating training responsibility to corps was not very efficient due to the high turnover of command. The 51<sup>st</sup> (Highland) Division was typical in that between July and December of 1915 it changed corps allegiance eighteen times. Thus there was little chance that any corps headquarters could instil its will upon a division that was so transient, let alone direct any coordinated training plan, which was compounded by a less experienced set of commanders from the Territorial Force.<sup>19</sup>

The specific tactical training problem for the BEF remained that of crossing no man's land. The initial approach to covering the distance seemed the very definition of the 'cult of the offensive'. Frontal attacks by infantry were repelled by bullet and bomb, yet the headquarters of the BEF insisted that this was the only way and committed increasingly hapless infantry into the fight.<sup>20</sup> The rush across the open ground was in line with the idea of breaking through the enemy lines so that the cavalry could exploit the rear, interdicting enemy reserves and logistics. It was preordained to fail, and it took the advent of alternate means for it to be cast

---

16 CAC, BHCT 9/2, *Major-General Bonham-Carter Autobiographical note*, whilst BGGs VIII Corps.

17 Simpson, *Directing Operations*, 49.

18 *Ibid.*, 97.

19 Nicholson, *Behind the Lines*, 85.

20 Andrew Simpson, "The Operational Role of Corps During World War One," (PhD diss., University College London, 2001), 25.

into history.<sup>21</sup> Only the right doctrine and training could transform the BEF so crossing no man's land could be achieved with far fewer casualties, and then impose its will upon the enemy for not just initial trench clearing but also exploitation. The answer would lie in an approach that synchronised all the constituent parts of the BEF to fight in a manner whereby they supported each other as described in *SS 198*. When new technology was also added, it would become mechanised combined arms warfare.

The then Major-General Sir Ivor Maxse, a future trainer of note, commented on returning to the UK to take command of the 18<sup>th</sup> Division in November 1914 that none of his brigade commanders had 'ever handled more than one battalion'.<sup>22</sup> It was an issue that was compounded as the BEF expanded so quickly that of the twenty-three GOsC on the Somme in July 1916, only three had commanded at brigade level before the war, while only two of the eighteen corps commanders had commanded a division.<sup>23</sup>

This chapter will show that, from the outset to the end of the War, initial recruit training in the UK remained broadly constant.<sup>24</sup> However, when the quality of the soldiers arriving in France started to reduce, compounded by a lack of experienced instructors available to deliver initial training, commanders in France and Belgium realised the need to develop a more formalised approach to training.<sup>25</sup> So this chapter will consider how soldiers and officers were trained, before considering how the schools' system in France was designed. Subsequently, the establishment of the Training Directorate and the Inspectorate of Training will be shown to be the formal structures that the BEF required to succeed, before further consideration of the specific training publications, and how they were used in training in France and Belgium.

---

<sup>21</sup> *Ibid.*, 25, 35, 39-40.

<sup>22</sup> IWM, Maxse Papers 69/53/6, *Lieutenant-General Sir Ivor Maxse to Brigadier-General HC Lowther*, 18 November 1915.

<sup>23</sup> Terraine, *The Smoke and the Fire*, 114-115.

<sup>24</sup> TNA, PRO, WO 95/2844, *51st Division report to 1st Army*, January 1915.

<sup>25</sup> Ian F Beckett, *A Nation in Arms* (Fairford: Pen and Sword, 2014), viii.

## Training in the UK – civilian to soldier

After enlistment, individuals reported to their battalion depot for basic training where they were transformed from civilian to soldier. The three-month training was deliberate and straightforward; it was as much about instilling military culture as it was teaching military skills. Serving within a training depot was a cultural shock for young men who had mostly never been far from home. Discipline was harsh, and the teaching environment basic. Following orders and conformity were critical disciplinary traits that had to be adopted.<sup>26</sup>

The syllabus of basic training was the same throughout the UK and Empire; it concentrated on drill, personal administration, and physical training. After an initial six weeks, recruits were taught weapon handling and the basics of moving over ground when under fire. Most drills were accomplished as individuals or pairs, hence the shock when new soldiers arrived in France to undertake the same skills as part of a battalion.

After completing three months of basic training, soldiers were sent to their specialist UK depots for trade training to be machine gunners, signallers, gunners, or sappers. The length of time in this second phase of training varied between four and sixteen weeks depending upon the skills required.<sup>27</sup>

The 1914 publication *Infantry Training (4-Company Organisation)* formed the basis of training for new infantry soldiers and their instructors.<sup>28</sup> It laid out the role, responsibilities, and general instructions for the training syllabus.

Chapter 1 outlined the recruit training plan and how it was to be achieved. Page 1 set the tone for the publication, stating that the purpose of the training was to ‘make him mentally and physically a better man

---

<sup>26</sup> As described in *SS 109*, specifically clause 9. Further references in General Staff, *Combined Training 1902* and in Haking, “Company Training,” 79.

<sup>27</sup> The difference in length of the syllabus was a reflection of the complexity of training. Machine gunners and signallers took typically 4-6 weeks, sappers and gunners, typically 6-8 weeks depending on training facilities and surges in demand. The specifics of the syllabus and training standards were contained in documents such as Handbook for the .303-in. Vickers Machine Gun (Magazine Rifle Chamber) Mounted on Tripod Mounting, Mark IV, which worked in conjunction with GHQ, *SS 106, Notes on the Tactical Employment of Machine Guns and Lewis Guns* (HMSO: March 1916).

<sup>28</sup> General Staff, *Infantry Training (4 – Company)* 1914.

than his adversary on the field of battle'. It also specified that all training was based upon the tactical foundations in *FSR 1909 I and II*, so that the individual could master the three phases of training: the development of the soldierly spirit, training the body, and training in the use of the rifle, bayonet and spade.<sup>29</sup>

*Infantry Training, (4-Company Organisation)* explained the entire training progression for recruits.<sup>30</sup> It also set out the standards for rifle work and entrenching times that formed part of training assessment. Chapter II, Squad Drill, gave the instructor the format of each lesson.<sup>31</sup> In chapter III, recruits learnt how to move off the drill square, as well as how to use terrain in and out of sight of the enemy.<sup>32</sup> Chapters IV and V discussed machine gun employment, basic signalling, and more field skills. Chapter VIII prepared soldiers for war with instruction on field operations.<sup>33</sup> Part II of the manual outlined how the infantry should train for war. It covered sentry duties, range finding, rates of fire and, most importantly, the company and battalion in the attack.<sup>34</sup> Chapter IX covered defence and retirements, with chapter XIII discussing the fighting in close country, woods, and villages before further chapters covered ammunition resupply and entrenching.<sup>35</sup>

Overall, the manual of 265 pages delivered the training syllabus and methods to turn a recruit into an effective soldier. Used in conjunction with *FSR 1909*, it was a useful and pragmatic foundation for training that allowed the BEF to maintain an adequate standard.

In the last months of 1914, there were hectic preparations all over England for raising Lord Kitchener's New Army. The new units competed for resources in whatever way they could, be that uniforms, weapons, or experienced instructors. The lack of trained officers and NCOs affected progress significantly, as did the

---

29 Ibid., 1-2.

30 General Staff, *Infantry Training (4 – Company)* 1914.

31 Ibid., ch ii.

32 Ibid., ch iii.

33 Ibid., ch viii.

34 Ibid., part 2.

35 Ibid., ch ix – xiii.



removal of experienced regular instructors who were sent off to form the backbone of other new army units.<sup>36</sup>

For example, the 51<sup>st</sup> (Highland) Division training at Bedford had only three regular officers and a mere handful of regular NCOs. Between them, they were responsible for training three brigades' worth of men, each of about 4,000.<sup>37</sup> The divisional commander, Major-General Bannatine-Allason, was critical of the impact on his Division in a report to First Army Headquarters on 7 October 1914, when he stated that, 'The removal of the more significant part of the permanent staff shortly after mobilisation seriously hindered the training of the units.'<sup>38</sup>

The instructor shortages were compounded by inevitable equipment deficiencies which imparted even more delays. A War Office order that no 'Peace Time Training Equipment' should be taken to war delayed the 'Musketry Instruction' of the 51<sup>st</sup> Division considerably.<sup>39</sup> However, the positive attitudes and earnest efforts of the officers and men mitigated the lack of equipment and instructors. To combat the lack of knowledge, and to capitalise on the eagerness to learn, officers were made aware of the official pamphlets and instruction materials produced by the War Office.<sup>40</sup>

*Instructions for the Training of the Army Reserve (Infantry)* was published with the 1913 Army Orders and applied to men serving with the regiments of the Foot Guards and line infantry.<sup>41</sup> However, it soon became the basis for all Kitchener Army recruits based on the principles laid down in *FSR 1909 I* and other Army publications such as *Infantry Training 1914*.<sup>42</sup>

---

36 TNA, PRO, WO 95/2844, *51st Division Report to 1st Army*, 7 October 1914, which states that the 51st (Highland) Division suffered from poor instructors.

37 Black Watch Museum, *Autobiography of Lt Colonel TM Booth*, 24.

38 TNA, PRO, WO 95/2844, November 1914.

39 *Ibid.*

40 Simkins, *Kitchener's Army*, 249.

41 TNA, PRO, WO 123/55. 1914 General.

42 General Staff, *Infantry Training (4 – Company) 1914*.

Where possible, officers and men were sent on courses to develop their skills, with the expectation that they would return and disseminate their knowledge via lectures to their subunits.<sup>43</sup> However, at this fraught time for learning, cooperation and the simple organisation of units were fragile. The New Army had to adapt to the reorganisation of battalions into four companies each as well as learn new fighting tactics while new equipment was scarce.

All UK training was dependent upon the quality of the instructor, which changed throughout the war. Initial excellence was denuded by late 1916 when all but the older and injured were available to train recruits.<sup>44</sup> However, the injured may well have had useful experience to pass on informally and indirectly improved the recruit understanding of the nature of the War in France. The need to develop a steady stream of quality new soldiers was compromised again in August 1915 when the Army rushed to expand after the losses of the summer fighting.<sup>45</sup>

After their initial UK-based training, inexperienced soldiers would cross the Channel and arrive at one of the transit camps at Beverloo or Étaples, before being sent on to a corps or divisional depot. As soon as the soldier joined their new unit, they would fall into the routine of continuation training and be absorbed into their new section and platoon.<sup>46</sup>

## Officer training

By 1906, most instructors at the Royal Military College Sandhurst were Boer War veterans, able to instil experiential learning and ensure training was relevant to what they considered the contemporary

---

43 TNA, PRO, WO 95/2844, *51st Division Report to 1st Army*, March 1915.

44 As explained in GH Addison, *Work of the Royal Engineers in the European War, 1914-19: The Organization and Expansion of the Corps, 1914-18* (Naval and Military Press, 2006 (reprint of 1926 original)), 12-14.

45 Simkins, *Kitchener's Army*, 39, 65-6, 69, 71-2, 75, 221; see also John Lewis-Stempel, *Six Weeks: The Short and Gallant Life of the British Officer in the First World War: The Life and Death of the British Officer in the First World War* (London, Orion, 2010), 35-40, and TNA, PRO, WO 162/3, 'Daily recruiting returns submitted to the Adjutant-General,' April-August 1915.

46 Travers, *How the War Was Won*, 175.

battlefield.<sup>47</sup> By 1908, the course syllabus became even more practical, with instruction on machine guns, entrenching and signal flag communication.<sup>48</sup> Simultaneously, the old Volunteer Corps at British public universities transformed into the Officer Training Corps.

The War Office organised the Officer Training Corps nationally and, unlike the old Volunteer Corps they replaced, the General Staff took overall control so that they had more influence on generating the necessary young officers in response to Richard Haldane's reforms as Secretary of State for War.<sup>49</sup>

The British Army Staff College at Camberley was revitalised in 1904 because of the poor planning performance in the Boer War. While most attendees were highly decorated officers from the Boer War, the primary motivation to attend was the access it granted to the new General Staff.<sup>50</sup> Students worked on the strategic problem of mobilising a British force in response to a German invasion of Belgium, in an attack on France.<sup>51</sup> The new training at Camberley brought the concept of the War Game to the Staff College. This enduring technique meant that, by 1914, many of the middle-ranking officers that filled the various headquarters in the British Army had already intellectually considered the German offensive and an appropriate response. The curriculum now revolved around the duties of staff officers supporting an army in the field. The changes to the Imperial General Staff lent a sense of purpose to the Staff College that it had never had before.<sup>52</sup>

It should not be forgotten that the very structure of the Officer Corps had changed post-Boer War. Cardwell, as Secretary of State for War in the 1870s, had abolished the policy of purchasing commissions. By the end of the 19<sup>th</sup> century, this change had born fruit, and those in command were now professional officers rather than dabbling aristocrats. Middle-class officers now competed on equal standing and were promoted on

---

47 The Royal Military College at Sandhurst was merged with the Royal Military Academy Woolwich in 1947 to form the Royal Military Academy Sandhurst. The RMC Sandhurst initially trained infantry and cavalry officers, while the RMA Woolwich was the home of Royal Artillery and Royal Engineer professional training.

48 Ibid., 168.

49 Edmonds, *British Official History I*, 5.

50 Bond, *The Victorian Army and the Staff College*, 195.

51 Ibid., 199.

52 Barnett, *Britain and Her Army*, 367.

talent, not on wealth. In 1875, 78% of the general officers were members of the aristocracy or landed gentry; by 1912, only 52% of the general officers were members of either.<sup>53</sup> Most of the general officers in the BEF in 1914 were there through talent and experience. However, the losses of the first six months had not been foreseen, and the production line was not capable of keeping up with demand. Overall, officer-ship and operational planning reduced, and lessons that should have been obvious become new and exciting to the uninitiated.<sup>54</sup>

While British conscription would deliver far more men into military service, it was believed that it would reduce the effectiveness of what already existed, as quality would dip, and tactics would have to become less intricate. The new tactics within *Combined Training 1905* needed long-service regulars with experience to make the most of them.<sup>55</sup> Hence, infantry and cavalry officers were given far more tactical accountability and were expected to take a personal interest in improving the training of their formations.<sup>56</sup>

### **Designing the schools' system in France**

Before the First World War, little thought had been given to training during operations and, indeed, no one had anticipated the need for a system of overseas schools that existed by the end of 1916.<sup>57</sup> However, the reaction to the inadequate training in the UK was the establishment of schools in France and Belgium. Initially on an ad hoc basis, they were established formally after General Haig visited those of the 29<sup>th</sup> Division in December 1916. In his diary, General Haig comments that he was 'impressed by the good work that was being done to train young officers and NCOs as platoon commanders'.<sup>58</sup>

Without an overarching school system, the BEF was in danger of too many good ideas being lost and, those

---

53 Peter Eric Hodgkinson, "British Infantry Battalion Commanders in the First World War," (PhD diss., University of Birmingham, 2013), 3, 17-18.

54 Bidwell and Graham, *Firepower*, 38.

55 General Staff, *Combined Training 1902*.

56 TNA, PRO, WO 27/504, *Memorandum on Military Training 1905*, 31 January 1905; TNA, PRO, WO 163/10, *Inspector General of Forces Annual Report for 1904*, 301, 321-322.

57 The schools' system in the second half of the war is expanded upon in the last section of this chapter.

58 TNA, PRO, WO 256/14, *Sir Douglas Haig Diary, 19 and 20 December 1916, and 12-14 February 1917*.

that were recorded being distorted by unofficial teaching. There was a need for a coherent schools' system on the continent that reflected what was being taught in the UK. General Charles Monro, of the Third Army, who first originated the idea, was extremely concerned about the deterioration in the standard of officers within the BEF by early 1917.<sup>59</sup> He decided to set up an army school for the education of his subordinates at Flixécourt.<sup>60</sup> The Third Army School, aimed at officers and senior NCOs, followed a four-week course of broad instruction. It brought the benefit of aligning each brigade's tactical methods for trench clearing so that neighbouring units could support each other.<sup>61</sup>

The very first divisional level school for grenade instruction was set up by the 51<sup>st</sup> (Highland) Division in January 1916. A dozen officers and two companies' worth of other ranks undertook one week of instruction on the newly introduced Mills bomb.<sup>62</sup> The same division then established a second school for the instruction of infantry, which took twenty officers and forty NCOs through two-week courses to improve their leadership abilities and basic tactical knowledge.<sup>63</sup> Training subjects included discipline and esprit de corps, sanitation, route marching, billeting, musketry, reconnaissance, trench attacks, transport, map reading, and field engineering.

However, at this stage of the war, the British Army was simply 'making do' with a swelling number of unofficial schools in France and Belgium because of the ad hoc efforts of senior commanders.<sup>64</sup> The dearth of systematic training was articulated in a letter from General Henry Wilson to Lieutenant-General Sir Launcelot Kiggell. He explained the necessity to improve training, being convinced that the 'education and training of officers is of the utmost importance'.<sup>65</sup> In March 1916, he wrote back to Kiggell to demand better instructors for the school's system, because 'the present casual arrangements are disgraceful'.<sup>66</sup>

---

59 IWM, Maxse Papers 69/57/7.

60 LHCMA, JFC Fuller Papers 4/3/163, *Major-General JFC Fuller to his mother*, 12th October 1915.

61 IWM, Maxse Papers 69/57/7.

62 TNA, PRO, WO 95/2844, *51st Division G War Diary*, 10 January 1916.

63 Ibid.

64 IWM, Wilson Papers, *Field Marshal Sir Henry Wilson Diary*, 11 and 28 August, 6 September, 21 October 1916; NLS Haldane Papers, *General Sir Aylmer Haldane War Diary*, 24 October 1916.

65 IWM, Wilson Papers, *Field Marshal Sir Henry Wilson Diary*, 1 January 1916.

66 IWM, Wilson Papers, *Field Marshal Sir Henry Wilson Diary*, 15 March 1916.

By the spring of 1916, the efforts of General Monro had started to bear fruit, as the Third Army School of Instruction was attended by over 100 officers and NCOs.<sup>67</sup> During a visit in April 1916, Lieutenant-General Henry Wilson of IV Corps was convinced of its utility when he remarked that it was 'a most admirable place' and 'quite the best-run school I have seen in this country'.<sup>68</sup>

GHQ had not responded to the challenge of training a massed army on the continent until Field Marshal Haig's intervention at the Army Commanders Conference in Rollencourt in early 1917. Haig sought Army commander agreement to coordinate the training in France and Belgium, whereupon he announced the formation of the new training apparatus. By the summer of 1917, schools existed at GHQ, army, corps and divisional level.<sup>69</sup> Unfortunately, the establishment of so many schools at once affected the quality of staff officers and instructors as even more were needed to train Kitchener's New Army. The schools were haphazard and not necessarily staffed by the best personnel available, which only exacerbated the degree of difference between them.<sup>70</sup>

In early 1917, the primary determinant of how well a unit trained and what it learnt was the approach of its commander. *SS 152* stated that 'commanders will train the troops that they lead into action. This is a principle which must never be departed from.'<sup>71</sup> More specifically, 'The training of each division must be carried out under the personal guidance of its divisional commander.'<sup>72</sup> However, the level of enthusiasm seemingly varied between commanders and affected the quality of instructor, location of the school, and the support it received.<sup>73</sup> While some noted the utility of paying close attention to their units' training, others delegated responsibility and allowed differences to occur by relying on vastly different qualities of commanding officers.<sup>74</sup>

---

67 TNA, PRO, WO 256/7, *Sir Douglas Haig Diary*, 23 December 1915; and TNA, PRO, WO 256/9, *Sir Douglas Haig Diary*, 11 March 1916.

68 TNA, PRO, WO 256/7 and 256/9.

69 TNA, PRO, WO 256/15, summary of schools of training for the BEF during winter 1916-1917, as seen in LHCMA, Montgomery-Massingberd papers 7/34, Fourth Army GS 318, 2nd Edition, *Courses of Instruction during the Winter, November 1916 to 1 April 1917*.

70 LHCMA, Montgomery-Massingberd Papers 7/9, Notes from 1 June 1917 – 30 June 1917.

71 *SS 152* (1918), 5.

72 *Ibid.*

73 Simpson, *Directing Operations*, 194.

74 *Ibid.*, 194-195.

The balance between tactical training, physical fitness, and tactical exercises was also hard to achieve. In the dispatches of IV Corps, it stated that 'The men must learn to work like a pack of hounds and not like a flock of sheep.' Even though the context has been lost, it does suggest that training had become too focused on the body rather than the brain.<sup>75</sup> Similarly, 115<sup>th</sup> Brigade of the 38<sup>th</sup> Division considered that training to use the ground correctly 'has been somewhat neglected up to this year in favour of physical training, bayonet fighting and similar work.' The lack of it had been felt in the more open fighting since 21 March.<sup>76</sup> This refreshing opinion suggests that the author understood the benefit of tactical over physical training, which was usually the lowest common denominator and easily instigated.

Divisional schools expanded and grew in number as demand dictated. They covered subjects such as machine guns, trench mortars, artillery cooperation, air-to-ground liaison, counter-battery fire, tank-infantry tactics, and staff writing. They all undertook a similar format with an array of classroom instruction, a practical element and summative testing to pass out of the school. The schools were not based on rank and, although predominantly attended by officers, any rank could attend. However, the more senior an officer became, the more time he spent being educated in these schools.<sup>77</sup>

While the 12<sup>th</sup> Division spent the winter of 1916 - 1917 generally resting and guarding quiet sectors of the front, it set up a divisional school in November 1916 at which it rotated approximately twenty-five officers and twenty-five NCOs per three-week course, and where they were taught the practical details of trench warfare.<sup>78</sup>

While GHQ had given direction in the winter of 1916 to initiate the schools, their locations and rudimentary staffing, it had not been enough to prevent significant discrepancies between them as there was 'no method

---

75 LHCMA, Montgomery-Massingberd Papers 7/33.

76 TNA, PRO, WO 95/2540, 38th Division GS War Diary, 115th Brigade, *Notes on Recent Fighting*, 26 September 1915.

77 Griffith, *Battle Tactics on the Western Front Western Front*, 189.

78 IWM, 12th Division War Diary, 22 November 1916, and TNA, PRO, WO 95/1822, *Lieutenant-Colonel EHE Collen Diary*, 21 November 1916.

of coordination to impart training'.<sup>79</sup> Furthermore, even when endorsed by GHQ, the uptake was not quick; by September 1917 there were still only seventeen schools for XX Corps.<sup>80</sup> The type and nature of training were still subject to the whims of individual commanders and their instructors. This unacceptable situation was clear to Field Marshal Sir Douglas Haig, and this was seemingly the motivation for the creation of the Training Directorate in 1917. While he observed publicly that there was 'a great deal of uninformed criticism by officers on leave in England about what is being done in France', he saw the opportunity to solve this by appointing Brigadier-General Solly-Flood to lead the Training Directorate.<sup>81</sup> Haig had worked with Solly-Flood at Staff College, writing *FSR 1909 I and II*, and had received favourable reports of his brigade in action during the Somme campaign.<sup>82</sup>

Longer term, Field Marshal Haig's vision led to the creation of the Inspectorate of Training and the appointment of Lieutenant-General Sir Ivor Maxse as Inspector General Training (IGT). Maxse stated that the most significant challenge to the improvement of the BEF was the requirement for proper training and the correct dissemination of doctrine in the BEF. The situation was compounded by the high turnaround of divisions within the corps, so the 'expert supervision' of training was mostly lacking.<sup>83</sup>

## The Training Directorate

The haphazard BEF training of the first three years of the war changed with Field Marshal Haig's appointment of Brigadier-General Arthur Solly-Flood to lead the Training Directorate, reporting directly to Lieutenant-General Richard Butler, the BEF Deputy Chief of Staff.<sup>84</sup> No actual job description has been found, but an

---

79 LHCMA, Montgomery-Massingberd Papers 7/6, Notes from 6 February 1916 - 23 June 1916 and 31 November 1917, see LHCMA, Alanbrooke Papers 3/6, Notes on a lecture by Bonham-Carter, and transcribed by AF Brooke, *Notes on the Senior Staff Course, Cambridge*, 29 December 1917 to 14 March 1918.

80 TNA, PRO, WO 256/22, *Sir Douglas Haig Diary*, 23 September 1917.

81 TNA, PRO, WO 256/14, *Sir Douglas Haig Diary*, 'Record of Army Commanders, Conference held at Rollencourt Chateau on Saturday, 9th December 1916.'

82 Brigadier-General Solly-Flood commanded 35th Brigade, within the 12th Division, during the Somme campaign.

83 Simpson, "The Operational Role of Corps During World War One," 157.

84 Lieutenant-General Richard Butler was Deputy Chief of Staff to the BEF from the end of 1915 to the start of 1918. TNA, PRO, WO 256/15, and see Edmonds, *British Official History II*.



account in the biography of Major-General Charles Bonham-Carter, Solly-Flood's successor, described himself as being responsible for the supervision of the training of the Army in France.<sup>85</sup> Specifically, he was,

in charge of the Schools of Instruction directly under GHQ, and for visiting divisions and learning their experiences to keep everyone up to date with any tactical developments that take place by sending round pamphlets.<sup>86</sup>

The duty of 'visiting divisions' suggests that Brigadier-General Solly-Flood had to maintain oversight of training. His orders to observe the divisions in training and report back adds credibility to the theory of bottom-up evolution of tactics rather than just top-down. It is also clear that Brigadier-General Solly-Flood was instructed to 'enforce uniformity' of training throughout the BEF so that a consistent tactical approach could be imposed.<sup>87</sup>

The establishment of the Training Directorate was not the first time GHQ had been involved in training.<sup>88</sup> General Sir William Robertson, Sir John French's Chief of General Staff, had given responsibility for all training matters to his subordinate Chief of the General Staff in early 1915.<sup>89</sup> It seems little was produced and that responsibility was handed over to Major-General Richard Butler, General Haig's new Deputy CGS, in December 1915.<sup>90</sup>

However, in January 1917 the momentum was building and exemplified by a dispatch by the then Major-General Archibald Montgomery, Fourth Army's Chief of Staff, to Major-General Richard Butler, suggesting that something must be done. He stated the need to take *FSR 1909* forward to establish some new tactical methods that must be taught consistently in all schools.<sup>91</sup>

---

85 CAC, BHCT 9/2, chapter 9.

86 CAC, BHCT 2/2, *General Sir Charles Bonham-Carter, letter to his sister on his appointment to Brigadier-General Training*, 8 October 1917.

87 LHCMA, Alanbrooke Papers 3/6.

88 Major Archibald Becke, *History of the First World War, Order of Battle, Part 4, The Army Council, GHQs, Armies, and Corps 1914-1918* (London: HMSO, 1945), 17-22.

89 Sheffield and Todman, *Command and Control on the Western Front*, diagrams of the structure of GHQ, 47, 55.

90 TNA, PRO, WO 256/14, *Haig reaffirmed this in his diary entry for 19 December 1916*.

91 LHCMA, Montgomery-Massingberd Papers 7/4, *Letter from Major-General AA Montgomery to Lieutenant-General Richard Butler*, dated 24 January 1917.

His comments were substantiated by the then Major-General Sir Ivor Maxse, who had written to the then Brigadier-General Archibald Montgomery on 26 November 1916 stating, 'Inexperienced armies cannot be fed on 'general principles' only, they require specific methods.'<sup>92</sup> He wrote,

It does not matter what army, corps, division, or school an officer or man goes to in the French Army; he always finds the same methods. There should not be any confusion of thought such as now exists in our Army. The French work on the same principles as we do and their methods are very similar, but they are months ahead of us in practising those principles and methods, and until you give us some guidance from above, we shall be unable to catch them up.<sup>93</sup>

Brigadier-General Solly-Flood understood that he had 'to ensure uniformity in teaching' by 'the issue of pamphlets laying down principles from lessons learnt during fighting'. Additionally, by setting up 'in each army a permanent demonstration platoon to show methods of applying principles of tactics in the best way under various conditions.'<sup>94</sup> The main output was a focus on the infantry platoon and a new orbat for this critical fighting unit. The doctrinal and training changes would be codified in manuals such as *SS 143, Instructions for the Training of Platoons for Offensive Action* and *SS 144, The Normal Formation for the Attack* issued in February 1917 under Brigadier-General Solly-Flood's guidance.<sup>95</sup>

With only one staff officer to assist him initially, he quickly secured additional resources and appointed a group of staff officers to help him coordinate the staff writing. He is widely praised in a letter from Brigadier-General Kentish to Lieutenant-General Sir Ivor Maxse for his efforts, 'I think Solly-Flood is to be congratulated on having achieved in six weeks what his predecessor ought to have achieved nearly two years ago'.<sup>96</sup>

---

92 LHCMA, Montgomery-Massingberd Papers 7/4, 24 January 1917.

93 Ibid., accompanying a report on a visit to the French Training Camp at Mailly, 22-24 January 1917.

94 CAC, BHCT 9/2, *Chapter 9*, 7.

95 *SS 143* (June 1917) and see *SS 144*.

96 LHCMA, Alanbrooke Papers 3/6. Solly-Flood had one direct reporting officer, a GSO2, and see IWM, Maxse Papers 69/53/13, *Letter to Lieutenant-General Sir Ivor Maxse from Brigadier-General RJ Kentish, Commandant Senior Officers School, Aldershot*, 27 March 1917.

The duties of GSO1 Training in Armies and GSO2 Training in Corps are laid out in *SS 152, Instructions for the Training of the British Armies in France*.<sup>97</sup> The staff's role was to oversee the work of the commandants of the schools in their formations. They acted as the quality control mechanism reporting back to Brigadier-General Solly-Flood. The job of enforcing uniformity of training was made far easier by April 1917 as the staff had grown to thirty-one in just nine months.<sup>98</sup> This staff growth increased the speed with which potential lessons could be considered, staffed, and written into doctrine; allowing the Training Directorate to act quicker, evidenced by the rate at which SS pamphlets were published after spring 1917, an increase of approximately 150% on 1916.<sup>99</sup>

Brigadier-General Solly-Flood appears to have gone back to first principles in redesigning the school's system. *SS 152, Instructions for the Training of the British Armies in France* published in provisional form in June 1917, defined all the strands of the BEF's training policy in France.<sup>100</sup> It should be described as the BEF's 'training doctrine', and was as important to training as *SS 135, Instructions for the Training of Divisions for Offensive Action* and *SS 143, Instructions for the Training of Platoons for Offensive Action* were to tactics. Its overarching format set out the why, where, and how to train large formations. *SS 152, Instructions for the Training of the British Armies in France* coordinated the system of training employed at all schools to deliver uniformity of doctrine.<sup>101</sup>

Brigadier-General Solly-Floods' training policy in France was based upon two principles: first, that the responsibility for the training and efficiency of all officers and men in a unit still belonged to the commanding officer. Second, that special instructors were to be trained at schools to assist them in that task.<sup>102</sup> The schools themselves also had a dual objective. Firstly, to train company and platoon officers as well as NCOs to command, and secondly to produce enough instructors to train individual fighting units in the multiplicity of

---

97 *SS 152* (1917), Appendix XIV, 66: General Staff Officers, Training.

98 Each army had a GSO1 and a GSO3 dedicated to training as outlined in *SS 159*.

99 See Figure 2 on page 142.

100 *SS 152* (1917). A final revised edition was issued in January 1918.

101 *Ibid.*, 4.

102 *Ibid.*

general and specialist skills that combined arms warfare required. The numbers were substantial: by 1918, the system was designed to train 72 company and platoon officers and NCOs, and 111 officer and NCO instructors per battalion, every year, which equates to more than 100% of battalion staff.<sup>103</sup>

With this end in mind, Brigadier-General Solly-Flood structured the system to standardise the schools at each level of the BEF's hierarchy. He created a simple system with GHQ schools at the top, producing the smallest number of specialist instructors, with subservient army schools in the middle training company officers and NCOs, leaving divisional schools at the bottom training many men.<sup>104</sup> By the middle of 1917, this structure was developing, but the gap remained at corps where corps commanders had the most influence. Brigadier-General Solly-Flood identified this flaw and set about rebalancing.<sup>105</sup> In early 1917 he closed many of the divisional schools and instead created corps schools on a firm foundation. In so doing, he reduced the number of formal schools, and consequently made controlling the syllabus far easier, improving the doctrinal accuracy, and reducing the instructor numbers. The balance to this action was a reduction in the numbers trained, but those that were trained would be coherent with the most current doctrine.

Major-General Sir Charles Bonham-Carter took over as the Director of Training in November 1917.<sup>106</sup> Bonham-Carter outlined his workload in his autobiography, stating that,

Though frequently engaged in special tasks, the normal work of myself and my staff continued. I visited Schools of Instruction, Base Depots where reinforcements were held, and training carried out. Convalescent Camps where suitable training was given to the patients who had recovered sufficiently, and Staff Officers in charge of training and their Commanders, with the

---

103 SS 152 (1918), appendix XXIV, 93.

104 SS 152 (1918), appendix II shows the leading schools in existence at the end of 1916 and the harmonised system created by the Training Directorate by June 1917.

105 TNA, PRO, WO 256/15, Sir Douglas Haig Diary, *Only the VII, Canadian and II ANZAC Corps had Infantry Schools; only the corps of Third and Fourth Armies had a combined Lewis Gun and Stokes Mortar School: 'Summary of Schools of Training During Winter 1916-1917.'*

106 LHCMA, Alanbrooke papers, 3/6. The Directorate in late 1917 comprised Bonham-Carter, one GSO1, two GSO2, and one GSO3.

object of ensuring that similar principles and methods of training should be adopted throughout the Army.<sup>107</sup>

By the turn of 1918, the schools' system was fully developed and produced the trained men that the BEF required, focused on a new method of crossing no man's land and pushing the enemy back.

### **The Inspectorate of Training**

Field Marshal Haig established the Inspectorate of Training in the summer of 1918 to oversee all training throughout the armies in France and to ensure that the BEF had 'adequate machinery to assist in bringing the training to a high pitch'.<sup>108</sup> Lieutenant-General Sir Ivor Maxse was appointed Inspector-General of Training 'to assist the troops and their commanders' to train the Armies in France.' Additionally, he was 'if possible, to help in coordinating the training between England and France' and was thus 'empowered to visit any formation, so that he could establish whether or not training doctrine had been inculcated uniformly throughout the British Forces'.<sup>109</sup> Maxse and his staff were to 'devote their energies to assisting Army and subordinate commanders to improve the standard of training across the entire BEF'.<sup>110</sup>

The Inspectorate was also specifically responsible for coordinating the training in England, which had never happened before.<sup>111</sup> Any previous attempts to coordinate UK training to support the BEF had been met with resistance due to the different budgetary responsibilities and the focus of UK training on pre-war doctrine.<sup>112</sup> Efforts to improve UK initial training were evident with a pamphlet entitled *Training at Home*, dated December 1917, which was seemingly the equal of *SS 152* for France and Belgium, but which had not been given the authority to link the training either side of the Channel to make them of mutual benefit.<sup>113</sup> The

---

107 CAC, BHCT 9/2, Chapter 9.

108 IWM, Maxse Papers 69/53/11, *Major-General Guy Dawnay, MGGS at GHQ, to the Director of Staff Duties, WO, GHQ OB 2266*, 9 July 1918.

109 IWM, Maxse Papers 69/53/12, *Lieutenant-General Sir Ivor Maxse, Inspector General's Conferences*, July - August 1918.

110 TNA, PRO, WO 256/33, Sir Douglas Haig Diary, *General Sir Herbert Lawrence, Record of a Conference of Army Commanders held at HESDIN on Friday, 5 July 1918*.

111 IWM, Maxse Papers 69/53/13, OB/2255, *Sir Douglas Haig to WO*, 16 June 1918.

112 LHCMA, Montgomery-Massingberd 6/4.

113 *SS 152*, and War Office, *Training at Home* (HMSO: December 1917).

advantage in coordinating training on both sides of the Channel was to provide coherence, saving time and resource and, although Home Forces Command seemed to have been forward-leaning in adapting to change, ostensibly little happened. Hence, the Inspectorate of Training was given the task of establishing,

the fullest co-operation of the British Armies in France is lent to the authorities responsible for the training in England, and to be able to represent to the latter through the War Office the special needs of the Armies in France in respect of training.<sup>114</sup>

It is revealing that the Inspectorate did not replace the role of the Training Directorate upon its creation. GHQ could have closed the Directorate but decided against it. The Inspectorate of Training was considered 'further machinery', which would work 'through the small training sub-section of the General Staff at GHQ'.<sup>115</sup> The Directorate underwent a limited change; it created an Assistant Director of Military Training by downgrading its Brigadier-General of the General Staff (BGGs), and it was renamed by Major-General Guy Dawnay, head of the Staff Duties Section in GHQ, as the Training Branch in July 1918.<sup>116</sup>

The responsibility for the BEF's training policy, its tactical doctrine and the entire school's system remained with the Training Directorate. The Inspectorate had only to 'advise and assist in the preparation and revision of training manuals, instructions and syllabuses of training for issue by the General Staff at GHQ', and in the 'supervision and control of training establishments'.<sup>117</sup> It was ordered not to interfere with the existing activities of the Training Branch. However, the Inspectorate was given some new responsibilities which indirectly highlight the internal structural challenges.

Haig describes the first of its most essential functions as being 'to assist the troops and their commanders' carry out training. The Training Directorate had been charged with establishing a standard operating model

---

<sup>114</sup> IWM, Maxse Papers 69/53/13, OB/2255.

<sup>115</sup> IWM, Maxse Papers 69/53/13, OB/2266, *Major-General GP Dawnay to Director of Staff Duties, WO*, 9 July 1918.

<sup>116</sup> TNA, PRO, WO 106/359, *Organisation of the Staff Duties section*, 23 July 1918.

<sup>117</sup> IWM, Maxse Papers 69/53/13, OB/2255.

for tactical training and had redesigned the system of training to ensure its thorough and precise application throughout France. However, it was not resourced with the requisite manpower to ensure common application throughout the formations of the BEF. That responsibility remained with the divisional and corps commanders as they were charged with cohering the training of all arms and services under their command.<sup>118</sup>

The desired independence of commanders so encouraged in the BEF mitigated uniformity of training in practice to the detriment of the overall endeavour,

Throughout the war most battalions, brigades and divisions liked deliberately to throw away much of their received wisdom and top-down drill teaching. They invented their characteristic tactics and operating procedures, often due to the idiosyncratic whims of an individual commander.<sup>119</sup>

However, GHQ was content with the corps approach when it wrote to Fourth Army headquarters at the end of 1916,

Close supervision is especially necessary in the case of a comparatively new army. It is not interference but a legitimate and necessary exercise of the functions of a commander on whom the ultimate responsibility for success or failure lies.<sup>120</sup>

There is an obvious difference between Field Marshal Haig's intent for commanders to be free to train and the requirement to cohere the BEF within doctrinal norms. This can be seen as an interesting friction between the informal and unregulated, and the desire in 1917 to formalise the process of learning. *FSR 1909 I* states, 'It is usually dangerous to prescribe to a subordinate at a distance anything that he should be better able to

---

<sup>118</sup> Simpson, *Directing Operations*, 54, 112-115.

<sup>119</sup> Griffith, *Battle Tactics of the Western Front*, 27.

<sup>120</sup> IWM, Fourth Army papers, Volume 5, *GHQ to Fourth Army*, OAD 123, 23 August 1916.

decide on the spot.’ This direction is potentially at the heart of the friction between directed training and the freedom of formation commanders. It seems inevitable that a degree of command paralysis was unavoidable, as hinted at in *FSR 1909*.<sup>121</sup>

In selecting the IGT, General Sir Douglas Haig needed someone of intellect, military prowess, and energy. Lieutenant-General Sir Ivor Maxse was the obvious choice: a senior and well-respected General, whose XVIII Corps had been broken up in June, and was thus without a command. He happened to be one of the BEF’s most outstanding trainers, even though many of his peers believed he was a self-publicist.<sup>122</sup> It is also clear from General Dawnay’s private correspondence to his wife in 1918 that he valued General Maxse and had had him in mind for the job from the beginning of the concept.<sup>123</sup>

The organisation of the Inspectorate of Training was laid down and attached to OB/2255, between Field Marshal Haig and the War Office, dated 16 June 1918. Lieutenant-General Sir Ivor Maxse had five personal staff, consisting of Brigadier-General ‘Tom’ Hollond as his BGGs, with two staff officers and two ADCs. He was also given three Brigadier-Generals to act as assistant-inspectors, each of whom had a GSO2.<sup>124</sup> In addition, an artillery section was created, headed by Major-General Herbert Uniacke as deputy-inspector, with an additional three staff officers to assist.<sup>125</sup> It seems that, under Lieutenant-General Sir Ivor Maxse, the staff power was assembled to implement the ever-growing doctrine being created by the Training Directorate.

Lieutenant-General Charles Shute, the GOC of V Corps, was vociferous when stating, ‘You may rely upon me to carry out your principles entirely. What is the use of selecting a man for a job who has proved himself the best exponent of it, and then other commanders setting up other ideas?’<sup>126</sup> However, Lieutenant-General Sir Aylmer Haldane, GOC VI Corps, at the other end of the spectrum was indifferent, stating, ‘I have had no time

---

121 *FSR I*, 27.

122 McCartney, *Citizen Soldiers*, 230; for a full account of Maxse’s contribution to training, see Baynes, *Far from a Donkey*, 55-57.

123 IWM, Dawnay Papers 69/21/3, *Major-General GP Dawnay letter to his wife*, dated 2 June and 1 July 1918.

124 He ended the War as BGGs Inspector-General of Training and with the nickname ‘Tom’ Hollond from his troops.

125 IWM, Maxse Papers 69/53/13, File 56.

126 IWM, File 60: Major-General Shute, 1 October 1918.



to pay much attention to training lately.<sup>127</sup> This was further balanced by the response of Lieutenant-General Fergusson, GOC, XVII Corps, who suggested that the leaflets would 'supply a long-felt want, and will be useful to those who want to learn' while warning that 'The moment is not very propitious for training propaganda, as the immediate question is the amount of machinegun fire which is coming from the quarry!' <sup>128</sup>

In a meeting of minds, Lieutenant-General Harper, GOC, IV Corps sent Maxse a copy of the IV Corps 'Notes on Tactics and Training'.<sup>129</sup> General Duncan GOC, 61<sup>st</sup> Division, wanted even more from the leaflets as he felt they did not go far enough and should have even more tactical hints and exercises.<sup>130</sup>

Yet, it was felt by mid-1918 that 'the progress in obtaining uniformity of training was not rapid enough'.<sup>131</sup> It was felt that an even more senior officer was needed to generate the drive and influence needed to affect change. This general was needed 'to compel Army and Corps Schools to adopt similar methods'.<sup>132</sup> Major-General Uniacke suggested that the Training Branch at GHQ had 'generally neglected the somewhat important matter of instruction' and 'still more the question as to whether instruction once given was ever properly applied'.<sup>133</sup>

### **Subsequent training**

Once the war had started, training focused on the Western Front as either in or out of the line or while on rest and recuperation. Trench warfare followed a pattern that allowed each infantry battalion to spend several days in the front line, then an equal number in support trenches, and finally at rest. The model

---

127 IWM, File 60: Major-General Aylmer Haldane, 6 October 1918.

128 IWM, File 60: Major-General Charles Fergusson, 31 August 1918.

129 IWM, File 60: Lieutenant-General George Harper, 20 October 1918.

130 IWM, File 60: Brigadier-General Herbert Duncan, 5 September 1918.

131 IWM, Maxse Papers 69/53/13, File 56.

132 CAC, BHCT 9/2.

133 IWM, Maxse Papers 69/53/10, *Major-General Herbert Uniacke to Lieutenant-General Sir Ivor Maxse*, 30 June 1918.

dictated that training would take place at different rotational stages, as units moved away from the front line.<sup>134</sup>

The fighting division learnt many informal aspects of trench warfare through practical experience in the line, 'a very great deal of informal training did take place in the trenches, on the basis that survival itself depended upon speedy adjustment to local conditions.'<sup>135</sup> This learning on the job was no doubt a matter of survival and focused on the lowest level of tactics. However, while it improved survivability, it probably interfered with maintaining consistent and predictable standards.

To assist any unit or formation in delivering their prescribed training, it was War Office policy that all billets reserved for the use of troops resting from duty in the trenches had an adjacent bayonet fighting course, ranges of at least 30 yards, bombing trenches, drill grounds, recreation grounds, machine gun ranges, and light trench mortar practice grounds. These facilities no doubt enabled training for individuals, but it seems unlikely that practical collective training was possible in such small areas.<sup>136</sup>

Unfortunately, training under brigade or battalion while at rest was often interrupted by the continuous call for fatigue parties.<sup>137</sup> An example of the fundamental problems was evident from the amount of time spent on reworking defences before the German offensive in March 1918 instead of training officers and men in the new doctrine of 'defence in depth'. This was a constant friction throughout the war, as Lieutenant-General Sir Ivor Maxse pointed out,

---

134 As explained in TNA, PRO, WO 339/16855, *Personnel file of Captain Samson Bowyer RE. For an understanding of how units were rotated*, see Gary Sheffield, "How Even was the Learning Curve: Reflections on the British and Dominion Armies on the Western Front," in *Canadian Military History since the 17th Century* ed. Yves Tremblay (Ottawa, 2000), 126.

135 Griffith, *Battle Tactics on the Western Front*, 188.

136 SS 143 (June 1917).

137 MM Haldane, *A History of the Fourth Battalion the Seaforth Highlanders, With Some Account of the Military Annals of Ross, the Fencibles, the Volunteers, and the Home Defence and Reserve Battalions 1914-1919* (London, Naval and Military Press, 1927), 153.

The total casualties in my Division in the Battle of the Somme amounted to 6,754. This is not a figure to boast about, because I am convinced that perhaps 30% of these casualties would have been avoided if officers and men had been trained more.<sup>138</sup>

The GHQ, army and corps schools were established in France to assist in the individual training of junior officers and NCOs. By December 1916, they included the School of Gunnery and the Senior Officers' School for Battalion Commanders in the UK; the Machine Gun School at Camiers; the Junior and Senior Staff Schools at Hesdin; the RFC School of Aerial Gunnery at Camiers and Carmont; the Cadet School at Blendecques for commissioning from the ranks; the Wireless School at Champagne; four Base Training Camps at Étaples, Calais, Le Havre and Rouen; the Machine Gun Base Depot at Camiers; and the Physical and Bayonet Training School.<sup>139</sup> These formal establishments trained by the new doctrine emerging from the Training Directorate and helped cohere the BEF approach to operations.<sup>140</sup> While they were constantly reviewed by Solly-Flood's Training Directorate, their expansion helped substantiate the formal process of learning required to transform the BEF.

The five armies each had schools for the infantry, artillery, trench mortars, sniping, and signalling, while schools for bombing, musketry, mounted troops and Lewis gunners were at either corps or divisional level.<sup>141</sup> Army schools included the Infantry School to train company commanders and NCOs as well as COs, the Trench Mortar School, the Artillery School, the Telescopic Sight School to train battalion sniping officers and NCOs, the Signalling School, and the Musketry Camp, while the corps schools were the Combined Lewis Gun, Stokes Mortar School and the Signalling School. The Divisional Infantry School was to 'teach junior officers and NCOs to become platoon commanders and platoon sergeants'.<sup>142</sup> From 1916 every battalion was required, following GHQ instructions, to retain a permanent instructional staff that did not go into battle.<sup>143</sup>

---

138 Baynes, *Far from a Donkey*, 43.

139 TNA, PRO, WO 256/15, Sir Douglas Haig Diary, *GHQ, Summary of Schools of Training for the British Expeditionary Force during Winter 1916-1917*.

140 IWM, Maxse Papers 69/57/11, *Brigadier-General C Bonham-Carter, Training in France*, 8 July 1918.

141 *Ibid.*

142 LHCMA, Montgomery-Massingberd Papers 93, Fourth Army GS 318, *Courses of Instruction During the Winter, 1 November 1916 - 1 April 1917*, 8 January 1918.

143 LHCMA, Montgomery-Massingberd Papers 92, SS 152, quoted in *Lieutenant-General GM Harper, Notes on Tactics and Training, IV Corps*, September 1918.

Divisional level training was not stopped altogether by Solly-Flood as it was needed for specialist roles such as artillery, machine guns and engineering. The new schools reflected the needs of the new platoon organisation by training platoon commanders and NCOs, while affiliate schools trained instructors in Lewis gunnery and bombing.<sup>144</sup>

With a system of schools in place, it was also necessary to standardise the teaching method. *SS 152, Instructions for the Training of the British Armies in France*, prescribed the curriculum of every school, the syllabus of every course, the training pamphlets to be used, and the numbers of students to be trained. In doing so, it set the conditions for success as the BEF, at last, had a common doctrine in *SS 143, Instructions for the Training of Platoons for Offensive Action* and a standard teaching method in *SS 152, Instructions for the Training of the British Armies in France*. It was a truly transformative approach to changing the modus operandi of an army in contact. It may have stifled innovation and held back promising officers' innovative ideas, but this seems a pragmatic price to pay for coherence across the BEF.

Simultaneously, a substantial effort went into improving the quality of instructors at schools.<sup>145</sup> Validation of the schools and staff was carried out initially by the staff of the Training Directorate, and later by the Inspectorate of Training. Ultimately, it was the duty of army and corps commanders to ensure that their schools were run correctly.<sup>146</sup> For example, Major-General Archibald Montgomery was 'much struck by the excellent results' produced at the Fourth Army Infantry School,

to a considerable extent produced by the personal touch which has been maintained between the Commander and Staff of the Army and the instructors and students at the school; also, by

---

144 These were the Corps Lewis Gun School, and the Corps Bombing and 3' Stokes Mortar School. Corps also had a signal school and an anti-gas school. Training for instructors in musketry was provided in the Army Musketry Camp, and for scouts and snipers at the Army Infantry School.

145 The previous reservation about a lack of promotion and recognition were corrected and, eventually, the right instructors were attracted to the schools. *SS 152*, Ch II, 14-15.

146 Visits by army commanders and corps commanders are recorded numerous times in personal diaries. To amplify the nature of these visits, see Simpson, *Directing Operations*, 237-238.

the very careful selection of the instructional staff and ensuring that their interests are looked after.<sup>147</sup>

However, even with increased training focus throughout the war, there were still significant differences in the standard of training in each unit. The effectiveness of the commanding officer, or even the number of recent casualties sustained by the battalion and the standard of reinforcements, all played their part in the overall quality of training.<sup>148</sup>

For the officers below the rank of Lieutenant-Colonel, the training emphasis was placed more on understanding the principles issued from the higher headquarters and ensuring that the subordinate troops were trained accordingly. However, as the war progressed, a greater onus on sub-unit training and tactics ensured that,

The importance of platoon commanders could not be exaggerated; not for their elementary military knowledge, but because they are the actual commanders of men. Higher commanders can teach, direct, and inspire them; but remain dependent on their platoon commanders in action.<sup>149</sup>

Schools were also used to integrate new technologies. For example, BEF generals and artillery commanders realised that aeroplanes could provide observation for infantry movement and artillery correction. Initial coordination was weak and the opportunity was often missed so many called for the use of wireless telegraphy.<sup>150</sup> However, the earliest tests were with more straightforward methods, such as light signals

---

147 LHCMA, Montgomery-Massingberd Papers 7/32, Memorandum entitled '*GHQ Training, GT 107, from Major-General AA Montgomery to Major-General GP Dawnay*,' 28 October 1918.

148 There were many changes of battalion commanding officers throughout the war. Some were killed or wounded after a short time in charge or were transferred or sent home on health grounds. All these cases would disrupt training.

149 Nicholson, *Behind the Lines*, 138.

150 In 1914, Major-General Sir Henry Horne demanded wireless in aeroplanes for artillery spotting. IWM, General Sir Henry Horne Papers, Notes on artillery during the attacks of 13th and 14th September 1914 and subsequent operations on the Aisne, 2.

which took place on Salisbury Plain in November 1914.<sup>151</sup> The rapid pace of developments in airborne observation, wireless communications and artillery techniques resulted in almost constant development at the front which was communicated to the fighting troops via the schools of instruction. The General Staff issued twenty gunnery pamphlets.<sup>152</sup>

Officers were referred to 'the handbooks of the various arms' as 'the best guides to be followed', which, for the infantry, was *SS 143, Instructions for the Training of Platoons for Offensive Action* or, for the artillery, was *SS 139/1, Artillery Notes No.1, Close Shooting in the Field, Notes for Infantry Officers*.<sup>153</sup> In doing so, it was shown that, while individual skills were being developed, they were set within the context of evolving combined arms warfare doctrine, highlighted and explained in depth in chapter 5.

However, the real breakthrough for BEF training arrived in *SS 152, Instructions for the Training of the British Armies in France* and its policy on collective training for company, battalion, and brigades.<sup>154</sup> This offered the opportunity for the infantry to practise combined arms with 'the Royal Flying Corps, Cavalry, Artillery, Engineers and Tanks'.<sup>155</sup> This seems to be the point at which the BEF took its fledgling steps towards actual combined arms warfare, initiated by the arrival of collective training, with a set syllabus based on sound doctrine and facilitated by simple but effective tactics.

The object was for all formations to 'be able and accustomed to manoeuvring in the field'.<sup>156</sup> Within *SS 135*, appendix XIII outlined a programme for the training of the section, platoon, company and battalion within a combined arms context.<sup>157</sup> This was the point at which combined arms warfare was mandated in the BEF training doctrine and finally published as best practice.

---

151 TNA, PRO, WO 158/681, Tests with one aeroplane working with each battery and in *Further Notes on Artillery in the Present War*, November 1914.

152 By the end of the war; virtually all artillery publications discussed working with aeroplanes.

153 GHQ, *SS 139/1, Artillery Notes No. 1, Close Shooting in the Field, Notes for Infantry Officers* (HMSO: March 1917).

154 *SS 152* had two editions, June 1917 and January 1918.

155 *SS 152*, 18.

156 *Ibid.*, ch II, 13.

157 *Ibid.*, Appendix XIII, 59-63.

## Conclusion

Until the formation of the Training Directorate, its staff and the coherence it provided, the BEF struggled to align its lessons with a doctrine and training process. The BEF accepted informal learning, waiting on the right conditions to transfer to a more formal approach. The lack of tactical development between 1914 and the end of 1916 showed that there was a requirement for a staff department to cohere change. Field Marshal Haig's direction at the Army Commanders' conference at Rollencourt, on 27 January 1917, initiated the Training Directorate and the appointment of Brigadier-General Solly-Flood.<sup>158</sup> In many ways, it was a turning point in the War that history may have missed. The Training Directorate quickly took control and initiated GHQ-led reforms of the many divisional schools that had opened in late 1915 and the syllabuses issued by GHQ.<sup>159</sup>

The failure to provide practical training in Britain was a result of inexperienced officers, inadequate training facilities and poor training conditions. This was compounded by inferior-quality equipment and limited ammunition. It was further degraded by significant disruptions to formation and unit training caused by the constant transfers of men, the Imperial Service commitment, and the continuous redeployment of units to other formations.

With higher headquarters confounded over how the First World War should be fought, the formations suffered from a lack of central direction. The advice that percolated back to GHQ through the War Office and to units training in England, was about the minutiae of trench warfare, such as reliefs, sentries, bombing parties and sapping, with little on crossing no man's land, movement with artillery or more significant liaison.

While the codification of lessons in doctrine was the critical stage in the formal process of learning in the BEF, it would count for nothing if it was not used to educate the troops within the training system of the Army.

---

<sup>158</sup> TNA, PRO, WO 256/15, Sir Douglas Haig Diary, *Army Commanders' Conference held at Rollencourt, 27 January 1917*.

<sup>159</sup> TNA, PRO, WO 95/2844, 51st Division G War Diary, February 1916.

That system was realised through the training establishments set up throughout the UK and France that passed on the new doctrine in lessons to both individuals and collectives.

The SS pamphlets were widely used and we know that they had a significant impact on the fighting, as evidenced in the diaries, memoirs, and the official record.<sup>160</sup> However, more importantly, we can see the evidence for their employment in the style of warfare and how the BEF developed its battle-winning techniques from mid-1917 onwards. While there are many examples of benefit, the example of the British 62<sup>nd</sup> Division and the Australian 4<sup>th</sup> Division attacking towards Bullecourt showed how the new training and doctrine allowed inexperienced commanders to seize the initiative, having made quick decisions.<sup>161</sup> The new structure and emphasis on the platoon and its four-section format were indicative of the formal process of learning that would enable BEF transformation a year later.

The second half of the War witnessed training evolve with the use of models, practice war games and officer discussion periods to allow them to understand each other's assault techniques. With the arrival of the training plans laid out in *SS 135, Instructions for the Training of Divisions for Offensive Action*, *SS 143, Instructions for the Training of Platoons for Offensive Action*, and *SS 152, Instructions for the Training of British Armies in France*, and the new doctrine in publications such as *SS 131, Co-operation of Aircraft with Artillery*, *SS 106, Notes on the Tactical Employment of Machine and Lewis Guns*, and *SS 214, Tanks and their Employment in Co-operations with Other Arms*, the BEF grasped combined arms manoeuvre and began to be able to cross no man's land. However, they still found it hard to consolidate their positions in the German front line trenches once taken; this final tactical element would be solved in 1918.<sup>162</sup>

Field Marshal Haig's direction to set up a Training Directorate, a Training Branch and eventually an Inspectorate of Training gave meaning and direction to BEF training. Without this new bureaucracy and staff

---

<sup>160</sup> Brian Bond, *The War Memoirs of Earl Stanhope: General Staff Officer in France 1914-1918* (Brighton, Tom Donovan Editions, 2006) 115; Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters*, 183; 29 March 1916.

<sup>161</sup> Fought in the vicinity of Arras but not at Arras, the first attack on Bullecourt involved the 1st ANZAC Corps of the BEF's Fifth Army in support of the BEF's Third Army which was engaged nearer Arras.

<sup>162</sup> *SS 131, SS 106* (HMSO: May 1917), *SS 214*.



officers such as Brigadier-General Solly-Flood, the BEF may never have exploited the gathering of lessons, codifying them, and then transferring them into the training syllabus. Lieutenant-General Sir Ivor Maxse, Brigadier-General Solly-Flood and their teams were pivotal in driving the transformation of the BEF on the Western Front as they enabled the training to achieve the degree of change required to out-think the German Army.

This chapter has explained how training was cohered and delivered. It was the engine of change in the BEF and central to success in 1918. The BEF had a slow start to training and its lack of coherence profoundly undermined operations in 1915 and 1916;<sup>163</sup> had it not been for Field Marshal Haig's orders to establish a training staff, the years 1917 and 1918 might have looked remarkably different. Thankfully, by the winter of 1916, the BEF was willing to learn, and the institutional culture had changed enough to allow a formal process of learning to flourish.

The delivery of coordinated training supported the physical and conceptual components of fighting power building momentum for the BEF's wider transformation. The training was the element of doctrine to which the soldier was specifically exposed and it drove change. It was the interface for doctrine with the BEF and as such what was commented upon in the divisional war diaries, which will be considered in the next chapter.

---

<sup>163</sup> Watt, "Managing Deadlock," 26.

## Chapter 8 – Doctrine – Did it change the War?

Chapter 5 explained that over 330 doctrinal pamphlets were written in the First World War, the rate of production increasing as a formal process of learning was established and the machinery of writing was created within the Training Directorate. It is often assumed that, once written, these pamphlets were put into use as the syllabus and format for training. However, this may be a false assumption as there is evidence that some GOsC did not accept the new doctrine from GHQ, and what was accepted was not applied uniformly. This will be discussed later in this chapter.<sup>1</sup>

The lack of adoption of new doctrine runs counter to the premise of this thesis, which asserts that doctrine sits at the centre of the process of learning and forms part of the foundation of transformation of the BEF. This chapter seeks to identify the extent to which the BEF accepted the new doctrine and used it as the basis for the training system to drive change.

The friction regarding doctrinal change can be seen as late as June 1918, when Major-General Herbert Uniacke, one of the Deputy Inspectors of Training, suggested that the Training Branch at GHQ had ‘generally neglected the somewhat important matter of instruction’ and ‘still more the question as to whether instruction once given was ever properly applied’.<sup>2</sup>

It should be noted, however, that analysis of such correspondence is an imprecise way of assessing doctrinal change due to the indiscriminate manner in which it has been preserved and the different propensity for senior officers to correspond, discuss doctrine and voice their views. Hence, the correspondence of senior officers is not regarded as a reliable means of assessing doctrinal impact in the last year of the war within the BEF and is not considered further.

---

<sup>1</sup> Sheffield, *The Chief*, 295.

<sup>2</sup> IWM, Maxse Papers 69/53/10.

Instead, this chapter will study the authorised divisional and brigade war diaries that had a degree of consistency and offered every opportunity to express doctrinal change. The content of the war diaries varies in quality and depth and they were, no doubt, affected by the nature of the war at the time of writing and the conditions in which they were written. But this thesis proposes that they provide a balanced set of historical records.

## War diaries

Divisional war diaries can primarily be found in The National Archives at Kew within record series WO 95. They are mostly on the original paper, some typed, some handwritten, horizontal orientation, using Army Form C 2118. Every day is accounted for and an example is shown below in figure 3. The diaries are interspersed with extra information such as corps orders, intelligence reports, and movement orders.

7

WAR DIARY  
or  
INTELLIGENCE SUMMARY.  
(Erase heading not required.)

Army Form C. 2118.

35<sup>th</sup> Inf. Bde.

H/33

Place	Date	Hour	Reference Sheet 36 and 36 a Summary of Events and Information	Remarks and references to Appendices
RIGHT (FEW 3417) Sector	1.2.18		A very quiet day.	Reo
"	2.2.18		About 30 77mm. shells were fired at the outpost line between BOND STREET and PINNEYS AVENUE between 2pm and 3pm.	Reo
"	3.2.18		A very quiet day. 35 <sup>th</sup> Inf. Bde. Order No. 4 dated 3.2.18 issued. Subject Post to be carried out on Enemy Lines at N. 9. d. 2.0. Sheet No. 36 S.W. 1.	I Reo
"	4.2.18		Slight shelling in neighbourhood of CELLAR FARM AVENUE and RUE DU BOIS. 35 <sup>th</sup> Inf. Bde. Order No. 5 dated 4.2.18 issued. Subject relief of Bde. by 37 <sup>th</sup> Inf. Bde.	II Reo
"	5.2.18	2am 5am	*A Coy. 9 <sup>th</sup> Essex Regt. carried out a successful raid on German Post about N. 9. d. 1.0. Four prisoners (1 wounded) were captured and one light machine gun. Raiding party only had 2 men very slightly injured. 5 <sup>th</sup> R. Berks Regt. moved back to RUE BATAILLE. 35 <sup>th</sup> M.G. Coy. & 35 <sup>th</sup> T.M. Bty. were relieved by 37 <sup>th</sup> M.G. Coy. and 37 <sup>th</sup> T.M. Bty. respectively. A certain amount of counter-battery activity on both sides, otherwise a quiet day.	Reo
Res. Bde. Area. SAILLY	6.2.18.	4.15pm	5 <sup>th</sup> Royal Berkshire Regt. was transferred to 36 <sup>th</sup> Infantry Brigade. Relief of Brigade by 37 <sup>th</sup> Infantry Brigade was completed. Quiet uneventful day. 7 <sup>th</sup> North Staffs. moved to NOUVEAU MONDE, 7 <sup>th</sup> SUFFOLK to G. 29 & auct. 9 <sup>th</sup> Essex Regt. & SAILLY. Bde. H. Q. moved to the WHITE CHATEAU, SAILLY.	Reo

(Approved by War Office) Form C. 2118. D. D. M. C. L. M. Form C. 2118.

Figure 3: War diary of 35 Brigade Headquarters, part of 12 Division, 1-5 February 1918, from TNA, PRO, WO 95 1849.

The diaries also contain relevant mapping, such as figure 4 which shows the 12<sup>th</sup> Division advance planned for their assault in August 1918 in the vicinity of Somain, 15 miles north of Cambrai.

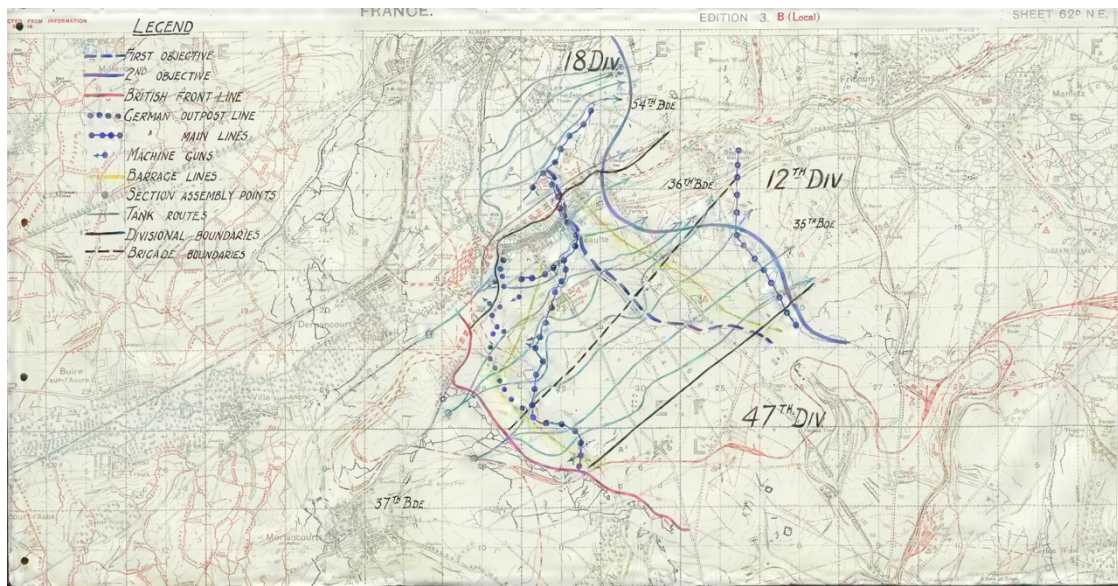


Figure 4: 12<sup>th</sup> Division advance for August 1918 near Somain, from TNA, PRO, WO 95 1849.

Within brigade and divisional war diaries, two factors are immediately apparent. Firstly, there are very few specific references to the evolution of doctrine or changing tactics. Secondly, there are many references to training to improve performance, but without reference to the doctrine from which it was drawn.<sup>3</sup> This lack of referenceable material is apparent across many of the divisional war diaries and is slightly concerning. However, this thesis argues that the lack of doctrinal reference does not correlate to a lack of doctrinal interest but is an indicator of doctrine being a GHQ responsibility, the effect of which was seen in the training of divisional troops. Thus, the training itself, and not the doctrinal beliefs it was based upon, was the change mechanism and probably reflects the doctrinal change. Accordingly, it would be incorrect to assume that a lack of doctrinal references within war diaries corresponds to a lack of doctrinal adherence.

Doctrinal change can also be traced by studying the operation orders of formations and seeing whether the scheme of manoeuvre they depict correlates to the new doctrine. This is a harder comparison to make,

<sup>3</sup> TNA, PRO, WO 95/1677, 8th Division War Diary and Narrative of Operations: June-December 1917, Report on operations of 31 July 1917.

requiring a detailed understanding of tactical actions, especially as formation operation orders for large assaults were typically written on just three sides of paper, the majority of which was coordinating instructions. However, by studying war diary copies of operation orders, some doctrine references can be observed indirectly.

### **Operation orders**

Orders for the attack were typed and then received by subordinates as numbered copies. They typically used two to three sides of paper to outline an attack and contained several annexes for artillery support and engineering tasks. Figures 5 and 6 show an example of an infantry brigade order for a deliberate attack on 28 September 1918. What is noticeable from the text is that there is no reference to either doctrine or training, but that the method of attack is consistent with the doctrine of the day, primarily from *SS 135, Instructions for the Training of Divisions for Offensive Action*.

Paragraph 6 of figure 5, which states that the 6<sup>th</sup> Buffs 'will envelop, the artillery will be lifted, and the 9<sup>th</sup> Essex will mop up', references tactics described on page 8 of *SS 143, Instructions for the Training of Platoons for Offensive Action*, and represents tactics described in the first two editions of *SS 135, Instructions for the Training of Divisions for Offensive Action*.<sup>4</sup> Furthermore, in paragraph 12 of figure 6, the liaison with the RAF for counter-attacks was most likely derived from part II of *SS 132, Co-operation between Aircraft and Infantry* and represents the changes associated with *SS 152*, specifically Appendix IV on page 31 which outlined the training required.<sup>5</sup>

---

<sup>4</sup> *SS 143* (June 1917) and *SS 135* (August 1917).

<sup>5</sup> *SS 132*, and *SS 152*.

SECRET.

57TH INFANTRY BRIGADE  
ORDER NO. 234

Ref: Message Map 1:20,000

23/9/1918.

1. The Fourth Army is advancing at Zero hour on Z day. Troops are crossing the CANAL where it runs into a tunnel, then turning North to move up the Eastern bank. The 18th Division is covering their flank on the Western bank of the Canal. The 53rd Division on the Left will also advance at Zero.
2. On Z day at an hour to be notified later the 18th Division will carry out an operation with the following Objectives:-
  - (a) to cover the Left flank 18th Division.
  - (b) to 'mop up' the area between the present front and the Canal.
3. The advance of the 18th Division begins at Zero hour. Their left flank will be on the line P Q when our advance begins; this line is also the dividing line between the 18th and 12th Divisions.
4. The 57th Inf.Bde. with the 9th Essex Regt. attached will carry out the advance on the 12th Divisional Front. The 6th Buffs will be on the Right and the 9th Essex Regt. in Support. 6th R.W.Kent Regt. will be on the Left with the 6th Queen's in Support.  
Inter-Battalion Boundary:- BIRD POST (incl. to 6th R.W.Kent Regt.) to trench junction X.30.a.60.45. (incl. to 6th Buffs) thence due East.  
1st Objective:- BLUE LINE  
2nd Objective:- BROWN LINE.  
O.C., 57th T.M.Battery will attach 2 guns to 6th Buffs and 2 guns to 6th R.W.Kent Regt.
5. At some time subsequent to Zero to be notified later, the 6th Buffs and 6th R.W.Kent Regt. will advance under a Barrage, as shown on attached map, and clear the ground up to the BLUE LINE, which will be consolidated within the Divisional Boundaries. As the situation develops East of the Canal, the 6th Buffs and 6th R.W.Kent Regt. will push forward strong patrols and clear the ground to the line of the Canal, and effect crossings to cover the throwing of bridges across the Canal. The 9th Essex Regt. and 6th Queen's will keep in close touch with the 6th Buffs and 6th R.W.Kent Regt. respectively, and will occupy the line:- LAIK TRENCH - LAIK SPUR - QUARRIES - BIRD POST - Road and trench junction at X.23.d.3.0. as soon as the 6th Buffs and 6th R.W.Kent Regt. are in occupation of the BLUE LINE.
6. The area shown crossed by red and blue lines will be kept under constant Artillery and T.M. fire during the advance. The 6th Buffs will envelope this area from the South. Artillery fire will be lifted off the bombarded area at an hour to be notified later. This area will be mopped up, 1 Coy. 9th Essex Regt. is placed at disposal of O.C., 6th Buffs to assist if necessary. The barrage for the 1st Objective on the front of the 6th Buffs is shown by parallel lines on the map. It is essential to explain to the troops following the Southern Barrage that the fire will be onfilade and therefore that they will not be able to get so close to it as to an overhead barrage; also that after the Southern Barrage joins the Northern Barrage it only lifts 50 yds. instead of 100 yds. so that men following it will be kept back out of danger from the Northern barrage.
7. Assembly Positions:- The 6th Buffs will assemble in PATRICK'S AVENUE and trenches in vicinity of BRAETON POST, 6th R.W.Kent Regt. in Road X.23.b.2.0. and X.23.a.9.9.

9th Essex Regt.....

Figure 5: 57th Infantry Brigade Order No. 234 from TNA, PRO, WO 95 1849.



The 9th Essex Regt. will assemble in OLD COPSE and be in close touch with the 6th Buffs and prepare to follow on as the 6th Buffs advance. The 6th Queen's will assemble in OAK TRENCH and POPLAR and Sunken Rd. in vicinity of X.27.a.4.3. and follow the advance of the 6th R.W.Kent Regt.

8. 'C' Coy., 12th En., M.G.Corps will be attached to the 57th Inf.Bde. 1 Section (4 guns) will be attached to the 6th Buffs and 1 Section to the 6th R.W.Kent Regt. These will be pushed up to the BLUE LINE as soon as it is taken. 1 Section will cover the advance from LITTLE PRIEL FARM and will follow up the advance. 1 Section will cover the advance from present position in ZEBRA POST and will then come into Brigade Reserve when Barrage programme is complete.

9. Two Sections. Field Coy., R.E. will be under the orders of C.O.C., 37th Inf.Bde. for the purpose of making footbridges across the Canal, and will concentrate in vicinity of DEELISH POST by Zero plus 3 hours and send forward an Officer to report ~~to~~ at Bde. H.Q.

10. C.O.C., 6th Buffs will detail special parties to keep in touch with 54th Inf.Bde. throughout the advance, joining them along LARK TRENCH, TINO TRENCH and TINO SUPPORT mopping up any Germans who may intervene. C.O.C., 6th R.W.Kent Regt. will maintain touch with the 33rd Division on our Left and will detail special liaison parties for this purpose.

Major H. PEPLQE, 6th R.W.Kent Regt. will be liaison Officer between 37th and 54th Inf.Bde. H.Qrs. and will be at H.Q., 54th Inf.Bde. from Zero.

11. The advance from 1st to 2nd Objectives will synchronise with the advance of the 18th Division. An N.C.O. with runners of the Right Coy. 6th Buffs, will accompany Coy. H.Q. of the Left Company, Left Battalion, 18th Division and maintain close liaison.

12. Contact aeroplanes: (a) Contact aeroplanes will fly over the Corps front at the following times:- Zero plus 1 hour, Zero plus 3 hours, Zero plus 4 hours, Zero plus 5 hours and subsequently as ordered. Red flares, tin discs, and rifles placed three in a row with muzzles pointing towards the enemy will be employed to indicate the position of our troops to the aircraft.

(b) A counter-attack plane will be up continuously from daylight onwards with the sole mission of detecting enemy counter-attacks and signalling them by dropping a white parachute flare.

(c) The following light signals will be employed:-

(i) S.O.S. No. 32 Grenade RED over RED over RED.

(ii) Success Signal No. 53 Grenade WHITE over WHITE over WHITE i.e. "We have reached objective."

13. Watches will be synchronised at Bde. H.Q. E.5.d.5.2. at 8 p.m. today.

14. Bde. H.Q. will move to MAY COPSE F.9.c.5.4. at 9 p.m. today.

15. Prisoners will be sent under escort to Divl. P.of W. cage at E.5.d.5.7.

16. ACKNOWLEDGE.

*del*  
*ae*  
*Norman Smith*  
Captain,  
Brigade Major,  
57th Infantry Brigade.

Copies to:-

- |                    |                             |                       |
|--------------------|-----------------------------|-----------------------|
| 6th Queen's        | 54th Inf.Bde.               | 38th Field Ambulance. |
| 6th Buffs          | 109th Inf.Bde.              | Staff Captain,        |
| 6th R.W.Kent Regt. | 'C' Coy., 12th En., M.G.C.  | War Diary.            |
| 9th Essex Regt.    | 12th En., M.G.Corps.        | File.                 |
| 37th T. Battery.   | 63rd Bde., R.F.A.           |                       |
| 35th Inf.Bde.      | "B" Battery 63rd Bde.R.F.A. |                       |
| 53th Inf.Bde.      | 12th Divn "C".              |                       |

*AW*

Figure 6: 57th Infantry Brigade Order No. 234 from TNA, PRO, WO 95 1849.

Figure 7 shows the 61<sup>st</sup> Brigade Order No. 38, from 6 October 1918, in which two doctrinal changes are evident. Firstly, in paragraph 1, the artillery barrage is noted as just 20 minutes, which represents a short 'hurricane' barrage for a brigade assault and is very much in keeping with *SS 139/4, Artillery Notes No. 4, Artillery in Offensive Operations* which outlines this type of bombardment in Appendix 1.<sup>6</sup> This is supported by the task at paragraph 2 (b), that of the 1<sup>st</sup> Cambridgeshire Regiment sending forward 'Battle Patrols' to establish 'Platoon Posts', which is a tactic described on page 62 of *SS 152 page 62*.<sup>7</sup>

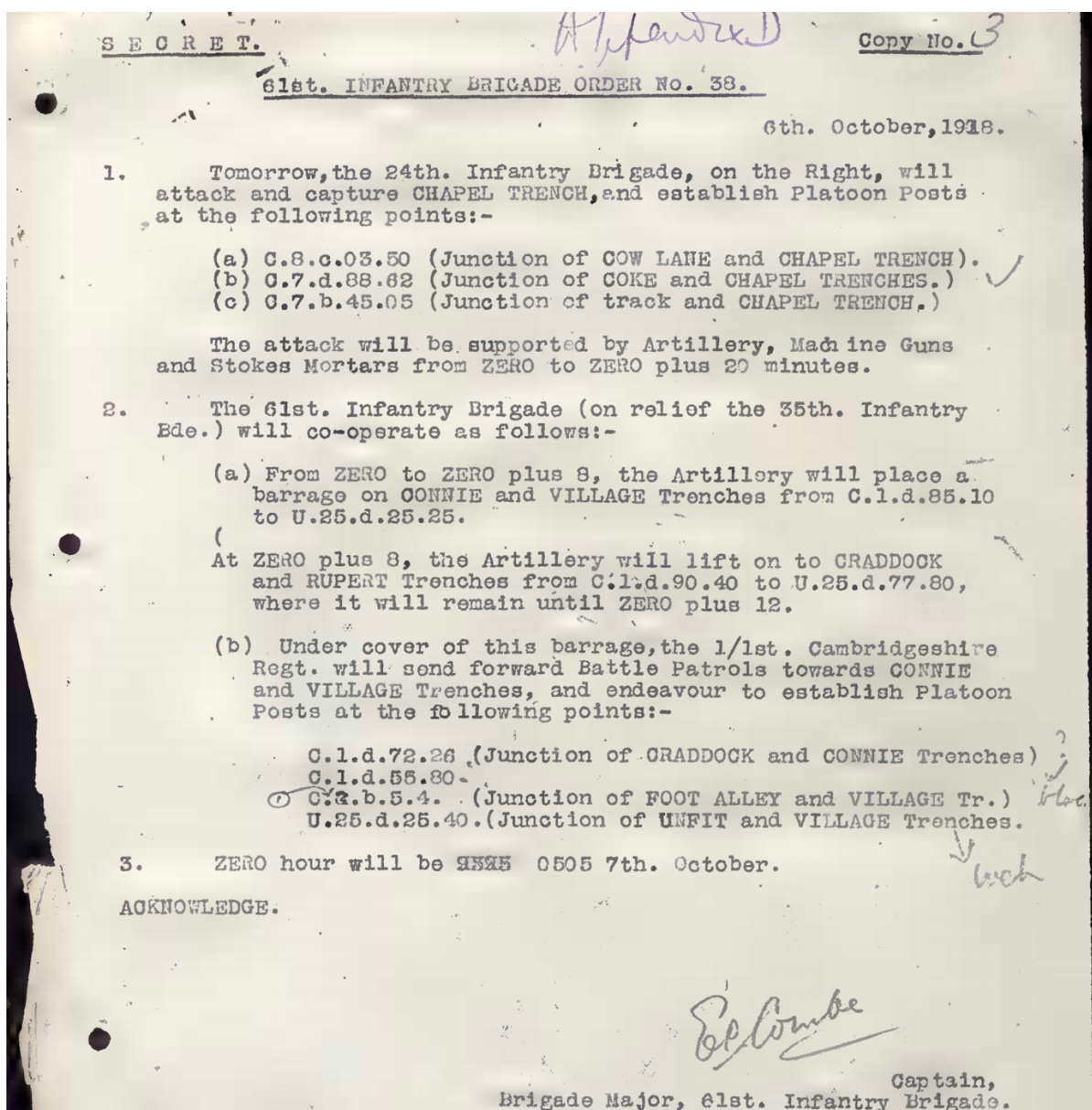


Figure 7: 61<sup>st</sup> Infantry Brigade Order No. 38, 6 October 1918, from TNA, PRO, WO 95 1849.

<sup>6</sup> SS 139/4.

<sup>7</sup> SS 152, 62.



Further evidence of doctrine being applied is seen in Operations Order No. 22 for the 4<sup>th</sup> Tank Battalion from October 1918 in figure 8 below. The application of *SS 214, Tanks and their Employment in Co-operation with Other Arms* is seen in paragraph 2, with the description of the allotment of tanks into three sections of ten tanks from page 8 of *SS 214*.<sup>8</sup> Paragraph 4, 'Method of Attack' reads, 'Tanks will advance with the Infantry, keeping as close to the Barrage as possible' which was a change in doctrine first seen in *SS 214* on page 9-10.<sup>9</sup> This differed from the earlier instruction in *SS 164, Notes on the Use of Tanks*, which kept the tank further from the barrage and effectively behind the infantry in assaults in early 1917.<sup>10</sup>

Paragraph 4 of the Operations Order also highlights a new tactic when it says that, 'as soon as the objectives are captured the Tanks will withdraw behind the Infantry and remain there until the ground is consolidated.' This reflects the directive on page 14 of *SS 214* as, previously, the tanks would have been pushed forward to stop a counterattack. *SS 214* had effectively captured the lesson that tanks on their own were subject to ambush by infantry and so should be withdrawn behind the infantry until the threat had diminished.<sup>11</sup>

---

8 *SS 214*, 8.

9 *Ibid.*, 9-10.

10 *SS 164*.

11 *SS 214*, 14.

SECRET

SECRET:  
\*\*\*\*\*  
Copy No. 9...

4TH  
TANK BATTALION.  
4th Tank Battalion.  
No. DK/103/5.  
Date: .....

4th TANK BATTALION :: OPERATION ORDER No. 22.  
\*\*\*\*\*

Reference Maps :-  
62 D. N.E. 1 : 20,000.

1. The 4th Tank Battalion will co-operate with the III. Corps, in an attack on Z day.

The Corps will attack with the 18th Division on the Left, 12th Division in the Centre, and the 47th Division on the Right.

Boundaries and objectives are shown on Map already issued.

2. ALLOTMENT OF TANKS.

Three Sections (10 Tanks) of "A" Company are allotted to the 12th Division, and 1 Section (4 Tanks) of "B" Company is allotted to the 18th Division.

The 5th Tank Battalion with 10 Tanks will be operating with the 47th Division on our right.

3. ORGANISATION FOR THE ATTACK.

The 18th Division will attack with two Brigades in line ; the 36th Brigade on the Left and the 35th Brigade on the Right ; the 37th Brigade will be in reserve.

Two Sections of "A" Company (7 Tanks) will co-operate with the 36th Brigade and 1 Section (3 Tanks) will co-operate with the 35th Brigade.

The 54th Brigade is operating on the right of the 18th Division, the Section (4 Tanks) of "B" Company will co-operate with it.

Tank Routes are shown on attached Map.

4. METHOD OF ATTACK.

The Battle will be supported by an Artillery Barrage, in which there will be a proportion of Smoke, one gun in fifteen firing Smoke Shells.

The Tanks will advance with the Infantry, keeping as close to the Barrage as possible. Should the Infantry fall back behind the Barrage, Tanks will still keep with the Infantry and assist their advance.

As soon as the Objectives are captured the Tanks will withdraw behind the Infantry, and remain there until the ground is consolidated, after which, they will return to their Rallying Points.

5. BARRAGE.

A Map will be issued showing the Barrage Lines.

The rate of the Creeping Barrage will be 100 yards in four minutes.

Figure 8: 4<sup>th</sup> Tank Battalion Operation Order 20 August 1918 from TNA, WO 95 1849.

As the first annexe to most operation orders, the Artillery Annex provided the artillery support plan. Figure 9 shows the 25<sup>th</sup> Division Artillery Order No. 274 for 20 August 1918 in its support of the 12<sup>th</sup> Infantry Division's attack. The order lists the artillery which was to support each brigade by the number of guns and amount of ammunition.

In paragraph 4 (a) the rate of the 'creeping barrage' is stated as 100 yards per four minutes, which is the updated rate of fire described in SS 135 – the details of which can also be found in the artillery pamphlet, SS 139/4, *Artillery Notes No. 4, Artillery in Offensive Operations*.<sup>12</sup> In paragraph 4 (b) the use of one round of smoke per 15 is also taken from SS 139/4, and is again reflected in SS 135.<sup>13</sup>

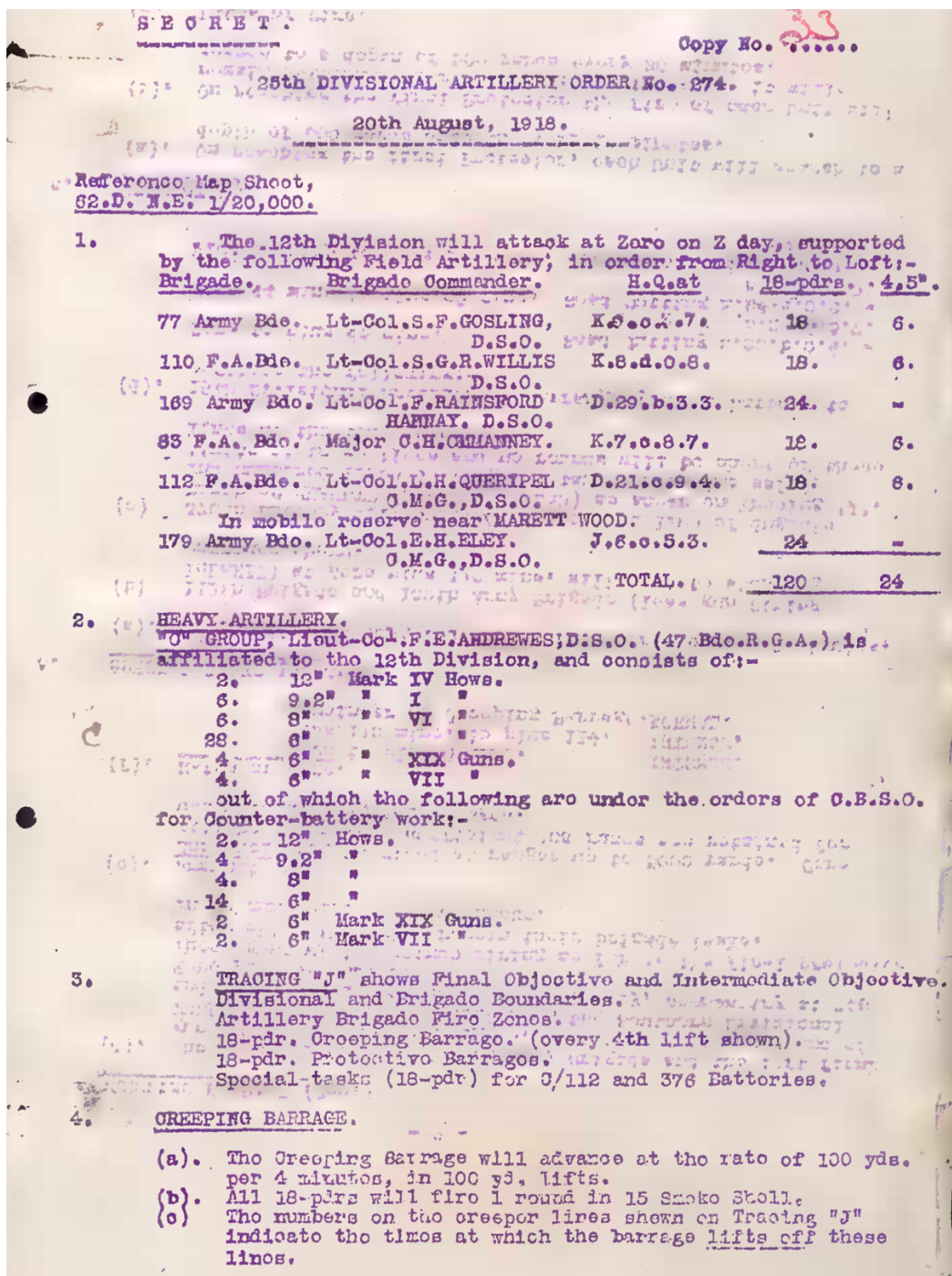


Figure 9: 25th Division Artillery Order no. 274 for 20 August 1918, from TNA, PRO, WO 95 1849.

12 SS 139/4.

13 SS 139/4 and SS 135 (August 1917).

In figure 10, below, paragraph 4 (d) of the creeping barrage also contains specific doctrine from SS 139/4 when it refers to the 'THERMIT' shell, which burst with a distinctive white flash, that allowed the infantry to recognise the stage of the barrage compared to their position on the ground.<sup>14</sup>

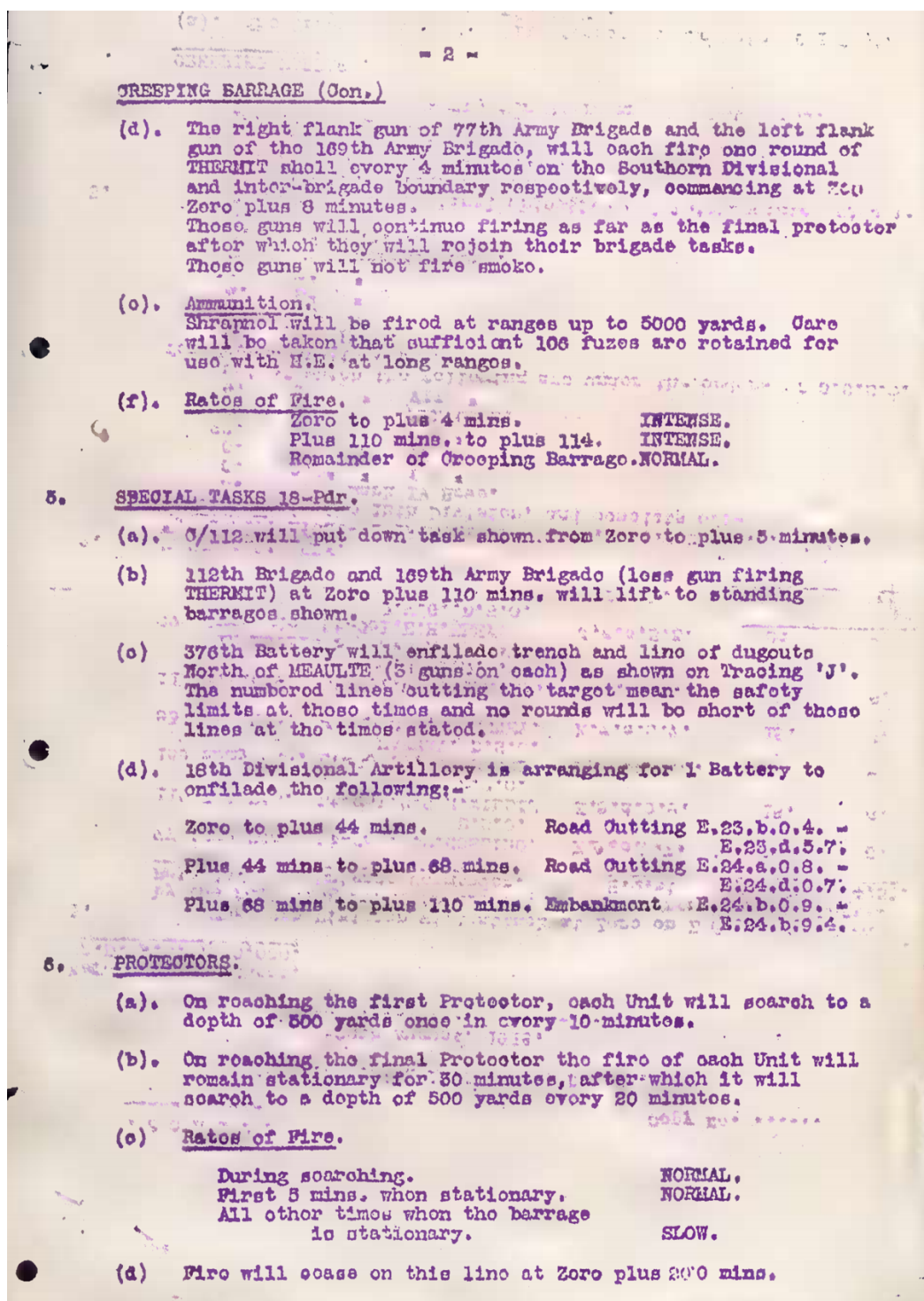


Figure 10: 25<sup>th</sup> Division Artillery Order no. 274 for 20 August 1918, from TNA, PRO, WO 95 1849.

<sup>14</sup> SS 139/4, 18.



Paragraph 4 (c), which refers to the husbanding of 'sufficient L106 fuzes' for use with the H.E. shells at longer ranges, is an artillery tactic drawn from SS 193/4, and is a reference to the better quality of the L106 grazing fuze that had a far higher detonation rate than other fuzes, and was used when specific targets required immediate neutralisation without fail.<sup>15</sup>

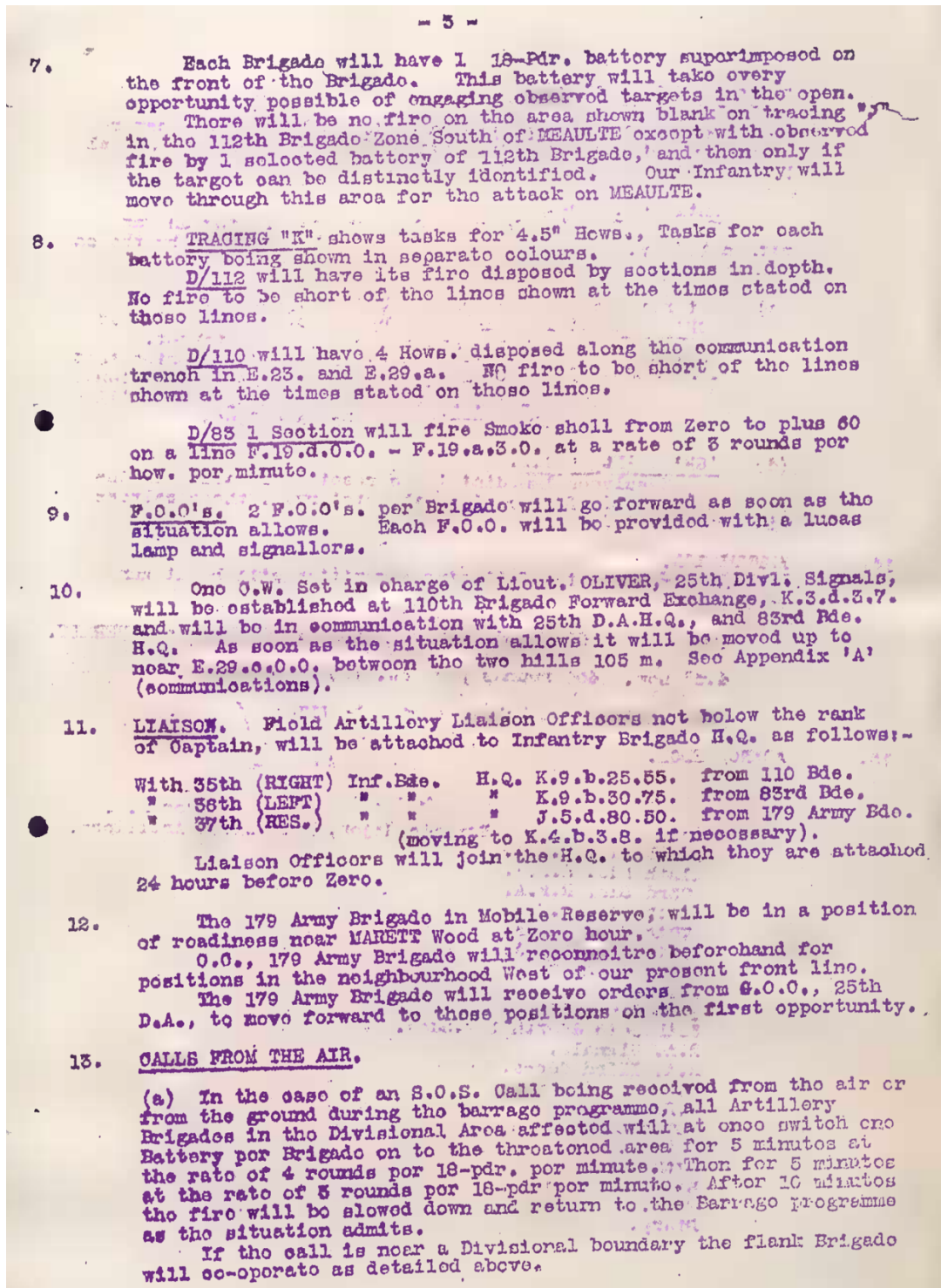


Figure 11: 25<sup>th</sup> Division Artillery Order no. 274 for 20 August 1918, from TNA, PRO, WO 95 1849.

<sup>15</sup> SS 139/4, 24-25.

Figure 11, above, indicates further signs of doctrinal alignment in paragraph 11 where it states that artillery liaison officers should be sent to Infantry Brigade headquarters, and specifies that they should be of a rank not below captain and sent '24 hours before Zero'. This is a direct reflection of both *SS 135* page 14 which directs liaison officers, and *SS 139/4* that outlines their duties.<sup>16</sup>

Overall, the war diaries from the 12<sup>th</sup> Division provide enough evidence to confirm that the tactical approach changed in reflection of the doctrine of the day. There is no specific reference to doctrine in the examples above, but by correlating the release of various SS pamphlets and seeing a tactical approach in the operation orders, it is reasonable to conclude a direct correlation. However, while this evidence is specific and not necessarily representative of the entire BEF, the next section of this chapter will look into other divisions for further corroboration.

### **Wider divisional comparison**

The overall impact of the new doctrine will be considered by looking at three other infantry divisions, namely the 8<sup>th</sup> Infantry Division, 32<sup>nd</sup> Infantry Division, and 51<sup>st</sup> (Highland) Division, and in more detail into the 12<sup>th</sup> (Eastern) Infantry Division. Each is chosen to be representative of how it was raised. The formations in question represent one Regular, two New Army and one Territorial division, all of which had varying degrees of successes and failures in the First World War and fought in similar campaigns. The four divisions of the BEF all served until the end of the war and have in common the same degree of sacrifice and exposure to the breadth of tactical actions experienced by the majority of the BEF's infantry. As such, they were selected not because of the quality of their war diaries, but because of the similarities in their experiences and exposure to the same doctrinal evolution.<sup>17</sup> It should be noted, however, that any study of the impact of doctrine on divisional training must be undertaken cognisant of the friction engendered by the constant change of

---

<sup>16</sup> *SS 139/4*, 34-36.

<sup>17</sup> To have selected divisions that specifically mentioned doctrine in their accounts of the War could have overly influenced the findings. This thesis has also reviewed the war diaries of the following divisions: 3rd, 9th (Scottish), 20th (Light), 36th (Ulster), 38th (Welsh), 49th (West Riding), and 63rd (Naval). Doctrine does not feature in them any more than in those discussed in detail in this thesis.

subordinate brigades and battalions. With so much change it would have been hard for a GOC to impose their will or provide the 'expert supervision' that both *FSR part I* and latterly *SS 135* insisted upon.<sup>18</sup>

### **The 8<sup>th</sup> Infantry Division**

The 8<sup>th</sup> Infantry Division was a Regular Army division formed by merging battalions returning from the British Empire in the summer of 1914. Initially commanded by Major-General Francis Davies, the division moved to France in November 1914. It fought on the Western Front for the duration of the war and was involved in the Battle of Neuve Chapelle, the Battle of Aubers Ridge in 1915, the Battle of the Somme in 1916, and the Battle of Passchendaele in 1917.

The lack of references to doctrine in the division's war diary seems typical of the war as, culturally, it appears that doctrine was not held in high esteem among the diary writers, and so never became part of the daily vernacular. Some evidence can, however, be drawn from details of actions, such as the plan for the defence of the Villers-Bretonneux sector, in April 1918. The orders outlined below seem to lack the coordination and integration of artillery that was becoming the norm by the middle of 1918;<sup>19</sup> while the details of *SS 198* are missing, since it was never published, there is good use of *SS 135* (January 1918 edition) in relation to the counterattack methodology. Paragraph 5 of the divisional operations order for the defensive posture in the spring of 1918 states that the general principles will be:

- The Front Line ... will be held. Should the enemy penetrate any portion of it, Brigade and Local Commanders will at once organise counterattacks... Should the counterattack fail, every effort will be made to prevent the enemy extending his gains.

---

<sup>18</sup> Simpson, "The Operational Role of Corps During World War One," 157.

<sup>19</sup> As outlined in *SS 139/4*.

- The garrison of Villers-Bretonneux will retain its positions at all costs and there will be no retirement from that town.
- Counterattack battalions ... in the front line will be employed for a counterattack on the initiative of battalion commanders. Brigadiers will issue written instructions regarding the general direction in which these counterattacks should be launched to meet the probable forms of hostile attack.<sup>20</sup>

These references suggest that the defensive scheme recognised the need for an effective counterattack as outlined in *SS 485, Army Order Regarding the Execution of Counterattacks*, and *SS 135, Instructions for the Training of Divisions for Offensive Action*; as does the tactical approach of not ceding ground that is featured in *SS 101, Notes for Infantry Officers on Trench Warfare*, and *SS 471, Principles for the Defence of Positions*.<sup>21</sup>

The GOC of the 8<sup>th</sup> Infantry Division from December 1916 to the end of the war was Major-General William Heneker. He made no specific references in his communications to doctrine but continually referred to better training to enable the new fighting techniques. In July 1918, he commented on the continuing need for ‘ginger and common sense’, particularly in training.<sup>22</sup> He explained that,

... I formed therefore a Divisional Platoon School to which platoons were sent complete in every respect. Each platoon went through a course of 6 days intensive training under special instructors. Each battalion in the line had to send one platoon and so there were always 6 platoons training at the School. In all, before the School was closed, owing to our advance, 63 platoons in the Division were put through and I can safely say that the results obtained were surprising.<sup>23</sup>

---

<sup>20</sup> TNA, PRO, WO 95/1678, 8th Division War Diary, *8th Division Defence Scheme (Provisional)*, January – June 1918.

<sup>21</sup> GHQ, *SS 485, Army Order Regarding the Execution of Counterattacks* (HMSO: August 1916) and GHQ, *SS 471, Principles for the Defence of Positions* (HMSO: August 1915) and GHQ, *SS 101, Notes for infantry officers on trench warfare* (HMSO: May 1917).

<sup>22</sup> IWM, Maxse Papers, PP/MCR/C 42 13, 53-58, Papers of General Sir I Heneker to Lieutenant-General Sir Ivor Maxse, 9 July 1918.

<sup>23</sup> TNA, PRO, WO 95/1679, 8th Division War Diary, July 1918 – January 1919, *Narrative of Events from 20 July 1918*, 4-5. The sixty-three platoons that went through the Platoon School comprised forty-three per cent of the Division’s infantry platoons.



The entry goes on to discuss training schemes and how they would be delivered, referring to ‘new methods, contained within new pamphlets’, which this thesis suggests is a reference to the emerging doctrine in *SS 135, Instructions for the Training of Divisions for Offensive Action*, and *SS 143, Instructions for the Training of Platoons for Offensive Action*.

Lastly, there is broad evidence that as the war progressed, the 8<sup>th</sup> Division achieved more, for less. When comparing three actions between March 1915 and April 1918, each of five days’ duration, it is apparent that the division broadly reduced its casualty rate as the war progressed. Although these statistics are subject to many causes, at the very least they suggest a reduction in casualties while maintaining a winning posture. Had these statistics shown an increased casualty rate, it might have given greater credibility to the suggestion that new doctrine was not being followed. The increase for the Somme is out of line with Neuve Chapelle and Villers-Bretonneux but remains statistically viable due to the ferocity of the battle in the first 12 hours. Total casualties for the division throughout the war were 2,927 officers and 60,931 men.<sup>24</sup>

	<b>Neuve Chapelle 10 – 14 March 1915</b>		<b>The Somme<sup>25</sup> 1- 5 July 1916</b>		<b>Villers-Bretonneux 23-27 April 1918</b>	
	Officers	Other Ranks	Officers	Other Ranks	Officers	Other Ranks
<b>Killed</b>	95	977			28	327
<b>Wounded</b>	119	3046			67	1764
<b>Missing</b>	4	614			37	1299
<b>Total</b>	218	4637	203	5091	132	3390

Figure 12: 8<sup>th</sup> Infantry Division’s comparative casualties through the War.<sup>26</sup>

In summary, when taken together the 8<sup>th</sup> Infantry Division’s reduced casualty rates, coupled with its propensity for new training methods that reflected the new doctrine, and the weak signals in its war diaries, offer preliminary evidence that the new doctrine was followed.

<sup>24</sup> Lieutenant-Colonel John Boraston and Captain Cyril Bax, *The 8th Division in War 1914-1918* (London: Medici Society, 1926), 295-296.

<sup>25</sup> There is no verifiable data available to break down the casualty figures as to killed, wounded, or missing for the Somme campaign.

<sup>26</sup> Boraston and Bax, *8th Division in War*, 296.

## 12<sup>th</sup> (Eastern) Infantry Division

The 12th (Eastern) Division was one of Lord Kitchener's New Army infantry divisions raised especially for the Western Front. It deployed in February 1915 and saw service from June 1915 to the end of the war. It was exceptional in its inclusion of doctrinal references in its official divisional and subservient brigade war diaries and is one of the very few divisions whose war diaries explicitly relate changing tactics and training to the Stationary Service (SS) pamphlets. As a consequence, some examples from the division have been used at the beginning of this chapter.

The 12<sup>th</sup> (Eastern) Division comprised three infantry brigades, the 35<sup>th</sup>, 36<sup>th</sup> and 37<sup>th</sup>, plus divisional troops. The 37<sup>th</sup> Brigade seems to have fully embraced the doctrinal changes. In March 1917, for example, it conducted a series of training events which its war diary relates specifically to *SS 135, Instructions for the Training of Divisions for Offensive Action*. More specifically, it tells of events involving all four battalions of the brigade that practised 'leaning into the barrage', using reserve elements to exploit local success and the development of the self-contained platoon structure. It states that all such actions were 'as contained in SS 135', and were specifically practised as showing the best way.<sup>27</sup> The diary entry goes on to explain how the artillery barrage 'later slowed to 100 yards per four minutes, and then 100 yards per six minutes', again as per *SS 135*.<sup>28</sup>

The diary also explains that 'the attacking troops would be in two waves', and 'two companies of each battalion would make up the first two waves, the platoons of these companies being split between the first and second waves', both techniques were taken from page 17 of *SS 135*.<sup>29</sup> These techniques were then expanded upon with doctrine from *SS 143, Instructions for the Training of Platoons for Offensive Action*, where it explained that the 'rifle and bombing sections side-by-side in the lead, and the rifle-bombers and

---

<sup>27</sup> TNA, PRO, WO 95/1858, 37 Brigade War Diary, 'Instructions for Practice Attack, March 1917.

<sup>28</sup> *SS 135* (December 1916), 45.

<sup>29</sup> *SS 135* (January 1918).

Lewis gunners behind them'. Each of these platoons would be followed by a platoon of moppers-up from the other two companies.<sup>30</sup>

The initial assault would then be developed following chapter 3 of *SS 135* which states that 'The platoons of the first wave would continue their attack through to the second German trench line, while their moppers-up would remain on and consolidate the first trench. Then the platoons of the second wave would pass through the first and continue the attack'.<sup>31</sup>

In March 1917, the 37<sup>th</sup> Brigade also issued guidance based upon *SS 120, Co-operation between Aeroplanes and Artillery during an Advance*, that directed its units to trial and experiment with the new techniques to improve their liaison with the RFC.<sup>32</sup>

More broadly, the 12<sup>th</sup> (Eastern) Division sent orders for its subordinates to comply with new doctrine, such as how 'tactical training was [to be] carried out on mock-ups of the German trenches, as recommended in *SS 135*, December 1916 edition'.<sup>33</sup> This was reflected in the subordinate diary of the 9<sup>th</sup> Essex Regiment, part of 35<sup>th</sup> Brigade, which noted that they were, 'practising the new organisation of companies by making each platoon a complete fighting unit with one section of bombers, one section of Lewis gunners, one section of rifle grenadiers and one section of riflemen'.<sup>34</sup>

Earlier, in June 1916, the division had engaged in bespoke training for communication between spotter balloons and RFC aircraft.<sup>35</sup> Although the division issued its own guidance, in doing so it had adapted the tactics in *CDS 33, Co-operation of Aeroplanes with Other Arms*, which included how to signal to aircraft and their associated spotting balloons so that the supporting artillery would know when the assaulting infantry

---

30 *SS 135* (January 1918), 17-18.

31 *SS 135* (January 1918), 51.

32 *SS 120*, 4-5; TNA, PRO, WO 95/1858.

33 TNA, PRO, WO, 95/1848, 35th Brigade War Diary, 17 February 1917 and 2 March 1917.

34 TNA, PRO, WO 95/1851, 9th Eastern Division War Diary, February 1917.

35 TNA, PRO, WO 95/1823, The 12th Division issued their instructions for signalling to aircraft in June 1916: 'Summary of signal arrangements between infantry, aeroplanes and kite balloons, wireless etc.', in appendix D to 12 Division order No. 79, 25 Jun 1916.

had reached their targets.<sup>36</sup> The assaulting infantry trained with signal lamps, flares and groundsheets to communicate with the aircraft so that they could adjust the artillery support as it was needed.<sup>37</sup> The 12<sup>th</sup> Division also adhered to the methods that *SS 109, Training of Divisions for Offensive Action*, outlined regarding assault formations, which it employed in the early summer of 1916.<sup>38</sup> The diaries refer to orders issued on 25 June 1916 which noted that ‘in the first stage of any assault from our trenches we must follow the new ideas in *SS 109* and the Fourth Army Tactical Notes.’<sup>39</sup> The notes specified that the attack would consist of eight identified waves that would stay close to the barrage and rush the enemy trenches as soon as the artillery barrage lifted. The exploitation would be made with one battalion leading with a second in close support and supported as outlined in *SS 109*, namely with two machine-gun sections, Stokes mortars, and an immediate resupply of rifle ammunition.<sup>40</sup> This level of detail and reference to new doctrine is strong evidence that 37<sup>th</sup> Brigade in particular and, potentially, the 12<sup>th</sup> Division more generally, had embraced the new doctrine wholeheartedly. Overall, the 12<sup>th</sup> Division was exemplary in its referencing of new doctrine in its war diaries.

### **32<sup>nd</sup> Infantry Division**

The 32<sup>nd</sup> Infantry Division was created within Kitchener’s New Army in December 1914. It arrived in France in November 1915 and was commanded by Major-General Cameron Shute from 19 February 1917 to 25 April 1918, replacing Major-General Reginald Barnes. Like the 8<sup>th</sup> and 51<sup>st</sup> Divisions, it took part in the Battle of the Somme in autumn 1916 and the Battle of Amiens in August 1918.

The divisional war diaries of the 32<sup>nd</sup> Division are as lacking in specific references to doctrine as the 8<sup>th</sup> Infantry Division’s, but like the 8<sup>th</sup> Division, contain many references to training. The 32<sup>nd</sup> Division’s GOC, Major-General Shute, originally placed a greater emphasis on holding ground than on inflicting attrition on the

---

<sup>36</sup> *CDS 33*, 7-12.

<sup>37</sup> TNA, PRO, WO 95/1858.

<sup>38</sup> *SS 109*.

<sup>39</sup> TNA, PRO, WO 95/1846 35th Brigade Order No. 2, 25 June 1916; *SS 109*.

<sup>40</sup> *SS 109*, 16-18.

enemy.<sup>41</sup> It seems that he was a firm believer in the principles of defence-in-depth, and did not adapt to the more elastic approach that was described in *SS 210, The Division in Defence*.<sup>42</sup> However, in December 1917, he updated his approach to defence and defensive training. The war diaries for this period discussed a new approach to defence from the GOC<sup>43</sup> and, as their date is close to the release of *SS 621, Manual of Position Warfare for all Arms*, which was based on a translation of a captured German doctrine, it is possible that the new doctrine informed his updated approach.<sup>44</sup>

On the one hand, Shute appeared to endorse a new doctrine, stating, for example, that *SS 621, The Manual of Position Warfare for all Arms*, 'should be carefully and thoroughly studied by all officers'.<sup>45</sup> On the other hand, however, his interpretation of defensive doctrine was at least a year out of date. This can be seen in the divisional diary of April 1918, where the defensive scheme of manoeuvre suggests that Shute was reluctant to adapt to the updated doctrine in *SS 710, New Defensive Tactics*, which called for far greater elasticity in defence. Instead, in April 1918 Shute seemed set upon a defensive scheme that was based upon the doctrine in *SS 471, Principles for the Defence of Positions*, published in August 1915.<sup>46</sup> The three instructions below, taken from the divisional war diary from April 1918, show a rigid approach to defence which lacks the flexibility that *SS 210, The Division in Defence*, had introduced across the Western Front in May 1918.<sup>47</sup>

- The 32<sup>nd</sup> Division will fight where it now stands.
- All lines of defence will be held to the last whether their flanks are turned or not. If troops holding any line of defence are driven in, they are to contest every inch of ground and regain any ground lost as soon as possible.

---

41 TNA, PRO, WO 95/2398, 32nd Division Headquarters War Diary, Report on Operations, 6. August 1918.

42 *SS 210*.

43 TNA, PRO, WO 95/2398, 12th Division War Diary, 23 January 1918.

44 GHQ, *SS 621, Manual of Position Warfare for all Arms* (HMSO: August 1917).

45 TNA, PRO, WO 95/2371, *Defensive Training*.

46 *SS 710* and see *SS 471*.

47 *SS 210* articulated the elastic defence with far greater depth and opportunity to make the enemy assault stall and available to counterattack.

- The defence will be active, raids and minor operations will be undertaken to prevent the enemy from organising strong positions or withdrawing troops to fight elsewhere.<sup>48</sup>

These instructions corroborate the idea that Major-General Shute was aware of the evolving doctrine but, perhaps because he was a believer in tried and tested methods, was reluctant to change to a new approach that he had not personally witnessed. Whilst, ultimately, it is impossible to know his reasons for not adopting the new doctrine, his non-adoption provides an example of doctrine being distributed but ignored at the divisional level. Overall, the example of the 32<sup>nd</sup> Division shows that although doctrine was employed and trained with, some GOsC used their discretion on its implementation, preferring at times to favour older doctrine and delay the use of new instructions.

### **51<sup>st</sup> (Highland) Division**

The 51<sup>st</sup> (Highland) Division was a Territorial infantry division raised in 1908 on the creation of the Territorial Force. It was involved in the Battle of the Somme in 1916, Arras and Cambrai in 1917, and in both the German Spring Offensive and Hundred Days offensive of 1918. The 51<sup>st</sup> had a tumultuous war and was referred to by the commander of First Army, General Sir Douglas Haig, in late 1916, as '*practically untrained and very green in all field duties*'.<sup>49</sup> Over time, however, the Division developed and became an efficient and reliable unit that took its fair share of offensive action and acquitted itself well.<sup>50</sup>

The war diaries of the 51<sup>st</sup> Division are thorough and of consistent quality throughout the First World War. However, like those of the 8<sup>th</sup> and 32<sup>nd</sup> Divisions, they are almost devoid of any mention of doctrine. Whilst similar in this respect, they differ from them in terms of their delineation into G, Q and A branch files, their extensive depth and size, and the fact that training features constantly.<sup>51</sup>

---

48 TNA, PRO, WO 95/2371, 32nd Division GS, *32nd Division Defence Scheme, Right Sector VI Corps Front*, April 1918, 4.

49 Robbins, *British Generalship on the Western Front*, 63.

50 Eric Linklater, *The Highland Division*, (London: HMSO, 1942), 7, and see TNA, PRO, WO 95/2846.

51 TNA, PRO, WO 95/2848, 51st Division, A and Q War Diary, January 1916.

More specifically, the diaries state that prior to deploying to France, the division was training according to the endorsed syllabus of the day, namely *FSR part I* and *Infantry Training (4-Company Organization) 1914*.<sup>52</sup> Furthermore, after deployment, training continued to be used to improve performance, being referred to in early 1918 as a means to induct new battalions into the division's ways of warfare.<sup>53</sup> And, in the spring of 1918 a rare reference to *SS 143, Instructions for the Training of Platoons for Offensive Action*, was made about the training of brigades being in line with both the new doctrine and the experiences of the recent fighting contained in *SS 172, Preliminary Notes on Recent Operations*.<sup>54</sup>

The extensive nature of the Highland Division diaries makes the lack of doctrinal reference, especially in comparison to the continual references to training, striking. However, this thesis argues that, once again, the doctrine has not been omitted for a particular reason, but rather because it was not part of the everyday soldering, whereas training was probably a daily discussion topic, affecting far more of the BEF directly.

## Conclusion

As demonstrated, there is some evidence of the BEF's changing doctrine in the war diaries of divisions and brigades. The new doctrine is seen to influence the operation orders of the formations, specifically in the brigades of the 12<sup>th</sup> Division, and to a lesser degree in the other three representative infantry divisions.

The four divisions were raised and led differently, but they all experienced a similar war of sacrifice and hardship, and all four developed their fighting capabilities as the war progressed. That doctrine was rarely mentioned in the diaries of the 8<sup>th</sup>, 32<sup>nd</sup> and 51<sup>st</sup> Divisions is perhaps not surprising. It may not have been a popular topic with writers or may simply not have been the reason for tactical success, and thus not considered worthy of comment. Perhaps the doctrinal discussions were left for GHQ and the members of the Training Directorate.

---

52 TNA, PRO, WO 95/2844, *51st Division report to 1st Army*, November 1914, using General Staff, *Infantry Training (4 – Company) 1914*.

53 TNA, PRO, WO 95/2863, *Memorandum from Major FW Bewsher*, 12 January 1918.

54 TNA, PRO, WO 95/2846, and see GHQ, *SS 172, Preliminary Notes on Recent Operations*, (HMSO: July 1917).

This does not, however, preclude doctrine from having played a role in the tactical improvements reflected in the references to better and more frequent training across all four divisions. It is acknowledged that the links between training with the new doctrine, and performance in battle, are tenuous, but this thesis argues that the overall BEF performance improved at the same time as the new doctrine was released. Consequently, the two may be related. And while the discussion above is insufficient to provide statistically verifiable data – and doing so is beyond the scope of this thesis – some broad alignment of the preliminary evidence has been shown. It is therefore argued that new doctrine did reach the divisions, was trained with, and was seemingly implemented, even if it was done so later than intended, and that there were numerous exceptions. Unfortunately, any search for objective data regarding the doctrinal influence will be stymied by the subjective nature of reporting, and the means of data capture.

However, the doctrine was seen, within the boundaries of this narrow investigation, to translate into military practice, i.e. low-level tactics, and to improve the fighting performance of the BEF. As such, it continued to support the conceptual component of fighting power and the wider transformation of the BEF by facilitating moral and physical component change simultaneously. The role of doctrinal change must not be exaggerated but, again, there seems an evidential base that doctrinal change, through a process of learning, was a strong contributor to overall BEF transformation.



## Chapter 9 – Conclusion

The First World War presented the British and German forces, and their allies, with a technical, leadership, and tactical challenge that none of them had foreseen. The mechanisation of warfare created the most lethal battlefields ever experienced, which resulted in the recruiting, training, and fighting of the largest armies ever seen at the time.<sup>1</sup> All nations involved mobilised their economic power to sustain them, yet the belligerents fought themselves to a standstill for the first two years as the inherent advantage the defenders took from their trench systems meant that neither side could make any gains of note.<sup>2</sup>

Consequently, a new doctrinal approach was needed to enable forces to cross the heavily defended no man's land and, more importantly, to consolidate and then exploit for further success. Both sets of belligerents changed their tactics, their technology and, to a degree, their leadership. And both sides suffered from a learning malaise due to the piecemeal destruction of their armies, which meant they had to decide how to train their volunteer armies who lacked the experience of prior service.<sup>3</sup>

These tactical and doctrinal challenges required a form of manoeuvre that would strip away the defenders' advantage. The initial approach utilised a frontal assault by the infantry which, although costly in lives, was seen as the way to eventually penetrate the enemy lines and allow a breakthrough into the rear area.<sup>4</sup> However, two years of trying to break through proved the tactic did not work.<sup>5</sup> The second approach employed more pragmatic and smaller operations whereby pieces of the enemy trench were bitten off and then held at all costs, on the basis that these small areas could then be joined together. Known as bite and

---

1 The British Armed Forces employed over 8 million troops in the First World War, 5.4 million of whom served on the Western Front at some stage. Overall, 0.95 million soldiers, sailors and airmen were killed in the First World War. See, Major-General Sir William Grant Macpherson, *British Official History, Medical History, Casualties and Medical Statistics*, (HMSO: 1922).

2 Defenders' advantage based upon greater protection from direct and indirect fire and the ability to be sustained from existing supply chains, see Bidwell and Graham, *Firepower*, 47.

3 See Cherry, *Most Unfavourable Ground*, 309-321, for examples of the impact casualties had on the BEF.

4 The infantry frontal assault was a relic of the 19th century, referred to as the Cult of the Offensive. It was easy to instigate for a volunteer, inexperienced army, required little training and 'proved' the moral superiority of one's troops.

5 While tactics developed in the first half of the war, the Somme campaign proved that a new approach was needed, that was applicable for an army of mixed ability, see Sheffield, *The Chief*, 100-104, 118-120.

hold, this too was shown to be costly as the defenders' logistical advantage still prevented significant gains or consolidation.

At first, an informal approach to change was taken consisting of commanders' new ideas, ad hoc training schools, and various disparate tactical approaches aimed at maintaining momentum; lessons were shared locally and horizontally, predicated on survival.<sup>6</sup> But after the prolonged suffering on the Somme in 1916, and the cost of the Third Ypres campaign in 1917, the motivation and momentum appeared to facilitate a more fundamental change and move to more formal methods of learning.<sup>7</sup>

Thus, at a conference of army commanders at Rollencourt on 27 January 1917, Field Marshal Haig instigated the Training Directorate, initially commanded by Brigadier-General Arthur Solly Flood, and later augmented by Lieutenant-General Sir Ivor Maxse as the Inspector of Training. This formalisation set the conditions for an improved process of learning that, in due course, produced both better doctrine and a better training system.

In winter 1917, Haig gave directions for the writing of a new capstone doctrine called *SS 198, Tactical Instructions for the Offensive of 1918*. It was never published but, in many respects, represented a high point in the doctrinal evolution of the BEF. Haig's notes to the doctrine writers explained his vision for 1918 warfare and offered a glimpse into his strategic thoughts.<sup>8</sup> And despite *SS 198* not being published, by early 1918 the BEF had nonetheless evolved its doctrinal approach with the publication of training, intelligence and special to arms pamphlets, making it better equipped to fight and overcome the German Army and its allies.<sup>9</sup>

In summary, this thesis has presented three major findings.

---

6 See Foley, "A Case Study in Horizontal Military Innovation," 799-827.

7 The Somme and Third Ypres were two iconic campaigns amongst others that captured the imagination in the UK and importantly pushed the government for change, leading perhaps to the pressure upon Haig in autumn 1917 that would eventually see the BEF subservient to the French in the spring of 1918. It was the period when the BEF had to take over the French front line in November 1917, see Sheffield and Bourne (eds), *Douglas Haig: War Diaries and Letters*, 331.

8 As found in the BoL, Gorell Papers, box 8, a manuscript note of General Douglas Haig explaining his thoughts for *SS 198*, see chapter 6 for further details.

9 Such as training in *SS 143, Instructions for the training of platoons for offensive action*, Intelligence in *CDS 53, Notes from the Front, Part IV* (HMSO: May 1915) and special to arm, such as *SS 139/4, Artillery Notes No. 4, Artillery in Offensive Operations for the Royal Artillery*.

- First, Field Marshal Sir Douglas Haig's order to initiate the Training Directorate at the army commanders' conference at Rollencourt, on 27 January 1917, was in many ways a turning point in the war as it marked the decline of informal learning and the ascendancy of formal learning which enabled the transformation process.<sup>10</sup>
- Second, that Brigadier-General Solly-Flood, as the Director of Training, had a profound impact on the largest Army that Britain had ever fielded, and that his efforts to cohere and produce a sound doctrinal footing for the BEF was a small but key part of its transformation.
- Third, that if *SS 198, Tactical Instructions for the Offensive of 1918*, had been published it could have marked the formal initiation of combined arms warfare; a tactical approach which may have been superior to that of any other army on the Western Front, and would have represented a high point of doctrinal output for the BEF. Based on the direction Haig gave in his notes to Captain Edward Grigg in the autumn of 1917, it seems clear that he knew what he expected to succeed in 1918.<sup>11</sup>

Taken together, these three findings suggest that the doctrinal change at the heart of the process of learning produced a solid, but small, foundation from which new technology and leadership could produce a more credible BEF.<sup>12</sup>

## Learning

At the outset, this thesis suggested that the BEF transformed as it changed its physical, conceptual, and moral components of fighting power. And, using the definitions that had been presented in chapter 2, a hierarchy of transformation was described on the basis that all three of the components of fighting power must change to achieve true transformation. Furthermore, individual change to any one of the components was given its

---

<sup>10</sup> TNA, PRO, WO 256/15, Army Commanders' Conference Rollencourt, 27 January 1917.

<sup>11</sup> BoL, Gorell papers, box 8. Notes by Sir Douglas Haig as to "Tactics in the attack," Part I, General Principles of German Defence and deductions are drawn from as to modifications required in our methods of attack. As highlighted to me by Jim Beach.

<sup>12</sup> Boff, *Winning and Losing on the Western Front*, 286.

specific term. Accordingly, change in the physical component was ascribed to modernisation and was synonymous with new vehicles, weapon systems and training. Whereas change in the conceptual component was regarded as an adaptation as militaries amended their overarching doctrinal approach. And change to the moral component was viewed as requiring an ethical or cultural shift.

The relative timing of the change was also discussed. Changes in the BEF may have occurred comparatively quickly, in which case they may be viewed as a revolution in approach, or more slowly and methodically, and thus more akin to an evolution. Additionally, when strong motivation exists, such as an existential threat, then an innovative approach may be employed where greater risks may be taken with resources while a quick, but expensive, solution to what was usually deemed a complex problem was sought.

However, the fulcrum around which the process of learning worked was doctrine, the definition of which is key to this thesis. It takes the contemporary British Army view that doctrine is 'the art of organising an army, the techniques for using weapons or military units in combination for engaging and defeating an enemy in battle'.<sup>13</sup> In doing so, it suggests doctrine is far more than, 'what is taught'. It was also highlighted that tactics are one of the constituent parts of a doctrine that also explains to a military force its structure, equipment, and training. Hence, tactics and doctrine must not be confused on the basis that tactics are just one facet of doctrine.

In recent years, researchers such as Jonathan Boff, Aimee Fox, Stuart Mitchell and Jim Beach have studied learning, innovation, adaptation, and transformation, but they have done so without an overarching and agreed taxonomy.<sup>14</sup> As such, words have sometimes been conflated, used imprecisely, or used in contradicting ways which have led to a lack of concurrence and the potential for confusion. To address this, and clarify terminology, definitions of pertinent terms were presented in the discussion of learning in chapter 2.

---

<sup>13</sup> ADP, *Land Ops*, ch 2.

<sup>14</sup> Boff in "British Third Army," Fox in "Beyond the Western Front," Mitchell in "An Inter-Disciplinary Study of Learning," and Beach in "Issued by the General Staff."

The role of culture is important and part of the moral component of fighting power. Palazzo and Catignani agree that it influenced the BEF and shaped its ethos, but the culture of the BEF changed as the soldiers and officers changed. The BEF had an institutional memory, but it was still able to change its bureaucracy to allow for a more flexible approach in the second half of the First World War when institutions such as the Training Directorate were established successfully.

To understand how the BEF changed, the relationship between training, education and learning is key. This thesis takes the view that training focused on the group and education on the individual, which is why learning is seen as key when trying to change an organisation as large as the BEF. In this thesis, training is 'the acquisition of knowledge or skills through experience, practice, study, or by being taught'.<sup>15</sup>

A key change in the BEF approach to doctrine came in late 1916 and early 1917 when the dominant informal learning approach became subservient to the formal approach. It signalled the creation of the Training Directorate and its staff machinery to write and cohere doctrine, as well as the overall motivation to substantiate the change. The more formal approach was seen to start with the capturing of lessons, known as a lessons learnt process. Chapter 2 considered the direction in which lessons moved from the point of discovery and showed that they could move from the bottom of the BEF upwards towards GHQ, or from senior officer ideas at the top of the BEF and move down. The thesis also confirmed that many lessons were shared horizontally in circumstances that initiated quick and local learning.<sup>16</sup>

The model used within this thesis is that of fighting power. It suggests that a military entity may express its outputs, sometimes referred to as combat power, through three constituent components; the moral, conceptual, and physical. The doctrinal change acts as the intellectual basis of fighting power and is key to the conceptual component. The moral component represents the ethics and willingness to fight, while the physical component represents the machines, weapons, and systems with which the BEF fought. All three

---

<sup>15</sup> Fiol and Lyles, "Organizational Learning", 803.

<sup>16</sup> Foley, "A Case Study in Horizontal Military Innovation," 799-827.

components interact with training, which itself influences all three, in many ways acting as the engine for change. As such, BEF's transformation required a change in all three components, anything less being described specifically as modernisation for equipment change within the physical component, and adaptation for conceptual change, leaving moral change synonymous with a change in culture and ethos.

The doctrinal change in the BEF has been studied before but rarely has it been placed at the centre of a process of learning. During the First World War, the BEF produced more than 330 Stationery Service pamphlets.<sup>17</sup> Viewed in isolation, they might be seen as a feeble attempt to resolve some of the tactical issues of the day. However, when seen within an overarching institutional process of learning, they represent the codified ideas of soldiers, junior leaders, and generals to out-fight the adversary.

The SS pamphlets outlined training plans for platoons, companies, divisions, and armies. They outlined the organisation and equipment of each formation, and they cohered the tactical approach to fighting on the Western Front, driving integration and cooperation to new heights, instigating a combined arms warfare approach. As such, the SS series outlined the overall change in the BEF clearly and completely. Therefore, this thesis uses them to track the change in the BEF and how doctrine acted as a foundation for overall transformation.

## **Boer War to First World War**

Chapter 3 established the fact that the genesis for the doctrinal revolution in the First World War was the poor performance in the Boer War. It looked at how the very public debacle of 'Black Week' initiated a process of in-theatre learning that ultimately led to tactical reappraisal.<sup>18</sup> The new doctrine emphasised

---

<sup>17</sup> Ranging from basic administration to intelligence reports, training manuals, equipment updates and overarching doctrinal direction.

<sup>18</sup> In one week, known as Black Week, from 10-17 December 1899, the British Army suffered three significant defeats by the Boer at the battles of Stormberg, Magersfontein and Colenso, with approximately 2,500 men killed, wounded and captured, see Dennis Judd and Keith Surridge, *The Boer War* (New York: Palgrave MacMillan, 2003), 12.

individuality rather than linear formations and rigid control, which allowed success in the opening weeks of the First World War when mobility was still prevalent.<sup>19</sup>

Without the changes that took place in the years after the Boer War, it seems unlikely that the BEF would have deployed in time or good order or have survived the first three months of the First World War.<sup>20</sup> Indeed, the post-Boer War reforms set the conditions for the BEF to fight comprehensively in 1914, retreating from Mons and defending ground that it would retain for another four years. The Boer War lessons were thus fundamental to the development of the British Army, its equipment and purpose, and acted as an agent for change driven by the work of the three formal commissions known by their chairmen, namely Elgin, Esher, and Norfolk.<sup>21</sup>

Together, the Commissions highlighted four primary issues. Firstly, that the intellectually naive Army needed to reconsider its doctrine;<sup>22</sup> *FSR 1909 I and II* were published just four years later. Secondly, that to exploit technological developments a new approach was required. More specifically, that the use of smokeless powder and longer-range weapons, and the decline of the lance and sword, meant that instead of fixed formations, infantry should be encouraged to skirmish, and command should be devolved to lower levels.<sup>23</sup> Thirdly, that training had to be genuinely demanding rather than a mere re-enactment of the previous year's events. And, fourthly, that a General Staff should be created, trained and able to form established headquarters when formations deployed.<sup>24</sup>

The Commissions' findings would, however, have been ineffectual if it were not for Richard Haldane, the Secretary of State for War, who succeeded where his predecessors had failed in managing to successfully transform the Army on a reduced budget. He kept the ear of King George V as well as fellow parliamentarians,

---

19 Stone and Schmidl. *The Boer War and Military Reform*, 107.

20 Strachan, "The British Army, its General Staff and the Continental Commitment," 75-94.

21 Jones states in, *From Boer War to World War*, 23-29.

22 The Royal Commission, *Report on the War*, 49 and see Bowman and Connelly, *The Edwardian Army*, 24.

23 Mead, "Notes on Musketry Training of Troops," 235.

24 Nicholson, "Introduction," 4.

and fought off the threat from the Royal Navy which sought increased maritime spending.<sup>25</sup> Arguably his most significant achievement though was the formation of a new structure for the Army that brought together the Militias, Volunteers and Territorials.<sup>26</sup> This reorganisation allowed him to establish a standby force for continental campaigns, to be known as the BEF, laying the foundations of the force that would sail in August 1914.<sup>27</sup>

Reflecting on Haldane's achievements, Lord Anglesey stated, 'All these aims were accomplished to a remarkable degree just in time for the First World War.'<sup>28</sup> Without the pre-war changes, the BEF might not have had the foundations for transformation.

## Lessons

As discussed in chapter 4, although informal processes had improved the BEF's tactical approach by 1916, it stumbled into the Somme campaign with a newly expanded army and without the necessary training or structure. The publication of *SS 143, Instructions for the training of platoons for offensive action*, in February 1917, provided a new platoon structure that changed its structure to four sections, equipping each with a selection of Lewis light machine guns, mortars, hand grenades and rifle grenades to help the infantry close the last few metres to the enemy trenches.<sup>29</sup> By late 1918, doctrinal changes to the infantry had reduced each battalion from 1,000 to 500 men. Nevertheless, the battalions maintained their weight of fire with their integral artillery, mortars, Lewis guns, and rifle grenades, and were more mobile and easier to command.<sup>30</sup> These changes reflected the formal learning of the BEF and how it had addressed the issue of crossing no man's land.

---

25 Edward Spires, "The Late Victorian Army 1868-1914, ch 9," in *The Oxford Illustrated History of the British Army*, ed. David Chandler and Ian Beckett (Oxford: Oxford University Press, 1994), 210.

26 Bowman and Connelly, *The Edwardian Army*, 3.

27 *Ibid.*, 3-4.

28 Anglesey, *A History of the British Cavalry*, 377.

29 TNA, WO 95/3728, *1st Canadian Division Instructions for the Offensive – Hill 70*, July 1917, Lessons to be Learned, section 18, 65.

30 Prior and Wilson, *Command on the Western Front*, 311.



The learning of formal lessons began with an individual suggesting to their chain of command an idea or approach that they believed would benefit the unit. If tested in combat, it might then appear in either a war diary or a post-operational report which was sent to the formation's headquarters.<sup>31</sup> Here, various General Staff would sift through the ideas and, if a common theme emerged, it was developed and sent higher. As such, the selection was biased towards ideas that were the subject of multiple suggestions from different units.

Up until the establishment of the Training Directorate in spring 1917, these nascent lessons could flounder at corps headquarters as there were not enough staff to distil them, nor a coherent demand signal to shape them into a new doctrinal response to tactical problems. However, once the Training Directorate was in place, these ideas could be sought out and cohered into lessons, enabling a new doctrinal base to be built around them. This, in turn, provided momentum to the formal process and initiated the doctrinal revolution that was the centre of the BEF process of learning.

## **Doctrine**

In chapter 5, this thesis focused on the doctrinal revolution that emerged in the BEF after the Somme and how it allowed other factors, such as leadership and technology, to flourish, potentially masking its central role; furthermore, demonstrating that doctrine was part of the foundation of transformation. Before February 1917, the creation of doctrine had been just another task for the operations staff within GHQ, but with the instigation of the Training Directorate the BEF was able to transform overall, with doctrine at the heart of the process of learning, facilitating further change across the components of fighting power.<sup>32</sup>

Although *FSR 1909* remained the doctrinal foundation of the BEF throughout the war, four new doctrinal documents stood out and signposted its learning and transformational progress. Firstly, *SS 152, How to Train an Army*, set the highest levels at that stage in the War for coordination of training, syllabus, and resource.<sup>33</sup>

---

<sup>31</sup> TNA, WO 95/2368, AG 142/167, 3 July 1916.

<sup>32</sup> Beach, "Issued by the General Staff."

<sup>33</sup> *SS 152*.

In doing so, it enabled the BEF to fight as a single army, sharing a common tactical approach, and consequently with far easier integration.

Secondly, *SS 143, Instructions for The Training of Platoons for Offensive Action* delivered the new platoon formation and gave the infantry its integral firepower to help cross no man's land, addressing the most pressing of tactical problems.<sup>34</sup> Thirdly, *SS 135, How to Train a Division*, covered the final element of the training syllabus setting the conditions for the broad transformation of the BEF.<sup>35</sup> More specifically, it laid down training and tactical approaches for a division to assault enemy positions and exploit in depth. And it brought manoeuvre back into the minds of the commanders, making it perfect for the Hundred Days campaign. The fourth pamphlet was *SS 198*.

## **SS 198**

*SS 198, Tactical Instructions for the Offensive of 1918*, was analysed in depth in chapter 6.<sup>36</sup> Building on the work of Jim Beach, this thesis argued that its level of detail was quite profound and that it was a bold articulation of a new way of warfare, beyond breakthrough and bite and hold, and more akin to Foch's *bataille générale*.<sup>37</sup> Crucially, *SS 198* described the German's new defensive system in detail, not only explaining its laydown but also how it intended to fight.<sup>38</sup> And, in doing so, it provided the context and rationale for the change that the remainder of the pamphlet contained.

Overall, the tactical approach it put forward demanded far higher cooperation in planning battles and even greater integration of each arm and service. Additionally, it articulated an approach for the artillery commander and infantry general that had not been as explicit in any of the previous doctrine.<sup>39</sup> In *SS 198*,

---

<sup>34</sup> *SS 143* (June 1917).

<sup>35</sup> *SS 135* (August 1917 and January 1918)

<sup>36</sup> *SS 198*.

<sup>37</sup> For an understanding of Foch's *bataille générale*, see Philpott, "Marshal Foch and Allied Victory," 38-53.

<sup>38</sup> As outlined in ch 6.

<sup>39</sup> Such as *SS 139/4* which had previously led the way in artillery integration.

the artillery plan was owned by the artillery but at the behest of the infantry, making it more an interpretation of infantry wishes than what the artillery thought would be best.<sup>40</sup>

SS 198 also used the RFC in a new way, directing its focus towards providing intelligence on the enemy; specifically, early warning of counter-attacks.<sup>41</sup> Its methods of wireless communications to headquarters and of dropping coloured flares in support of the infantry were all good examples of the coordination that SS 198 required.

That it was not published should not be seen as an indictment of the quality of the work. Indeed, as discussed in chapter 6, while there were many reasons for the lack of publication, the pencil mark amendment to the original copy stating that 'what was wanted for the spring of 1918 was a book on defence' seems reason enough; especially as, at the time, a defensive posture for the German Spring Offensive was a pragmatic approach. And although SS 198 was not published, the arrival of the fourth edition of SS 135, *The Division in the Attack*, published as the War ended, contained much of its work thus ensuring its contents were not lost.<sup>42</sup>

Ultimately, SS 198 was probably intended to be the capstone doctrine of the day, cementing the value of SS 135, SS 152, and SS 143, and building on the doctrinal foundation of *FSR 1909 I and II*.<sup>43</sup> As such, it may have represented the capstone of doctrinal achievement in the First World War, containing an articulation of Marshal Foch's and General Haig's desired style of warfare for 1918. Consequently, its themes and ideas may well have contributed to how the BEF fought in the Hundred Days Campaign, in what Jonathan Boff described as a 'campaign of rolling attrition ... a style of warfare halfway between the war of position of 1915-1917 and 1939-1941's blitzkrieg'.<sup>44</sup>

---

40 The CRA of each Infantry Division was directed to work with the GOC, understand the assault plan, devise artillery support, brief the Infantry, rehearse the plan, and then amend as necessary. As outlined in SS 198, ch III, *The Artillery Plan*, 47.

41 SS 198, 54-56.

42 SS 135 (November 1918).

43 SS 135 (August 1917), SS 152, and SS 143 (June 1917).

44 Boff, "British Third Army," 290.

## Training

As outlined in chapter 7, until the formation of the Training Directorate in January 1917, and the coherence it provided, the BEF struggled to bring its lessons and doctrine into a formal training process. The second half of the First World War, however, saw training evolve with a coherent schools' system, a new syllabus laid down in doctrine, and specific training tools that had gained favour. These included the use of models, war games, and officer discussion periods, all of which reflected a more formal approach, and a final move away from the anti-intellectual stance of the late 19<sup>th</sup> century.<sup>45</sup>

Field Marshal Haig's instruction to formalise training via the establishment of both the Training Directorate, later known as the Training Branch, and in July 1918, the Inspectorate of Training, gave meaning and direction to BEF training. Without these structural changes and associated senior officers, it seems unlikely that the BEF would have made the most of gathering lessons, codifying them and, importantly, transferring them into the training syllabus. In particular, Lieutenant-General Sir Ivor Maxse, Brigadier-General Solly-Flood and their teams were pivotal in designing a new way of warfare for the BEF on the Western Front as they enabled the training to achieve the degree of change required for the BEF to out-think the German Army.<sup>46</sup>

Additionally, the system of schools across the rear areas of the Western Front worked in a hierarchy from army school, via corps, into divisional schools. While there was a constant rebalancing of the schools' system, it adroitly trained the trainers so that they could pass on new doctrinal ideas and practise their tactics, allowing the BEF to learn new tactical skills quickly, based on its new doctrine.

---

<sup>45</sup> See Travers, *The Killing Ground*, 37-41; and Murray, *Military Adaptation in War*, 83.

<sup>46</sup> It is hard to quantify the relative doctrine of each side in the war and this is not a comparative analysis, but it is assumed the BEF had better doctrine as it was able to drive deep into German territory and exploit in a way the German Army had failed to achieve after its spring offensive of 1918.

## **Doctrine for a new warfare**

By considering four representative infantry divisions, namely the 8<sup>th</sup>, 12<sup>th</sup>, 32<sup>nd</sup> and 51<sup>st</sup>, in chapter 8, it was possible to see indications of doctrinal change in the war diaries. And although doctrine was not often mentioned in them, it was proposed that this should not be taken as evidence against it playing a causal role in the improvements and changes in training. Rather, this thesis argues that the writers of the day were more interested in tactical battles and casualties, than in higher-level matters of doctrine which were generally seen as synonymous with higher headquarters. Furthermore, it was suggested that the regular appearance of training in the diaries was a demonstration of it being a part of the process of learning that the fighting troops recognised because they interacted with it regularly.

More specifically, while the 12<sup>th</sup> Division's tendency to mention doctrine was not indicative of the majority, it was, nonetheless, evident that the other divisions' tactical actions changed to reflect the new doctrine; an outcome that would have been expected because of the training they had undertaken. The divisions appeared to view training, rather than doctrine, as the driver for change, seeming not to realise that it was derived from the new doctrine.

Finally, while the use of empirical data from casualties provided some objective data, its veracity was questionable and it was not possible to determine the extent of the positive correlation it demonstrated between doctrinal progression and reductions in deaths, but this is yet another potential theme that requires further study.<sup>47</sup>

## **Further research**

This thesis has identified gaps in the historiography of learning during the First World War and contends that the Stationery Service pamphlets and their ilk provide not only a strong narrative to explain the doctrinal

---

<sup>47</sup> To be statistically viable a far larger study across many more divisions at differing stages of the war would be required, which is beyond this thesis.

change in the BEF, but also a foothold to understanding its overall transformation. While this thesis has added to the literature by conducting a thorough analysis of some of the under-developed doctrinal elements, it is important to recognise that further analysis is required to gain a better understanding of the ramifications of the doctrinal change that was discussed. It is the contention of this thesis that if these investigations were undertaken, greater importance would be placed upon the doctrinal developments in the second half of the First World War.

In particular, further research could be focused upon the genesis of *SS 198* and the pamphlets it was meant to complement at the end of 1917, namely *SS 135*, *SS 143*, and *SS 152*. By considering how and why *SS 198* evolved, it would give both a better understanding of the doctrinal direction of travel that Field Marshal Haig was set upon and build upon the work of Jim Beach who has taken a leading role in understanding what these documents may mean for the wider BEF transformation literature.

The discussion in chapter 8 about the impact of new doctrine could also be developed; while the investigation into the divisions gave a view on doctrinal acceptance, it would be useful to expand the analysis by looking at three unique areas. Firstly, analysis could establish how new doctrine was employed in younger parts of the BEF; namely, the Tank Corps and Royal Flying Corps. Both of these arrived in the British Army with minimal doctrine, during a war of national survival, and doctrine was generated for them.<sup>48</sup> Considering these parts of the army, which had neither legacy nor historical doctrinal dogma, might demonstrate how doctrine affected fighting performance when there was far less proclivity to resist change.

Secondly, it is broadly accepted that the American Expeditionary Forces (AEF) was inclined to use its antiquated doctrine on arrival in France in 1917, and did not take to the BEF's new ideas.<sup>49</sup> On the basis that the AEF did not excel in its first forays into battle, examining it could also lend evidence to the benefit of the BEF's up to date doctrine and its effect on fighting performance.

---

<sup>48</sup> The Tank Corps was formed in 1916, the RFC became the RAF on 1 April 1918; neither had any significant doctrine before the War.

<sup>49</sup> Andrew West, "Preferring to Learn from Experience: The American Expeditionary Force in 1917," in *1917 Tactics Training and Technology, The Chief of Army Military History Conference, 2007*, ed. Peter Dennis and Jeffrey Grey (Canberra: Australian History Military Publications, 2007), 137-139.

Finally, a deeper investigation into the informal process of learning outlined in the various pamphlets not produced by GHQ could also add value. Looking more deeply at the impact of Lieutenant-General Sir Ivor Maxse's *Brown Book*, or Lieutenant-General Sir Robert Baden-Powell's *Quick Training for War*, might facilitate a better understanding of their relationship with the formal doctrine and how the BEF balanced what was endorsed from GHQ and what was popular from senior officers.<sup>50</sup>

Future research, such as that outlined above, would both add to the literature and build links between the findings of this thesis and the current academic research. Specifically, it could create a link between doctrine and Aimee Fox's developments on intra-theatre learning, and deepen the links with the work of Jim Beach, looking at the consequences of Grigg, Gorell and Headlam's work in GHQ in 1917 and 1918, and the Field Marshal Haig memo in autumn 1917. Lastly, links could also be built with Jonathan Boff's research into the genesis of the operational level of war and operational art at the end of the First World War, which Boff believes was first evidenced in Marshal Foch and Field Marshal Haig's conceptual thoughts.

### **Victory born from learning**

The Battle of the Somme in summer and autumn 1916 provided enough motivation for the BEF to instigate a formal process of learning in early 1917. The Training Directorate and Inspectorate accelerated the migration from informal to more formal institutional learning. At the same time, technology changed the direction of the war as both sides out-thought each other with new weapons more horrific than before. However, although the advent of gas, the tank, and the fighter aeroplane raised the lethality bar further still, they failed to provide a significant advantage to either side in the absence of doctrine that could be employed to cross no man's land and exploit.

---

<sup>50</sup> Lieutenant-General Ivor Maxse's, *Notes on Training Infantry Companies in Open Warfare*, (April 1917), known as his 'Brown Book' and see Baden-Powell, *Quick Training for War*.

The BEF consequently sought an advantage and found it with Field Marshal Haig's direction, in the form of warfare that combined the strengths of each part of the BEF and integrated them skilfully. The new tactical approach was first cohered in *SS 198*, but not published. Many of its ideas were absorbed into *SS 135* in November 1918 and some of the insight was published in parts within the wider doctrine of late 1917 and early 1918. This doctrinal change, which acted as the fulcrum, allowed a wider transformation throughout the BEF as all three components of fighting power changed. The conceptual component was changed through the new doctrine itself, with the physical component being changed through new equipment and technology. The moral component shifted slightly through an adapted ethos due to the new soldiers in the new armies and a break from the cult of the offensive and an overly attritional tactical approach.

As such, the combined arms warfare approach amounted to a revolutionary change, at pace, that facilitated the transformation of the BEF, which was, crucially, underpinned in no small part by doctrine.

While the German Army had certainly declined by the summer of 1918, the BEF and its allies delivered a more lethal form of warfare than the adversary's defence could cope with. As demonstrated throughout this thesis, the BEF's ability to do this was based on how it had reformed itself by learning its lessons from experience, capturing them, distilling them, and then codifying them in doctrine so that the new ideas could be taught in the schools' system.

Ultimately, this 'formal process of learning' proved to be an important part of the foundation of BEF transformation, allowing improvements in leadership and new technology to deliver their full benefits. This thesis has argued that the development of sound doctrinal principles, enacted by coherent training, was a vital, if often overlooked, component in the improvement of the BEF performance in the First World War. And it has demonstrated that a deep examination of the role of doctrine provides not only an insightful look into the strategic thinking of the BEF, specifically GHQ, but also evidence of the fact that previously denigrated leaders were thinking their way to victory and putting doctrine at the heart of a process of learning to transform the BEF.



## Bibliography

### Primary Sources

#### The National Archives (TNA), Kew

- CAB 45/134 Lieutenant-General Sir Francis Nosworthy to Brigadier-General Sir James Edmonds, 29 July 1935.
- WO 27/504 Memorandum on Military Training 1905, 31 January 1905.
- WO 33/723 Notes on Close Shooting by Guns and Howitzers, Registration of Targets and Calibration, August 1915.
- WO 95/26 GHQ, AG War Diary, November 1914.
- WO 95/155 1<sup>st</sup> Army GS War Diary, Sir Richard Haking, Report on the Attack of the 1<sup>st</sup> Division from Rue du Bois on 9 May 1915, 16 May 1915.
- WO 95/160 1<sup>st</sup> Army General Staff War Diary, Some Artillery Lessons to be Learnt from the Recent Operations in September - October 1915, November 1915.
- WO 95/692 III Corps BGRA Diary, 29 June 1917.
- WO 95/862 24<sup>th</sup> Field Brigade War Diary, April 1915; X Corps BGRA Diary, April 1916.
- WO 95/1429 13<sup>th</sup> Battalion King's Liverpool Regiment War Diary, November 1917; 153<sup>rd</sup> Infantry Brigade War Diary, November 1917.
- WO 95/1652 20<sup>th</sup> Infantry Brigade Headquarters War Diary, September - December 1915.
- WO 95/1671 8<sup>th</sup> Division War Diary and Narrative of Operations, September 1914 – March 1915.
- WO 95/1672 8<sup>th</sup> Division War Diary, Report G203K, 8 April 1915.
- WO 95/1674 8<sup>th</sup> Division War Diary, 8<sup>th</sup> Divisional Headquarters Conference, 3 May 1916.
- WO 95/1677 8th Division War Diary and Narrative of Operations: June-December 1917, Report on operations of 31 July 1917.
- WO 95/1678 8th Division War Diary, 8th Division Defence Scheme (Provisional), January – June 1918.
- WO 95/1679 8th Division War Diary, July 1918 – January 1919, Narrative of Events, 20 July 1918.
- WO 95/1680 8<sup>th</sup> Division War Diary, September 1914 – December 1915.
- WO 95/1684 8<sup>th</sup> Division War Diary, Instructions for Artillery in Liaison with Infantry, January 1916.
- WO 95/1707 23<sup>rd</sup> Infantry Brigade War Diary, November 1914 – May 1915.
- WO 95/1762 26<sup>th</sup> Infantry Brigade War Diary, September 1915.
- WO 95/1765 7<sup>th</sup> Seaforth Highlanders War Diary, Lieutenant Wyndham-Green, The 7<sup>th</sup> Seaforth's in Action, 25-27 September.
- WO 95/1769 27<sup>th</sup> Infantry Brigade Headquarters War Diary, May 1915 - December 1916.
- WO 95/1822 Lieutenant-Colonel EHE Collen Diary, 21 November 1916.
- WO 95/1823 12<sup>th</sup> Division Order No. 79, 25 Jun 1916; 12th Division War Diary, 22 November 1916.
- WO 95/1846 35<sup>th</sup> Brigade Order No. 2, 25 June 1916.
- WO 95/1848 35<sup>th</sup> Brigade War Diary, 17 February 1917, and 2 March 1917.
- WO 95/1851 9<sup>th</sup> Eastern Division War Diary, February 1917.
- WO 95/1853 7<sup>th</sup> Norfolk's War Diary, 2 February 1917.
- WO 95/1858 37<sup>th</sup> Brigade War Diary, 'Instructions for Practice Attack,' March 1917.
- WO 95/1859 37<sup>th</sup> Brigade War Diary, July 1918.
- WO 95/1942 War Diary, July 1915 to December 1916.
- WO 95/1985 17<sup>th</sup> Division General Staff War Diary, After Action Review (AAR), 21 August 1915 to 11 November 1915.

- WO 95/2368 32<sup>nd</sup> Division General Staff, AG 142/167, 3 July 1916, requested Brigade and Battalion Reports be sent to Divisional Headquarters; 32<sup>nd</sup> Division General Staff, AG 142/166, 3 July 1916; 32<sup>nd</sup> Division General Staff, Report on work of 32 Heavy Trench Mortar Battery During Bombardment and Subsequent Operations, July 1916; 32<sup>nd</sup> Division General Staff, Points with regard to Operations – Appendix 18, 27 October 1916.
- WO 95/2371 32<sup>nd</sup> Division General Staff, Defensive Training, 27 December 1917; 32<sup>nd</sup> Division General Staff, 32<sup>nd</sup> Division Defence Scheme, Right Sector 6<sup>th</sup> Corps Front, April 1918.
- WO 95/2397 16<sup>th</sup> Battalion Lancashire Fusiliers, Raid carried out 10 - 11 September 1916; 15<sup>th</sup> Battalion Lancashire Fusiliers, Raid carried out 5 - 6 May 1916.
- WO 95/2398 32<sup>nd</sup> Division HQ War Diary, Report on Operations, 6 August 1918; 12<sup>th</sup> Division War Diary, 23 January 1918.
- WO 95/2540 38<sup>th</sup> Division General Staff War Diary, 115<sup>th</sup> Brigade, Notes on Recent Fighting, 26 September 1915.
- WO 95/2844 51<sup>st</sup> Division G War Diary, 10 January - February 1916; 51<sup>st</sup> Division Report to 1<sup>st</sup> Army, 7 October 1914, November 1914, January 1915, March 1915.
- WO 95/2845 51<sup>st</sup> Division G War Diary, Instructions with regards to Offensive Operations, November 1917.
- WO 95/2846 51<sup>st</sup> Division, Lessons Learnt from the Operations from 9 - 15 April 1918.
- WO 95/2848 51<sup>st</sup> Division, A and Q War Diary, January 1916.
- WO 95/2863 Memorandum from Major FW Bewsher, 12 January 1918.
- WO 95/2866 1/5<sup>th</sup> Seaforth Highlanders War Diary, November 1917.
- WO 95/3086 5<sup>th</sup> Battalion Duke of Wellington's Regiment War Diary, After Action Review, 24 August - 2 September 1914.
- WO 95/3728 1<sup>st</sup> Canadian Division, Instructions for the Offensive – Hill 70: Lessons to be Learned, July 1917.
- WO 95/4371 GHQ War Diary, 17 September 1918.
- WO 95/4481 20<sup>th</sup> Corps General Staff War Diary, Notes on Corps Commander's Conference, 10 May 1918.
- WO 95/4757 GHQ War Diary, Summer Training, 17 June 1917.
- WO 106/359 Organisation of the Staff Duties section, 23 July 1918.
- WO 106/360 GHQ to WO, 26 February 1918.
- WO 107/64 Report of a Conference of Staff Officers held at the Royal Military College from 12 – 15 January 1916.
- WO 123/55 1914 General.
- WO 158/316 3<sup>rd</sup> Army Operations Narrative and Lessons drawn from Cambrai, October – December 1917.
- WO 158/344 5<sup>th</sup> Army Lessons Learned from 1916.
- WO 158/681 Tests with one aeroplane working with each battery and in Further Notes on Artillery in the Present War, November 1914.
- WO 161/113 General Staff Report on Survey on the Western Front, 1914-1918.
- WO 162/3 'Daily recruiting returns submitted to the Adjutant-General.' April - August 1915.
- WO 163/10-20 Army Council Minutes and Inspector General of Forces Annual Report for 1904.
- WO 256/1 Sir Douglas Haig to Lord Haldane, 4 August 1914.
- WO 256/2 Sir Douglas Haig Diary, 18 November 1914.
- WO 256/3 Sir Douglas Haig Diary, 4 January 1915, and Expansion of the British Army in the Field, 11 January 1915.
- WO 256/7 Sir Douglas Haig Diary, 23 December 1915.

- WO 256/9 Sir Douglas Haig Diary, 11 March 1916.
- WO 256/10 Sir Douglas Haig Diary, 10 May 1916.
- WO 256/14 Sir Douglas Haig Diary, 19 and 20 December 1916, 12 - 14 February 1917; Sir Douglas Haig Diary, Record of Army Commanders, Conference held at Rollencourt Chateau on Saturday, 9 December 1916.
- WO 256/15 Sir Douglas Haig Diary, Army Commanders' Conference held at Rollencourt, 27 January 1917; Sir Douglas Haig Diary, 2 February 1917; Sir Douglas Haig Diary, 3 February 1917; Sir Douglas Haig Diary, GHQ, Summary of Schools of Training for the British Expeditionary Force during Winter 1916-1917; Sir Douglas Haig Dairy, Only the VII, Canadian and II ANZAC Corps had Infantry Schools; only the corps of Third and Fourth Armies had a combined Lewis Gun and Stokes Mortar School: 'Summary of Schools of Training During Winter 1916-1917.'
- WO 256/22 Sir Douglas Haig Diary, 23 September 1917.
- WO 256/33 Sir Douglas Haig Diary, General Sir Herbert Lawrence, Record of a Conference of Army Commanders held at Hesdin on Friday, 5 July 1918.
- WO 339/16855 Personnel file of Captain Samson Bowyer RE.
- WO 339/31633 Secretary of State for War to Military Secretary, 4 July 1919.

## Private Papers

### Imperial War Museum (IWM), London

#### Maxse papers

- Maxse Papers 69/53/6 Lieutenant-General Sir Ivor Maxse to Brigadier-General HC Lowther, 18 November 1915.
- Maxse Papers 69/53/10 Major-General Herbert Uniacke to Lieutenant-General Sir Ivor Maxse, 30 June 1918.
- Maxse Papers 69/53/11 Sir Douglas Haig letter to The Secretary, WO GHQ, 16 June 1918; Major-General GP Dawnay, Appendix A, Duties of Inspector General of Training, GHQ, 20 June 1918; Major-General GP Dawnay, MGGS at GHQ, to the Director of Staff Duties, WO, GHQ OB 2266, 9 July 1918.
- Maxse Papers 69/53/12 Lieutenant-General Sir Ivor Maxse, Inspector General's Conferences, July - August 1918; Major-General WH Anderson to Lieutenant-General Sir Ivor Maxse, 14 October 1918; Lieutenant-General Sir Aylmer Hunter-Weston to Lieutenant-General Sir Ivor Maxse, 18 October 1918.
- Maxse Papers 69/53/13 Letter to Lieutenant-General Sir Ivor Maxse from Brigadier-General RJ Kentish, Commandant Senior Officers' School, Aldershot, 27 March 1917; Discusses the position of Brigadier-General Solly-Flood in the Training Directorate. File 53/1, November 1917; Notes on Training Infantry Companies in Open Warfare, April 1917; File 56, The Inspectorate distributed the Brown Book at its conference on 23 July 1918, to all five Armies; File 54; OB/2255, Sir Douglas Haig to WO, 16 June 1918; OB/2266, Major-General GP Dawnay to Director of Staff Duties, WO, 9 July 1918; Summary of Opening Remarks by Inspector General Training, 23 July 1918; Training in 11<sup>th</sup> Division, a draft of instructions to be issued 18 August,

signed by de Lassoire; VIII Corps No GS 81/10, from Brigadier-General C Bonham-Carter to its Divisions, November 1917.

- Maxse Papers 69/53/14 Letter from Lieutenant-General GM Harper to Lieutenant-General Sir Ivor Maxse, 20 October 1918.
- Maxse Papers 69/57/7 Brigadier-General Kentish to Lieutenant-General Sir Ivor Maxse, 21 - 22 February 1917.
- Maxse Papers 69/57/11 Brigadier-General C Bonham-Carter, Training in France, 8 July 1918,  
Maxse Papers PP/MCR/C42 File 59; Papers of General Sir I Heneker to Lieutenant-General Sir Ivor Maxse, 9 July 1918.

#### **National Archives of Canada (NAC)**

- RG9 111 C1, 3853, folder 68, file 3. Lessons and Deductions, 1st Canadian Division Report on the Passchendaele Ridge Operations, 4-12 November 1917.
- RG9 111 C1, 3854, folder 71, file 7. Canadian Corps G724/27-3 to Second Army, 20 November 1917.

#### **National Library of Scotland (NLS)**

- Haldane Papers General Sir Aylmer Haldane War Diary, 6 April 1916, 22 June 1916, 25 February 1916, 9 December 1916, 24 October 1916.
- Haig Papers 3155/101, Diary Entry 19-20 April 1915.

#### **Churchill Archives Centre**

- BHCT 2/2 General Sir Charles Bonham-Carter, letter to his sister on his appointment to Brigadier-General Training, 8 October 1917; Solly-Flood, letter to his wife, 8 October 1917.
- BHCT 9/2 General Sir Charles Bonham-Carter Autobiographical notes.

#### **Bodleian Library, Oxford**

- Gorell Papers, Box 8 letter from Lieutenant-General LE Kiggell to General Sir H Lawrence, 8 March 1918; letter from Lieutenant-General LE Kiggell in reply to Lord (Captain) Gorell, 16 March 1918; Manuscript note of Sir Douglas Haig's direction on the contents of *SS 198*, titled "Tactics in the attack", part I, General principles of German defence and deductions ... required in our methods of attack; Draft copy of *SS 198*, October 1917.
- Gorell Papers, Box 22 Diary entries 14-20 January 1918; Diary entries, 24, 25 and 30 January 1918; Diary entry, 13 March 1918; Retrospective diary entry, 9 July 1919.

#### **JSCSC Library**

- AH Marindin Papers Shute Lecture, November 1920.

## The Liddell Hart Centre for Military Archives (LHCMA)

Alanbrooke Papers 3/6	Notes on a lecture by Bonham-Carter, and transcribed by AF Brooke, Notes on the Senior Staff Course, Cambridge, 29. December 1917 to 14 March 1918.
Burnett-Stuart Papers	General Sir John Burnett-Stuart Memoirs, Chapter VIII, 86.
Edmonds Papers I/2B 4a	Camberley Staff College Graduates who lost their lives during the First World War.
JFC Fuller Papers 1/1/27	3 <sup>rd</sup> Army Infantry School of Instruction, Notes on Battle Drill, March 1917
JFC Fuller Papers 1/1/30	Notes on an exercise carried out near Chalons by the 4 <sup>th</sup> French Army to demonstrate the new training of Infantry Units introduced in 1916.
JFC Fuller Papers 1/4/2	1 <sup>st</sup> Brigade Tank Corps, Summary of Operations, 20 - 23 November 1917, 9 December 1917.
JFC Fuller Papers 4/3/163	Major-General JFC Fuller to his mother, 12 October 1915.
Grant Papers	General Sir Charles Chant to the Earl of Rosebery, 24 January 1916.
Howell Papers IV/C/2 66	Brigadier-General Philip Howell to Steed 10-11 November 1914.
Macleod Papers	Colonel R Macleod, Memoir, 107.
Montgomery-Massingberd Papers 6/4	Sir Henry Rawlinson, 'Artillery Lessons' and Brigadier-General Budworth, 'Artillery Lessons,' 3 September – 13 October 1915, 1926.
Montgomery-Massingberd Papers 7/4	4th Army No 4.14(G), 10 November 1916. <i>Letter from Major-General AA Montgomery to Lieutenant-General Richard Butler</i> , dated 24 January 1917.
Montgomery-Massingberd Papers 7/6	Notes from 6 February 1916 - 23 June 1916 and 31 November 1917.
Montgomery-Massingberd Papers 7/9	Notes from 1 June 1917 – 30 June 1917.
Montgomery-Massingberd Papers 7/14	General Sir Henry Rawlinson Diary entry, 9 March 1917.
Montgomery-Massingberd Papers 7/32	Letter from Major-General GP Dawnay to Major-General AA Montgomery dated 31 October 1918; Memorandum entitled GHQ Training, GT 107, from Major-General AA Montgomery to Major-General GP Dawnay, dated 28 October 1918.
Montgomery-Massingberd Papers 7/33	Hints on Training and Training Leaflets. Notes on Tactics and Training as issued by 4 <sup>th</sup> Corps, September 1918.
Montgomery-Massingberd papers 7/34	4 <sup>th</sup> Army GS 318, 2nd Edition, Courses of Instruction during the Winter, November 1916 to 1 April 1917.
Montgomery-Massingberd Papers 48/4	Major-General AA Montgomery, MGS 4th Army, to 3 <sup>rd</sup> , 14 <sup>th</sup> , 1 <sup>st</sup> Anzac, and XV Corps, 4 <sup>th</sup> Army No. 4.14(G), 10 November 1916.
Montgomery-Massingberd Papers 91	General Sir Henry Rawlinson to GHQ (Training), 4 <sup>th</sup> Army GT 107, 28 October 1918.
Montgomery-Massingberd Papers 92	SS 152, quoted in Lieutenant-General GM Harper, Notes on Tactics and Training, IV Corps, September 1918
Montgomery-Massingberd Papers 93	4 <sup>th</sup> Army GS 318, Courses of Instruction During the Winter, 1 November 1916 - 1 April 1917, 8 January 1918.
Robertson Papers 1/22/24	Field Marshal Earl Haig letter to Field Marshal Sir William Robertson, 18 February 1916.
Robertson Papers 8/4 Rawlinson,	Field Marshal Sir William Robertson letter to General Sir Henry 26 July 1916.

Shea Papers 2/5. General Sir JSM Shea Papers, Draft of Brigadier-General Thompson Capper, 'The doctrine of a "Doctrine" (1912).

### **Other papers – Imperial War Museum**

4<sup>th</sup> Army papers, Volume 5 GHQ to 4<sup>th</sup> Army, OAD 123, 23 August 1916.

Dawnay Papers 69/21/3 Major-General GP Dawnay to his wife, 14 June 1918, 2 Jun 1918, 1 July 1918, 17 Sep 1918.

File 60 Major-General Shute, 1 October 1918.  
Major-General Aylmer Haldane, 6 October 1918.  
Major-General Charles Fergusson, 31 August 1918.  
Lieutenant-General George Harper, 20 October 1918.  
Brigadier-General Herbert Duncan, 5 September 1918.

General Sir Henry Horne Papers Notes on artillery during the attacks of 13th and 14th September 1914 and subsequent operations on the Aisne, 2.

Lambert papers 80/10/1 Major-General TS Lambert, Report on the Operations of the 32nd Division April 1917.

Pinney Papers Major-General Sir Reginald Pinney Diary, 29 January 1917.

Stephens Papers 69/70/1 Major-General Lord Dugan's visit to X Corps School, 28 August 1918; Lieutenant-General Sir Ivor Maxse to General Hon. Sir Herbert Lawrence, 29 August 1918; General Sir Reginald Stephens to Lieutenant-Colonel JCH Hamilton, 25 September 1918.

Wilson Papers Field Marshal Sir Henry Wilson Diary, 5 August 1914, 1 January 1916, 15 March 1916, 11 August 1916, 28 August 1916, 6 September 1916, 21 October 1916.

Durham County Record Office Cuthbert Headlam, Letter to Beatrice, 3 July 1918.

Black Watch Museum *Autobiography of Lt Colonel TM Booth*, 24.

London Gazette 28 March 1911, p 2522 - Richard Haldane raised to Lord Haldane.

### **Published Primary Material**

#### **Military Publications**

NATO, *Allied Publication No. 6, NATO Glossary of Terms and Definitions*. Brussels, November 2019.

Army Doctrine Publications, *Land Operations, AC 71940*. London: HMSO, March 2017.

United States Army, *Army Doctrine Reference Publication (ADRP) 3-0: Unified Land Operations*. Department of the Army, 16 May 2012.

## Printed Primary Sources

Addison, GH. *Work of the Royal Engineers in the European War, 1914-19: The Organization and Expansion of the Corps, 1914-18*. Naval and Military Press, 2006 (reprint of 1926 original).

Altham, Major-General EA. *The Principles of War, Historically Illustrated Volume I*. London: Macmillan And Co, 1914.

Baden-Powell, Lieutenant-General Sir Robert. *War in Practice: Some Tactical and Other Lessons of the Campaign in South Africa 1899 – 1902*. London: Isbister and Company, 1903.

Baden-Powell, Lieutenant-General Sir Robert. *Quick Training for War, 1914*. London: Conway, 1914.

Becke, Archibald. *History of the First World War, Order of Battle, Part 4, The Army Council, GHQs, Armies, and Corps 1914-1918*. London: HMSO, 1945.

Bengough, Major-General HM. *Notes and Reflections on the Boer War*. London: William Clowes and Sons, 1900.

Bengough, Major-General HM. *Thoughts on Modern Tactics*. London: Gale and Polden, 1896.

Boraston, Lieutenant-Colonel John and Captain Cyril Bax. *The 8th Division in War 1914-1918*. London: Medici Society, 1926.

Cadell, Major JF. *The Organisation of Field Artillery*. London: HMSO, 1905.

Childers, Erskine. *German Influence on British Cavalry*. London: Edward Arnold, 1911.

Crozier, Brigadier-General Frank. *Impressions and Recollections*. London: Werner Laurie Ltd, 1930.

Dunlop, Colonel John. *The Development of the British Army 1899-1914*. London: Methuen, 1938.

Edmonds, Brigadier-General JE. *Official History of the War, Military Operations, France, and Belgium 1914-1918*, 14 Volumes. London: HMSO, Macmillan and Company, 1922-1949.

Fuller, JFC. *Army in my Time: The Story of Bacon's rebellion and its Leader*. London: Scholars bookshelf, reprinted 2006.

Fuller, JFC. *Memoirs of an Unconventional Soldier*. London: Ivor Nicholson and Watson, 1936.

Fuller, JFC. *The Army in My Time*. London: Rich and Cowan, 1935.

Fuller, JFC. *The Foundations of the Science of War*. London: Hutchinson and Co., 1926.

Fuller, JFC. *Training Soldiers for War*. London: H. Rees, Ltd, 1914.

Gillon, Captain Stair. *The Story of the 29th Division: A Record of Gallant Deeds*. London: Thomas Nelson and Sons, 1925.

Graves, Robert. *Goodbye to All That*. London: Penguin, 1960.

Great Britain Army. *Attack of the British 9th Corps at Messines Ridge*. Washington: Government Printing Office, 1917.

Haldane, MM. *A History of the Fourth Battalion the Seaforth Highlanders, With Some Account of the Military Annals of Ross, the Fencibles, the Volunteers, and the Home Defence and Reserve Battalions 1914-1919*. London, Naval and Military Press, 1927.

Harper, General George. *Notes on Tactics and Training*. London: HMSO, 1919.

HMSO. *Report of the Royal Commission on the South African War*. London: Wyman and Sons, 1903.

Holmes, Richard. *The Little Field Marshal, Sir John French*. London: J Cape, 1981.

Macpherson, Major-General Sir William Grant. *British Official History, Medical History, Casualties and Medical Statistics*. London: HMSO, 1922.

Nicholson, General Walter. *Behind the Lines: An account of administrative staff work in the British Army 1914-1918*. London: Jonathan Cape, 1939.

Priestley, Raymond E. *Work of the RE in the European War, 1914–1919: The Signal Service (France)*. Uckfield: Naval and Military, 2006.

Sheppard, Captain Eric. *A Short History of the British Army to 1914*. London: Constable and Company Ltd, 1926.

Smith-Dorrien, Horace Lockwood. *Memories of Forty-eight Years' Service*. London: John Murray, 1925.

Ward, CH Dudley. *History of the Welsh Guards*. London: John Murray, 1920.

Wolseley, Colonel. *The Soldier's Pocketbook for Field Service*. London: Spottiswoode, 1869.

### **Official Manuals – see appendix 2 for a full list of SS and CDS documents**

GHQ, CDS 2	Notes from the Front Part I. November 1914.
GHQ, CDS 3	Notes from the Front Part II. December 1914.
GHQ, CDS 4	Notes from the Front Part III and Further Notes on Field Defences. February 1915.
GHQ CDS 5	Trench Warfare. February 1915.
GHQ CDS 24	Object and Conditions of Combined Offensive Action (translated from the French). June 1915.
GHQ CDS 33	Co-operation of Aeroplanes with Other Arms. July 1915.
GHQ CDS 40	Co-operation of Aeroplanes and Artillery when using Wireless. July 1915.
GHQ CDS 50	Tactical Notes. August 1915.
GHQ CDS 53	Notes from the Front, Part IV. May 1915.
GHQ CDS 85	Lessons of the recent fighting in the Argonne. November 1915.
GHQ CDS 098/1	Artillery Notes No 1: Close Shooting in the Field. January 1916.
GHQ CDS 098/2	Artillery Notes No 2: Field Artillery Ammunition. January 1916.
GHQ CDS 098/3	Artillery Notes No 3: Counter Battery work. February 1916.
GHQ CDS 098/4	Artillery Notes No 4: Artillery in Offensive Operations. April 1916.
GHQ CDS 098/5	Artillery Notes No 5: Wire Cutting by Artillery. February 1916.
GHQ CDS 098/5	Artillery Notes No 5: Wire Cutting by Artillery. June 1916.
GHQ, CDS 098/6	Artillery Notes No 6: Trench Mortars. March 1916.



GHQ CDS 303	Experiences gained in the Winter Battle in Champagne. November 1915.
GHQ CDS 304	Proposals for the technical methods to be adopted in an attempt to breakthrough a strongly fortified position, based on the knowledge acquired from the errors which appear to have been committed by the French Army during the winter campaign in Champagne.
GHQ CDS 307	Defensive Measures against Gas Attacks. November 1915.
GHQ CDS 333	A Study of the Attack in the Present Phase of War. December 1915.
GHQ AEF	Artillery in Offensive Operations. August 1917.
GHQ AEF	German lessons of 1918. August 1918.
GHQ AEF	A survey of German Tactics 1918. August 1918.
General Staff, War Office	Infantry Training 1902.
General Staff, War Office	Infantry Training March 1905.
General Staff, War Office	Infantry Training 1911.
General Staff, War Office	Infantry Training (4-Company Organization): 1914.
General Staff, War Office	Cavalry Training 1904.
General Staff, War Office	Cavalry Training 1907.
General Staff, War Office	Cavalry Training 1912.
General Staff, War Office	Field Service Regulations Part 1: Operations 1909. (reprinted with amendments 1914).
General Staff, War Office	Field Service Regulations Part II: Organisation and Administration 1909.
General Staff, War Office	Training and Manoeuvre Regulations 1909.
General Staff, War Office	Training and Manoeuvre Regulations 1913.
General Staff, War Office	Combined Training 1902.
General Staff, War Office	Combined Training 1913.
General Staff, War Office	Field Artillery Training 1896, revised in 1902.
General Staff, War Office	Field Artillery Training 1912.
General Staff, War Office	1 <sup>st</sup> Army: German Methods of Trench Warfare, 1 March 1916.
General Staff, War Office	Field Service Pocket Book 1914. (reprinted with Amendments 1916).
GHQ SS 23	Preliminary Deductions for Instruction, from Recent Engagements. November 1915.
GHQ SS 24	Object and Conditions of Combined Offensive Action. November 1915.
GHQ SS 98	Artillery in Offensive Operations. April 1916.
GHQ SS 100	Notes on Wireless. January 1916.
GHQ SS 101	Note for Infantry Officers on trench warfare. May 1917.
GHQ SS 106	Notes on the Tactical Employment of Machine Guns and Lewis Guns. March 1916, May 1917, July 1917.
GHQ SS 109	Training of Divisions for Offensive Action by Lieutenant-General Kiggell. May 1916.
GHQ SS 110	Medium Trench Mortar Gun Drill 2-inch Trench Mortars. March 1917.
GHQ SS 119	Preliminary notes on the tactical lessons of the recent operations. April 1916, July 1916, September 1916.
GHQ SS 120	Co-operation between Aeroplanes and Artillery during an Advance. September 1916.
GHQ SS 125	Instructions for Training. June 1917.
GHQ SS 126	The Training and Employment of Bombers, September 1916.
GHQ SS 130	Notes on the Employment of 4-inch Stokes Mortar Bombs. November 1917.
GHQ SS 131	Co-operation of Aircraft with Artillery. December 1916.
GHQ SS 132	Co-operation between Aircraft and Infantry. April 1918.

- GHQ SS 135 Instructions for the Training of Divisions for Offensive Action. December 1916, August 1917; The Training and Employment of Divisions. January 1918; The Division in the Attack – 1918. November 1918.
- GHQ SS 139/1 Artillery Notes No. 1, Close Shooting in the Field, Notes for Infantry Officers. March 1917.
- GHQ SS 139/4 Artillery Notes No. 4, Artillery in Offensive Operations. February 1917.
- GHQ SS 143 Instructions for the Training of Platoons for Offensive Action. June 1917.
- GHQ SS 144 The Normal Formation for the Attack. February 1917.
- GHQ SS 152 Instructions for the Training of the British Armies in France (Provisional), June 1917 and subsequently January 1918.
- GHQ SS 156 Notes on recent operations, compiled by General Staff Forth Army. January 1917.
- GHQ SS 159 Tactical Schemes to Train Junior Officers and NCOs. May 1917.
- GHQ SS 161 Instructions for Battle. May 1917.
- GHQ SS 164 Notes on the Use of Tanks, and the General Principles of their Employment as an Adjunct to the Infantry Attack. May 1917.
- GHQ SS 167 Notes on Recent Fighting, 5 April 1918.
- GHQ SS 169 Notes on Recent Fighting, 1 April 1917.
- GHQ SS 172 Preliminary Notes on recent Operations. July 1917.
- GHQ SS 185 Assault Training. September 1917.
- GHQ SS 191 Inter-communications in the Field. September 1917.
- GHQ SS 195 Scouting and Patrolling. December 1918.
- GHQ SS 198 Tactical Instructions for the Offensive of 1918 (November 1917, not published).
- GHQ SS 199 Co-operation of Sound Ranging Sections and Observation Groups with Artillery (Provisional), 1 November 1917.
- GHQ SS 210 The Division in Defence. May 1918.
- GHQ SS 214 Tanks, and their Employment in Co-operation with Other Arms. August 1918.
- GHQ SS 218 Operations by the Australian Corps against Hamel, Bois de Hamel and Bois de Vaire, 4 July 1918
- GHQ SS 356 Handbook of the German Army in War. April 1918.
- GHQ SS 471 Principles for the Defence of Positions. August 1915.
- GHQ SS 478 Experiences of the IV German Corps in the Somme During July 1916. August 1916.
- GHQ SS 480 Lessons Drawn from the Battle of the Somme by Stein's Group, October 1916.
- GHQ SS 485 Army Order Regarding the Execution of Counterattacks. August 1916.
- GHQ SS 486 German 'Lessons Drawn from the Battle of the Somme', October 1916.
- GHQ SS 537 Regarding the German Army and its methods. January 1917.
- GHQ SS 544 Experiences of the recent fighting at Verdun. February 1917.
- GHQ SS 563 Manual of Position Warfare for All Arms Part 6 Communication between Infantry and Aeroplanes or Captive Balloons, May 1917.
- GHQ SS 574 The Construction of German Defensive Positions. August 1918.
- GHQ SS 592 Catechism for Heavy and Siege Artillery Subalterns. January 1917.
- GHQ SS 614 Training Instructions for Siege Artillery. March 1918.
- GHQ SS 621 Manual of Position Warfare for all Arms. August 1917.
- GHQ SS 710 New Defensive Tactics. November 1917.
- GHQ SS 714 The German Tank 'Elfriede.' June 1918.
- GHQ SS 745 Description of the Siegfried Line – German Second Army. September 1918.
- War Office Statistics of the Military Effort of the British Empire during the First World War 1914-1920. London: HMSO, 1922.
- War Office Training at Home. London: HMSO, December 1917.

War Office 1<sup>st</sup> Army No 1888, Lessons of recent fighting, 30 August 1918.  
War Office Notes on Recent Fighting No 19 operations by the Australian Corps 4 July 1918.

### Published Articles

Badsey, Stephen. "Mounted Combat in the Second Boer War." *Sandhurst Journal of Military Studies* 1, no.2 (1992): 11-27.

Badsey, Stephen. "The Boer War (1899 – 1902) and British Cavalry Doctrine: A Re-Evaluation." *The Journal of Military History* 71, no.1. (2007): 75-97.

Bailey, Jonathan. "The First World War and the Birth of the Modern Style of Warfare." *Strategic and Combat Studies Institute, Occasional Paper* 22 (1996): 12.

Beach, Jim. "Issued by the General Staff: Doctrine Writing at British GHQ, 1917-1918." *War in History* 19, no. 4 (November, 2012): 464-491.

Brennan, Patrick. "Good Men for a Hard Job: Infantry Battalion Commanders in the Canadian Expeditionary Force." *Canadian Army Journal* 9 (2006): 9-28.

Brown, John and Duguid, Paul. "Organizational Learning and Communities-of-Practice: Towards a Unified View of Working, Learning and Innovation." *Organisational Science* 2, no.1 (March 1991): 40-57.

Brown, Ian. "Not Glamorous, But Effective: The Canadian Corps and the Set-Piece Attack, 1917-1918." *The Journal of Military History* 58, no.3 (July, 1994): 421-444.

Catignani, Sergio. "Coping with Knowledge: Organizational Learning in the British Army?" *Journal of Strategic Studies* 37, no.1 (2014): 30-64.

Catignani, Sergio. "Getting COIN at the Tactical Level in Afghanistan: Reassessing Counter-Insurgency Adaptation in the British Army." *Journal of Strategic Studies* 35, no.4 (2012): 513-539.

Chavance, Bernard. "Formal and informal institutional change: the experience of post-socialist transformation." *The European Journal of Comparative Economics* 5 (2008): 57-71.

Childers, Erskine. "The British Cavalry." *Journal of the Society for Army Historical Research* 57 (summer, 1979):71-79.

Cohen, EAA. "Change and Transformation in Military Affairs." *Journal of Strategic Studies* 27, no.3 (2004): 395-407.

Crossan, M and Lane, HW and White, RE. "An Organisational Learning Framework: From Intuition to Institution." *Academic Management Review* 24, no.3 (1999): 522-537.

Crossan, M. "Believing is Seeing: Joint Ventures and Organizational Learning." *Journal of Management Studies*, 32 (1995): 595-618.

De Long, David W, and Fahey, Liam. "Diagnosing Cultural Barriers to Knowledge Management." *Academy of Management Perspectives* 14, no.4 (February, 2000): 113-127.

Eraut, M. "Informal Learning in the Workplace." *Studies in Continuing Education* 26, no.2 (2004): 247-273.

- Falls, DWC. "The Aldershot Command Manoeuvres for 1907." *Journal of the Military Service Institute of the United States* 42 (January-June 1908): 387.
- Farrell, Theo. "Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006-2009." *Journal of Strategic Studies* 33, no.4 (2010): 567-594.
- Farrell, Theo. "The Dynamics of British Military Transformation." *International Affairs (Royal Institute of International Affairs, 1944)* 84, no.4 (2008): 777-807.
- Fiol, C. Marlene, and Lyles, Marjorie, A. "Organizational Learning." *Academy of Management Review* 10, no.4 (1985): 803-813.
- Foley, Robert, Griffin, Stuart and McCartney, Helen. "Transformation in contact: learning the lessons of modern war." *Journal of International Affairs* 87, no.2 (March, 2011): 253-270.
- Foley, Robert. "A Case Study in Horizontal Military Innovation: the German Army, 1916-1918." *Journal of Strategic Studies* 35, no.6 (December, 2012): 799-827.
- Foley, Robert. "Dumb Donkeys or Cunning Foxes? Learning in the British and German Armies during the First World War." *International Affairs* 90, no.2 (March, 2014): 279-298.
- Foley, Robert. "Learning War's Lessons: The German Army and the Battle of the Somme 1916." *Journal of Military History* 75, no.2 (April, 2011): 471-504.
- Foley, Robert. "What is in a Name, The Development of strategies of attrition on the Western Front 1914–1918." *The Historian*, 68(4) (2006): 722-746.
- Fox-Godden, Aimee. "Beyond the Western Front: The Practice of Inter-Theatre Learning in the British Army during the First World War." *War in History* 23, no.2 (April, 2016): 190-209.
- French, David. "The Military Background to the 'Shell Crisis' of May 1915." *Journal of Strategic Studies* II, no. 2 (September, 1979): 192–205.
- Greenhalgh, Elizabeth. "The French Army and the First World War (Armies of the Great War) & Why the British Were on the Somme in 1916." *War in History* 6, no.2 (April 1999): 147-173.
- Griffin, Stuart. "Military Innovation Studies: multidisciplinary or lacking discipline?" *Journal of Strategic Studies* 40, no.1-2 (2017): 196-224.
- Grissom, Adam. "The Future of Military Innovation Studies." *Journal of Strategic Studies* 29, no.5 (2006): 905-934.
- Harris, Paul and Marble, Sanders. "The 'Step-by-Step' Approach: British Military Thought and Operational Method on the Western Front, 1915–1917." *War in History* 15, no.1 (2008): 17-42.
- Høiback, Harald. "What is Doctrine?" *Journal of Strategic Studies* 34, no.6 (December, 2011): 879-900.
- Inkpen, Andrew C and Crossan, Mary. "Believing is Seeing: Joint Ventures and Organizational Learning," *Journal of Management Studies* 32, no.5 (1995), 595-618
- Imperial General Staff. "War and the 'Armee Blanche.'" *Journal of the US Cavalry Association* 21 (July 1910 – May 1911): 341-357.

- Jones, Heather. "As the Centenary Approaches: The Regeneration of First World War Historiography." *Historical Journal* 56, no. 3 (2013): 857-878.
- Jones, Spencer. "Shooting Power: A Study of the Effectiveness of Boer and British Rifle Fire, 1899-1914." *British Journal for Military History* 1, no.1 (October, 2014): 29-32.
- Kollars, Nina, A. "War's Horizon: Soldier-Led Adaptation in Iraq and Vietnam." *Journal of Strategic Studies* 38, no.4 (January, 2015): 529-553.
- Leeson, DM. "Playing at War: The British Military Manoeuvres of 1898." *War in History* 15, no.4 (November, 2008): 432-461.
- Levitt, Barbara, and March, James, G. "Organizational Learning." *Annual Review of Sociology* 14 (August, 1988): 319-338.
- Lloyd, Nicholas. "'With Faith and Without Fear': Sir Douglas Haig's Command of the First Army During 1915." *Journal of Military History* 74, no.4 (2007):1051-76.
- Lupfer, Timothy, T. "The Dynamics of Doctrine: The Change in German Tactical Doctrine during the First World War." *Leavenworth Paper No. 4: Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, Kansas*, (January, 1981): 1-73.
- McGuire, David, and Gubbins, Claire. "The Slow Death of Formal Learning, A Polemic." *Human Resource Development Review* 9, no.3 (June, 2010): 249-265.
- Montgomery-Massingberd, Field Marshal Sir Archibald. "The autobiography of a Gunner." *Journal of the Royal Artillery*, LXXIII, no. 4, 292.
- Morton, Desmond. "Changing Operational Doctrine in the Canadian Corps, 1916-17." *The Army Doctrine and Training Bulletin* 2, no. 4 (Winter 1999): 35.
- Neilson, Keith. "That Dangerous and Difficult Enterprise: British Military Thinking and the Russo-Japanese War." *War and Society* 9, no.2 (1991): 17-37.
- Nicholls, E. "The Training, Organisation and Equipment of Companies of the Royal Garrison Artillery with Medium Guns and Howitzers, and their tactics in future field operations." *Journal of the Royal Artillery* 28 (1901):103
- O'Toole, Paddy and Talbot, Steven. "Fighting for Knowledge." *The Journal of Armed Forces and Society* (December, 2010): 61-62.
- Palazzo, A. "The British Army's Counter-Battery Staff Office and Control of the Enemy in World War I." *Journal of Military History* 63 (1999): 55-74.
- Prior, Robin, and Wilson, T. "Conflict, Technology and the Impact of Industrialisation: The First World War 1914-1918." *Journal of Strategic Studies* 24, no.3 (2001): 128-157.
- Pugsley, Christopher. "We Have Been Here Before: The Evolution of the Doctrine of Decentralised Command in the British Army 1905-1989." *Sandhurst Occasional Papers* 9 (2011): 7-27.
- Scott, PT. "The CDS / SS Series of Manuals and Instructions, a Numerical Checklist, The First World War 1914-1918." *The Illustrated Journal of First World War History* 1, no.2 (1989).
- Siegl, Michael. "Military Culture and Transformation." *Joint Force Quarterly* 49, 2<sup>nd</sup> Quarter (2008): 103-106.

Spiers, Edward M. "University Officers Training Corps and The First World War." *Council of Military Education Committees*, Occasional paper 4 (2014): 1-28.

Stachelbeck, Christian. "Strategy in a microcosm: Processes of Tactical Learning in a WW1 German Infantry Division." *Journal of Military and Strategic Studies*, 13(4) (2011): 1-20.

Strachan, Hew. "Training, Morale and Modern War." *Journal of Contemporary History* 41, no.2 (April, 2006): 211-227.

Strachan, Hew. "Memorial differences." *Times literary supplement* no 5510 (7 November 2008): 11.

Travers, Tim. "The Offensive and the problem of Innovation in British Military Thought 1870-1915." *Journal of Contemporary History* 13 (1979):539-540.

Travers, Tim. "A Particular Style of Command: Haig and GHQ, 1916-1918." *Journal of Strategic Studies* 10 (1987): 363-376.

Travers, Tim. "Technology, Tactics, and Morale: Jean de Bloch, the Boer War, and British Military Theory, 1900-1914." *Journal of Modern History* 51, no.2 (June, 1979): 264-286.

Travers, Tim. "The Evolution of British Strategy and Tactics on the Western Front in 1918: GHQ, Manpower and Technology." *Journal of Military History* 54, no.2 (1990): 173-200.

Van Evera, Stephen. "The Cult of the Offensive and the Origins of the First World War." *International Security* 9, no.1 (Summer, 1984): 58-107.

Weber, WHF. "Some Notes and Suggestions on the Control of Divisional Artillery in Battle." *Journal of the Royal Artillery* 38, no.10 (1912):413.

Whitmarsh, Andrew. "The Development of Infantry Tactics in the British 12th (Eastern) Division, 1915-1918." *Stand To! The Journal of the Western Front Association* 48 (January, 1997): 28-32.

Wynter, HW. "The Revival of the Barrage." *Journal of the Royal Artillery* 70, no.4 (1943): 272-276.

### **The Army Review**

Beatson, Brigadier-General FC. "The Cooperation of Field Artillery with Infantry in the Attack." *Army Review*, vol. 2 (1912).

Du Cane, Brigadier-General JP. "The Co-operation of Field Artillery with Infantry in the Attack." *Army Review*, vol. 1 (1911).

Haking, Brigadier-General R. "Company Training." *Army Review*, vol. 2 (1912).

Imperial General Staff. "Infantry Training 1911." *Army Review*, vol. 1 (July-October 1911).

May, Major-General. "Freedom of Manoeuvre." *Army Review*, vol. 4 (1913).

Monro, Major-General CC. "Fire and Movement." *Army Review*, vol. 1 (July-October 1911).

Nicholson, General WG. "Introduction." *Army Review*, vol. 1 (1911).

## The Journal of the Royal United Services Institute

Aplin, Captain RVK. "Machine Guns in Our Own and Other Armies." *Journal of the Royal United Services Institute* 54, no.1 (1910): 50.

Bedan, Lieutenant RH. "How Can Moral Qualities Best be Developed during the Preparation of the Officer and the Man for the Duties Each Will Carry Out in War?" *Journal of the Royal United Services Institute* 59, no.2 (1914): 113-154.

Bird, Major WD. "Some Notes on Modern Tactics." *Journal of the Royal United Services Institute* 53, no.1 (1909): 492.

Dilke, Sir Charles. "The Report of the War Commission." *Journal of the Royal United Services Institute* 48, no.2 (January-June, 1904): 225.

Fuller, JFC. "The Procedure of the Infantry Attack: A Synthesis from a Psychological Standpoint." *Journal of the Royal United Services Institute* 48 (January 1914): 65-66.

Gatacre, Sir William. "A Few Notes on the Characteristics of Hill Fighting in India." *Journal of the United Services Institute*, 43(260) (October, 1899): 1065-1086.

Gunter, Lieutenant-Colonel E. "The Von Löbell Reports on Military Matters in 1913." *Journal of the Royal United Service Institution* 59 (July-December, 1914): 203.

Hamilton, General Sir Ian. "Remarks by General Sir Ian Hamilton, Commander in Chief Southern Command, on the Training of Troops during 1907." *Journal of the Royal United Service Institution* 52, no.1 (1908): 83-84.

Howard, Professor Sir Michael. "The Use and Abuse of Military History." *Journal of the Royal United Service Institution* 107, no.625 (January, 1962): 4-10.

Kentish, R. "The Case for the Eight Company Battalion." *Journal of the Royal United Service Institution* 56, no. 2 (1912), 891-928.

Maxse, Brigadier I. "Battalion Organization." *Journal of the Royal United Services Institute* 56, no.1 (1912): 53-86.

Mead, Captain HR. "Notes on Musketry Training of Troops." *Journal of the Royal United Services Institute* 42 (1899): 233-263.

Morrison, Lieutenant-Colonel RH. "Lessons to be Derived from the Expedition to South Africa regarding the best organisation of the Land Forces of the Empire." *Journal of the Royal United Services Institute* 45, no.2 (1901): 797-825.

Oldfield, LCL. "Artillery, and the Lessons we have Learnt with regards to it in the Late War." *Journal of the Royal United Service Institute*, 67(468) (1922): 579-599.

Pollock, Major AWA. "The Battle Drill of Infantry." *Journal of the Royal United Services Institute* 42, no.1 (1898): 540-554.

Trimmel, Captain R. "South African Campaign." *Journal of the Royal United Service Institute* 45, no.1 (1901): 182-190.

Von Lindenau, Lieutenant-Colonel "What has the Boer War to teach us, as regards infantry attack?" *Journal of the Royal United Service Institute*, 47 (January- June 1903): 55.

## Secondary Sources

### Chapters in Books

Badsey, Stephen. "Cavalry and the Development of Breakthrough Doctrine." In *British Fighting Methods in the Great War*, edited by Paddy Griffith. London: Routledge, 1996.

Bailey, Jonathan. "The First World War and the Birth of Modern Warfare." In *The Dynamics of Military Revolution, 1300-2050*, edited by McGregor Knox and Williamson Murray. Cambridge: Cambridge University Press, 2001.

Beckett, Ian F.W. "The South African War and the Late Victorian Army." In *The Boer War: Army, Nation and Empire*, edited by Peter Dennis and Jeffrey Grey. Canberra: Army History Unit, 2000.

Crevel, Martin van. "World War I and the Revolution in Logistics." In *First World War, Great War, Total War Combat and Mobilization on the Western Front, 1914-1918*, edited by Roger Chickering. Cambridge: Cambridge University Press, 2000.

Davis, Paul. "Military Transformation, Which Transformation and What Lies Ahead." In *The George W. Bush Defence Program: Policy, Strategy and War*, edited by Stephen J Cimbal. Dulles, VA: Potomac Books, 2010.

Farrell, Theo, and Terriff, Terry. "The Sources of Military Change." In *Sources of Military Change: Culture, Politics, Technology*, edited by Theo Farrell and Terry Terriff. Colorado: Lynne Rienner, 2002.

Ford, Matthew. "Learning the Right Lessons: Military Transformation in Crisis and the Future of Britain's Armed Forces." In *A Military Transformed? Adaptation and Innovation in the British Military, 1792-1945*, edited by Michael LoCicero, Ross Mahoney and Stuart Mitchell. Solihull: Helion, 2014.

Fox-Godden, Aimee. "Hopeless Inefficiency?" The Transformation and Operational Performance of Brigade Staff, 1916-1918." In *A Military Transformed? Adaptation and Innovation in the British Military, 1792-1945*, edited by Michael LoCicero, Ross Mahoney and Stuart Mitchell. Solihull: Helion, 2014.

Hedberg, B. "How Organisations Learn and Unlearn." In *Handbook of Organizational Design*, edited by PC Nystrom and WH Starbuck. Oxford: Oxford University Press, 1981.

Lee, J. "Some Lessons of the Somme: The British Infantry in 1917." In *Look to Your Front: Studies in the First World War*, edited by Brian Bond. Staplehurst: Spellmount, 1999.

Mitchell, Stuart. "The British Army's Operations on the Somme." In *The Battle of the Somme*, ed. Matthias Strohn. Oxford: Osprey, 2016.

Philpott, William. "Total War." In *Palgrave Advances in Military History*, edited by Matthew Hughes and William Philpott. Basingstoke: Publishing House, 2006.

Philpott, William. "Marshal Foch and Allied Victory." In *Leadership in Conflict 1914-1918*, ed. Matthew Hughes and Matthew Seligman. Barnsley: Leo Cooper, 2000.

Philpott, William and Boff, Jonathan. "Learning the Lessons of the Somme: A British Division's Experience." In *Mastering the Industrial Battlefield: Military Transformation on the Western Front, 1914-18*, edited by William Philpott and Jonathan Boff. London: Ashgate, 2013.



Posen, Barry. "The Sources of Military Doctrine." In *Engaging the Enemy: Organization Theory and Soviet Military Innovation, 1955-1991*, edited by Kimberly Marten Zisk. Princeton, NJ: Princeton University Press, 1993.

Roberts, Field Marshal Lord. "Memoir" in *The Science of War: A Collection of Essays and Lectures 1891-1903*, ed. Neill Malcolm (London, 1912), xxix.

Sheffield, Gary. "How Even was the Learning Curve?: Reflections on the British and Dominion Armies on the Western Front." In *Canadian Military History since the 17th Century*, edited by Yves Tremblay. Ottawa: National Defence, 2000.

Sheffield, Gary. "The Australians at Pozières: Command and Control on the Somme, 1916." In *British General Staff: Reform and Innovation, 1890-1939*, edited by D Franch and BH Reid. London: Frank Cass, 2002.

Sheffield, Gary. "Military Revisionism: The Case of the British Army on the Western Front." In *A Part of History: Aspects of the British Experience of the First World War*, edited by Michael Howard. London: Publishing House, 2008.

Sheffield, Gary. "British High Command in the First World War: an Overview." In *The Challenges of High Command: The British Experience*, edited by Gary Sheffield. London: Palgrave Macmillan, 2014.

Sheffield, Gary. "Haig and the British Expeditionary Force in 1917." In *1917 Tactics, Training and Technology, The 2007 Chief of Army Military History Conference*. Edited by Peter Dennis and Jeffrey Grey. Canberra: AHMP, 2007.

Simkins, Peter. "Building Blocks: Aspects of Command and Control at Brigade level in the BEF's Offensive Operations, 1916-1918." In *Command and Control on the Western Front – The British Army's Experience 1914-18*, edited by Gary Sheffield and Dan Todman. Staplehurst: Spellmount, 2004.

Strachan, Hew. "Introduction." In *Big Wars and Small Wars: The British Army and the Lessons of War in the 20th Century*, edited by Hew Strachan. Abingdon: Routledge, 2006.

Strachan, Hew. "The British Army, its General Staff and the Continental Commitment 1904-1914." In *The British General Staff: Reform and Innovation, 1890-1939*, edited by David French and Brian Holden Reid. London: Frank Cass, 2002.

Terraine, John. "Indirect Fire as a Battle Winner/Loser." In *Old Battles and New Defences: Can we Learn from Military History?* London: Brassey's Defence Publishers, 1986.

Todman, Dan. "The Grand Lamasery Revisited: General Headquarters on the Western Front, 1914-1918." In *Command and Control on the Western Front: The British Army's Experience, 1914-1918*, edited by Gary Sheffield and Dan Todman. Staplehurst: Spellmount, 2004.

Weber, Max. "Bureaucracy." In *Economy and society: an outline of interpretive sociology*. Berkeley: University of California Press, 1968.

Wiest, Andrew. "Preferring to Learn from Experience: The American Expeditionary Force in 1917." In *1917 Tactics Training and Technology, The Chief of Army Military History Conference, 2007*, edited by Peter Dennis and Jeffrey Grey. Canberra: Australian History Military Publications, 2007.

## Books

- Anglesey, The Marquess of. *A History of the British Cavalry from 1816 to 1919*. London: Secker and Warburg, 1986.
- Ashworth, Tony. *Trench Warfare, 1914-1918: The Live and Let Live System*. New York: Holmes and Meiers, 1980.
- Avant, Deborah D. *Political Institutions and Military Change: Lessons from Peripheral Wars*. Ithaca, NY: Cornell University Press, 1994.
- Badsey, Stephen. *Doctrine and Reform in the British Cavalry 1880 – 1918*. Aldershot: Ashgate, 2008.
- Bailey, Jonathan. *Field Artillery and Firepower*. Oxford: The Military Press, 1989.
- Bailey, Jonathan. *The First World War and the Birth of the Modern Style of Warfare*. Cambridge: Cambridge University Press, 2001.
- Barnett, Correlli. *Britain and Her Army, 1509-1970: A Military, Political and Social Survey*. London: Faber, 2013.
- Baynes, Sir John. *Far from a Donkey: The Life of Lieutenant-General Sir Ivor Maxse*. London: Brassey's, 1995.
- Becke, AF. *The Royal Regiment of Artillery at Le Cateau, 26 August, 1914*. Uckfield: Naval and Military Press, 2003.
- Beckett, Ian FW and Keith Simpson, eds., *A Nation in Arms: A Social Study of the British Army in the First World War*. Manchester: Manchester University Press, 1985.
- Beckett, Ian FW. *Ypres: The First Battle 1914*. Harlow: Pearson/Longman, 2006.
- Beckett, Ian and Steven Corvi, eds. *Haig's Generals*. Barnsley: Pen and Sword Military Classics, 2005.
- Bickel, Keith B. *Mars Learning: The Marine Corps' Development of Small Wars Doctrine, 1915-1940*. Boulder: Westview Press, 2001.
- Bidwell, Shelford and Dominick Graham. *Firepower: British Army Weapons and Theories of War 1904-1945*. London: George Allen and Unwin, 1982.
- Bidwell, Shelford. *Modern Warfare, A Study of Men, Weapons, and Theories*. London: Allen Lane, 1973.
- Boff, Jonathan. *Winning and Losing on the Western Front: The British Third Army and the defeat of Germany in 1918*. Cambridge: Cambridge University Press, 2012.
- Boff, Jonathan. *Mastering the Industrial Battlefield: Military Transformation on the Western Front, 1914-18*. Edited by William Philpott. Ashgate; Publishing House, 2018.
- Bond, Brian (ed). *Look to Your Front: Studies in the First World War by the British Commission for Military History*. Staplehurst: Spellmount, 1999.
- Bond, Brian. *The Victorian Army and the Staff College 1854-1914*. London: Eyre Methuen, 1972.
- Bond, Brian. *Liddell Hart: A Study of his Military Thought*. New Jersey: Rutgers University Press, 1977.

- Boud, David. *Developing student autonomy in learning, Second edition*. Abingdon: Taylor and Francis, 1988.
- Bourne, John. *Who's Who in the First World War*. London: Routledge, 2001.
- Bourne, John. *Britain and the First World War, 1914-1918*. London: Hodder Arnold, 1989.
- Bowman, Timothy, and Mark Connelly. *The Edwardian Army: Recruiting, Training, and Employing the British Army, 1902-1914*. Oxford: Oxford University Press, 2012.
- Bragg, Sir Lawrence, Arthur Dowson and Henry Hemming. *Artillery survey in the First World War*. London: Field Survey Association, 1971.
- Brereton, JM. *The Horse in War*. Dublin: Douglas David and Co., 1976.
- Brown, Ian Malcolm. *British Logistics on the Western Front: 1914-1919*. Westport: Praeger, 1998.
- Centre of Military History United States Army. *Training and Use of American Units with the British and French: United States Army in the World War 1917-1919*. Washington: CMH, 1989.
- Chandler, David and Ian Beckett (ed). *The Oxford Illustrated History of the British Army*. Oxford: Oxford University Press, 1994.
- Charteris, John. *Field Marshal Earl Haig*. London: Kessinger, 2010.
- Cherry, Niall. *Most Unfavourable Ground: The Battle of Loos, 1915*. Solihull: Helion, 2005.
- Citino, Robert. *The Quest for Decisive Victory*. Lawrence: University Press of Kansas, 2002.
- Clark, Alan. *Aces High: The War In The Air Over The Western Front 1914 – 1918*. New York: Putnam's Sons, 1973.
- Clausewitz, Carl von. *On War*. Translated by Michael Howard and Peter Paret. London: Oxford World Classics, 2007.
- Cohen, Eliot, and John Gooch. *Military Misfortunes: The Anatomy of Failure of War and Peace in the Middle East*. New York: Free Press, 1990.
- Corkerry, Sean. *British Infantry Tactics in World War 1*. Milton Keynes: The Military Press, 2000.
- Creveld, Martin van. *Supplying War: Logistics from Wallenstein to Patton*. Cambridge: Cambridge University Press, 1974.
- Davidson, John. *Haig: Master of the Field*. London: Peter Nevill, 1953.
- Davies, Frank and Graham Maddocks. *Bloody Red Tabs: General Officer Casualties of the First World War 1914-1918*. Barnsley: Pen and Sword, 2014.
- Downie, Richard. *Learning from Conflict: The US Military in Vietnam, El Salvador, and the Drug War*. Westport, CT: Praeger, 1998.
- Duffy, Christopher. *Through German Eyes The British and The Somme 1916*. London: Phoenix, 2007.
- Eraut, Michael. *Developing Professional Knowledge and Competence*. London: Routledge, 1994.

- Falls, Cyril. *The First World War*. London: Pen and Sword, 2014.
- Falls, Cyril, James E Edmonds and AF Becke. *Military Operations, France and Belgium, 1917, Volume I: The German Retreat to the Hindenburg Line and the Battles Of Arras*. London: Imperial War Museum, Dept of Printed Books, 1992.
- Farndale, General Sir Martin. *History of the Royal Regiment of Artillery. Western Front 1914-18*. London: Royal Artillery Institution, 1986.
- Farrell, Theo, and Terry Terriff (ed). *Sources of Military Change: Culture, Politics, Technology*. Colorado: Lynne Rienner, 2002.
- Fletcher, David. *The British Tanks, 1915-19*. Marlborough: Crowood Press, 2001.
- Fortescue, John. *The Empire and the Army*. London: Cassell and Company, 1928.
- Fox, Aimée. *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918*. Cambridge: Cambridge University Press, 2017.
- French, David. *British Economic and Strategic Planning, 1905-1915*. London: Routledge, 2013.
- French, David. *British Strategy and War Aims, 1914-1916*. London: Allen and Unwin Ltd, 1986.
- Gardner, Nikolas. *Trial by Fire: Command and the British Expeditionary Force in 1914*. Westport: Praeger Productions, 2003.
- Glanfield, John. *The Devil's Chariots: The Birth and Secret Battles of the First Tanks*. Stroud, Gloucestershire: Sutton publishing, 2001.
- Gooch, John. *The Plans of War: The General Staff and British Military Strategy 1900-1914*. London: Routledge, 1974.
- Greenhalgh, Elizabeth. *Victory through Coalition, Britain and France during the First World War*. Cambridge: Cambridge University Press, 2009.
- Grieves, Keith. *Sir Eric Geddes: business and government in war and peace*. Manchester: Manchester University Press, 1989.
- Griffith, Paddy. *Battle Tactics of the Western Front: The British Army's Art of Attack 1916-1918*. London: Yale University Press, 1994.
- Griffith, Paddy. *Battle Tactics, From the Somme to Victory: The British Army's Experience on the Western Front, 1916-1918*. Barnsley: Pen and Sword, 2014.
- Griffith, Paddy. *British Fighting Methods in the First World War*. London: Routledge, 1998.
- Griffith, Paddy. *The Extent of Tactical Reform in the British Army, British Fighting Methods in the First World War*. London: Frank Cass, 1996.
- Griffith, Paddy. *Fortifications on the Western Front 1914-1918*. Oxford: Osprey, 2004.
- Gudmundsson, Bruce. *Stormtroop Tactics: Innovation in the German Army, 1914-1918*. Westport, CT: Praeger, 1989.

- Hackett, John. *The Profession of Arms*. London: Sidwick and Jackson, 1983.
- Harris, JP and Niall Barr. *Amiens to the Armistice: The BEF in the Hundred Days' Campaign, 8 August-11 November 1918*. London: Brassey's, 1999.
- Harris, Paul. *Men, Ideas, and Tanks: British Military Thought and Armoured Forces, 1903-39*. Manchester: Manchester University Press, 2015.
- Heathcote, T.A. *The Indian Army, The Garrison of British Imperial India, 1822-1922*. Devon: David and Charles 1974.
- Horowitz, Michael. *The Diffusion of Military Power: Causes and Consequences for International Politics*. Princeton, NJ: Princeton University Press, 2010.
- Johnson, Hubert. *Breakthrough! Tactics, Technology, and the Search for Victory on the Western Front in World War I*. Novato: Presidio, 1994.
- Jones, Spencer. *From Boer War to World War, Tactical Reform of the British Army, 1902-1914*. London: Prager, 2015.
- Judd, Dennis and Keith Surridge. *The Boer War*. New York: Palgrave MacMillan, 2003.
- Keegan, John. *First World War*. London: Hutchinson, 1998.
- Kim, Daniel. *The Link Between Organizational and Individual Learning, The Strategic Management of Intellectual Capital*. Boston: Butterworth-Heinemann, 1998.
- King, Anthony. *The Combat Soldier: Infantry Tactics and Cohesion in the Twentieth and Twenty-First Centuries*. Oxford: Oxford University Press, 2013.
- Knox, MacGregor and Murray, Williamson. *The Dynamics of Military Revolution, 1300-2050*. Cambridge: Cambridge University Press, 2001.
- Krause, Jonathan. *Early Trench Tactics in the French Army: The Second Battle of Artois, 1915*. Farnham: Ashgate, 2013.
- Lester, JR. *Tank Warfare*. London: George Allen and Unwin Ltd, 1943.
- Lewis-Stempel, John. *Six Weeks: The Short and Gallant Life of the British Officer in the First World War: The Life and Death of the British Officer in the First World War*. London: Orion, 2010.
- Liddell Hart, Basil Henry. *Through the Fog of War*. New York: Random House, 1938.
- Linklater, Eric. *The Highland Division*. London: HMSO, 1942.
- Lloyd, RA. *Troop Horse and Trench, The Experiences of a British Lifeguardsman of the Household Cavalry Fighting on the Western Front during the First World War 1914-1918*. London: Leonaur, 1938.
- LoCicero, Michael, Ross Mahoney and Stuart Mitchell (ed). *A Military Transformed? Adaptation and Innovation in the British Military 1792-1945*. Solihull: Helion, 2014.
- Luvaas, Jay. *The Education of an Army: British Military Thought 1815-1940*. London: Cassell, 1965.

- Marble, Sanders. *British Artillery on the Western Front in the First World War: 'The Infantry cannot do with a gun less'*. Farnham: Ashgate, 2013.
- McCartney, Helen. *Citizen Soldiers: The Liverpool Territorials in the First World War*. Cambridge: Cambridge University Press, 2005.
- Messenger, Charles. *The Day we won the War. Turning Point at Amiens 8 August 1918*. London: Weidenfeld and Nicolson, 2008.
- Mitchinson, Bill. *The Territorial Force at War, 1914-1916*. Basingstoke: Palgrave Macmillan, 2014.
- Morton, Desmond. *When You're Numbers Up: The Canadian Soldier in the First World War*. Random House: Canada Ltd, 1993.
- Murray, Williamson. *Army Transformation: A View from the U.S. Army War College. U.S. Army War College, July, 2001*.
- Murray, Williamson. *Military Adaptation in War*. Cambridge: Cambridge University Press, 2011.
- Neillands, Robin. *The Old Contemptibles: The British Expeditionary, 1914*. London: John Murray, 2004.
- Nolan, Victoria. *Military Leadership and Counterinsurgency, The British Army and Small War Strategy since World War II* (International Library of Security Studies), London: IB Tauris, 2011.
- Nonaka, Ikujiro and Takeuchi, Hirotaka. *The Knowledge Creating-Company*. Oxford: Oxford University Press, 1995.
- Olsen, John Andreas, and van Creveld, Martin. *The Evolution of Operational Art: From Napoleon to the Present*. Oxford: Oxford University Press, 2007.
- Palazzo, Albert. *From Moltke to Bin Laden: The Relevance of Doctrine in the Contemporary Military Environment*. Canberra, ACT: Land Warfare Studies Centre, 2008.
- Palazzo, Albert. *Seeking Victory on the Western Front: The British Army and Chemical Warfare in World War I*. USA: University of Nebraska Press, 2000.
- Philpott, William. *Bloody Victory: The Sacrifice on the Somme and the Making of the Twentieth Century*. London: Little, Brown, 2009.
- Pimlott, John. *The Guinness History of the British Army*. Enfield: Guinness Publishing, 1993.
- Prior, Robin and Trevor Wilson. *Passchendaele the Untold Story*. London: Yale University Press, 1996.
- Prior, Robin and Trevor Wilson. *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*. Oxford: Blackwell, 1992.
- Pugh, James. *The Royal Flying Corps, the Western Front, and the Control of the Air, 1914–1918*. Abingdon: Routledge, 2017.
- Pugsley, Christopher. *The Anzac Experience: New Zealand, Australia, and Empire in the First World War*. Auckland: Raupo Publishing, 2004.
- Ramsay, MA. *Command and Cohesion: The Citizen Soldier and Minor Tactics in the British Army, 1870-1918*. Westport: Praeger Publishers, 2002.

- Rawling, Bill. *Surviving Trench Warfare. Technology and the Canadian Corps 1914-1918*. Toronto: University of Toronto Press, 1992.
- Risio, Major Andrew. *Building the Old Contemptibles: British Military Transformation and Tactical Development from the Boer War to the Great War, 1899-1914*. Washington: Normanby Press, 2014.
- Robbins, Simon. *British Generalship on the Western Front 1914-1918: Defeat into Victory*. London: Routledge 2006.
- Robertson, Field Marshal Sir William. *From Private to Field Marshal*. London: Pickle Partners, 2013.
- Rosen, Stephen. *Winning the Next War: Innovation and the Modern Military*. London: Cornell University Press, 1991.
- Samuels, Martin. *Command or Control? Command, Training and Tactics in the British and German Armies, 1888-1918*. London: Frank Cass, 1995.
- Samuels, Martin. *Doctrine and Dogma: German and British Infantry Tactics in the First World War*. New York: Greenwood Press, 1992.
- Schein, Edgar. *Organisational Leadership and Culture*. San Francisco: Jossey-Bass, 2009.
- Searle, Geoffrey R. *Quest for National Efficiency: a study in British Politics and Political Thought, 1899-1914*. Berkeley: University of California Press, 1971.
- Serena, Chad. *A Revolution in Military Adaptation: The US Army in the Iraq War*. Washington DC: Georgetown University Press, 2011.
- Sheffield, Gary and JM Bourne (eds). *Douglas Haig: War Diaries and Letters 1914-1918*. London: Phoenix, 2006.
- Sheffield, Gary and Dan Todman (eds). *Command and Control on the Western Front: The British Army's Experience 1914-1918*. Spellmount: Staplehurst, 2004.
- Sheffield, Gary. *Forgotten Victory*. London: Headline, 2001.
- Sheffield, Gary. *Leadership in the Trenches: Officer-man Relations, Morale and Discipline in the British Army in the Era of the First World War*. Palgrave: Macmillan, 2000.
- Sheffield, Gary. *The Chief: Douglas Haig and the British Army*. London: Aurum, 2011.
- Sheffield, Gary. *The Somme: A New History*. London: Orion, 2003.
- Sheffield, Gary. *Doctrine and Command in the British Army, A Historical Overview*. London: Army Doctrine Publication Land Operations, DGD&D, British Army, 2005.
- Sheffy, Yigal. *A Model Not to Follow: The European Armies and the Lessons of the War*. London: Routledge, 2007.
- Sheldon, Jack. *The German Army on the Somme 1914-1916*. Barnsley: Pen and Sword, 2005.
- Simkins, Peter. *Kitchener's Army: The Raising of the New Armies 1914-1916*. Manchester: Manchester University Press, 1988.

Simkins, Peter. *From the Somme to Victory: The British Experience on the Western Front 1916-1918*. Barnsley: Pen and Sword, 2014.

Simpson, Andy. *Directing Operations: British Corps Command on the Western Front, 1914-1918*. Stroud: Spellmount, 2006.

Snyder, Jack L. *The Ideology of the Offensive: Military Decision Making and the Disasters of 1914*. Ithaca: Cornell University Press, 1984.

Stanhope, James and Brian Bond. *The War Memoirs of Earl Stanhope: General Staff Officer in France 1914-1918*. Brighton: Tom Donovan Editions, 2006.

Stone, Jay and Erwin A Schmidl. *The Boer War and Military Reform*. Lanham: University Press of America, 1988.

Strachan, Hew. *The Evolution of Operational Art and Britain, 1909-2009*. Oxford: Oxfordshire online, 2010.

Strachan, Hew. *The British Army, its General Staff and the Continental Commitment 1904-1914*. London: Schuster, 2003.

Strachan, Hew. *The First World War*. London: Schuster, 2003.

Strachan, Hew. *Big Wars and Small Wars: The British Army and the Lessons of War in the 20<sup>th</sup> Century*. Abingdon: Routledge, 2006.

Terraine, John. *Mons: The Retreat to Victory*. Ware: Wordsworth Editions, 2000.

Terraine, John. *Douglas Haig. The Educated Soldier*. London: Cassell Military Paperbacks, 1963.

Terraine, John. *White Heat: The New Warfare 1914-1918*. London: Sidgwick and Jackson, 1982.

Terraine, John. *The Smoke and the Fire: myths and Anti-myths of War: 1861-1945*. London: L Cooper, 1992.

Thomas, Hugh. *The Story of Sandhurst*. London: Hutchinson, 1961.

Travers, Tim. *How the War was Won: Command and Technology in the British Army on the Western Front, 1917-1918*. London: Routledge, 1992.

Travers, Tim. *The Killing Ground: The British Army, the Western Front, and the Emergence of Modern War 1900-1918*. Barnsley: Pen and Sword, 2003.

Warner, Philip. *The Battle of Loos*. Chatham: Mackays, 1977.

Wilson, James Q. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York: Basic Books, 2000.

Woodward, David. *Lloyd George, and the Generals*. Newark: University of Delaware Press, 1983.

### **PhD Theses**

Bailey, Jonathan. "Artillery and Warfare 1945-2025." PhD diss., Cranfield University, 2003.

Beach, James. "British Intelligence and the German Army, 1914-1918." PhD diss., University College London, 2004.



Boff, Jonathan. "British Third Army, the Application of Modern War, and the Defeat of the German Army, August-November 1918." PhD diss., Kings College London, 2010.

Evans, Nick. "From Drill to Doctrine: Forging the British Army's Tactics, 1897-1909." PhD diss., Kings College London, 2017.

Fox-Godden, Aimée Elizabeth. "Putting Knowledge in Power: Learning and Innovation in the British Army of the First World War." PhD diss., University of Birmingham, 2015.

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

Harris, Paul. "The men who planned the war: A Study of the Staff of the British Army on the Western Front, 1914-1918." PhD., King's College London, 2014.

Hodgkinson, Peter Eric. "British Infantry Battalion Commanders in the First World War." PhD diss., University of Birmingham, 2013.

Jones, Spencer. "The influence of the Boer war (1899-1902) on the tactical development of the regular British Army 1902-1914." PhD diss., Wolverhampton University, 2009.

Marble, Sanders. "The Infantry Cannot Do With A Gun Less: The Place of the Artillery in the BEF, 1914-1918." PhD diss., King's College London, 1999.

Mitchell, Stuart BT. "An Inter-Disciplinary Study of Learning in the 32nd Division on the Western Front, 1916-1918." PhD diss., University of Birmingham, 2013.

Robbins, Simon. "British Generalship on the Western Front in the First World War, 1914 – 1918." PhD diss., Kings College University of London, 2001.

Simpson, Andrew. "The Operational Role of Corps During World War One." PhD diss., University College London, 2001.

Thomas, Alun. "British 8<sup>th</sup> Division on the Western Front 1914-1918." PhD diss., University of Birmingham, 2010.

Towle, Phillip. "The Influence of the Russo-Japanese War on British Military and Naval Thought 1904-1914." PhD diss., University of London, 1973.

Watt, Emir Patrick James. "Managing Deadlock: Organisational Development in the British First Army, 1915." PhD diss., University of Edinburgh, 2017.

Yockelson, Mitchell. "Brothers In Arms, the American and British Coalition on the Western Front, 1918." PhD diss., Cranfield University, 2006.

### **Other Dissertations**

Geddes, A. "Major-General Arthur Solly-Flood, GHQ and Tactical Training in the BEF, 1916- 1918." MA diss., University of Birmingham, 2007.

Higgins, Simon Giles. "How was Richard Haldane able to Reform the British Army? A Historical Assessment Using a Contemporary Change Management Model." M.Phil thesis, University of Birmingham, 2010.

Molineux, Dave. "The Effect of Platoon Structure on Tactical Development in the BEF: June to November 1918." MA diss., University of Birmingham, 2009.

Mythen, James. "The Revolution in British Battle Tactics July 1916-June 1917: The Spring and Summer Offensives during 1917." M.Phil thesis, Pembroke College, Cambridge, 2001.

Robinson, Peter. "A Welsh Response to the Great War: The 38th (Welsh) Division on the Western Front 1914 – 1919." MA diss., Cardiff University, 2017.

Whitmarsh, Andrew. "The Development of Infantry Tactics in the British 12<sup>th</sup> (Eastern) Division, 1915-1918." MA diss., University of Leeds, 1995.

## Online Resources

Gjørsv, Gunhild Hoogensen. "Learning Painful Lessons from Afghanistan." *Small Wars Journal* (March, 2019). Accessed 24 April 2019. <https://smallwarsjournal.com/blog/learning-painful-lessons-afghanistan>.

HMSO. "Army List, 1896." Accessed 24 May 2018. [www.digital.nls.uk/100849814](http://www.digital.nls.uk/100849814)

Kem, Colonel (Retd) Jack. "Military Transformation: Ends, Ways and Means." *Air and Space Power Journal*, Fall 2006. Accessed 21 May 2020. <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj06/fal06/kem.html>

King, Antony. "The Ethos of the Royal Marines: The Precise Application of Will." Report Commissioned by the Royal Marines, May 2004, 2. Accessed 12 April 2019. <https://ore.exeter.ac.uk/repository/bitstream/handle/10036/58653/RMethos4.pdf?sequence=1>

Kramer, Franklin, Hans Binnendijk and Daniel Hamilton. "NATO's New Strategy: Stability Generation, 2015." *The Atlantic Council Of The United States* (27 August, 2015). Accessed 11 July 2019. [https://www.atlanticcouncil.org/wp-content/uploads/2015/09/NATOs\\_new\\_strategy\\_web.pdf](https://www.atlanticcouncil.org/wp-content/uploads/2015/09/NATOs_new_strategy_web.pdf).

Palmer, Peter J. "Sir Arthur Solly-Flood and Tactical Training in the BEF." *The Western Front Association* (2009). Accessed 22 May 2019. <http://www.westernfrontassociation.com/great-war-on-land/britain-allies/1039-sir-arthur>.

Philpott, William. "Beyond the 'Learning Curve:' The British Army's Military Transformation in the First World War." *RUSI Analysis* (November, 2009). Accessed 22 May 2014. <https://rusi.org/commentary/beyond-learning-curve-british-armys-military-transformation-first-world-war>

Philpott, William. "Warfare 1914-1918." *International Encyclopaedia of the First World War, 1914-1918*, 2. Accessed 12 May 2019. <https://www.encyclopedia.1914-1918-online.net>

Rayment, Sean. "Britain's 'donkey' soldiers are losing the war in Afghanistan." Accessed 21 August 2015. <http://www.telegraph.co.uk/news/worldnews/asia/afghanistan/8455741/Britains-donkey-soldiers-are-losing-the-war-in-Afghanistan.html>

Sheffield, Gary. "The Somme: a Terrible Learning Curve." Accessed 24 May 2020. <http://www.historyextra.com/feature/somme-terrible-learning-curve>

The Times, "Archives, Solly-Flood, 15 November 1940." Accessed 13 July 2018. <https://www.thetimes.co.uk/archive/find/solly-flood/w:1940-11-14~1985-11-15>

Williams, Colonel Thomas. "US Army, Understanding Innovation." Accessed 4 July 2019.  
[http://www.au.af.mil/au/awc/awcgate/milreview/williams\\_innovation.pdf](http://www.au.af.mil/au/awc/awcgate/milreview/williams_innovation.pdf).

## Appendix 1

### Stationery Service and Central Distribution Section Publications from the First World War

Reference	Title	Date Issued	Theme
169	Notes on Recent Operations on the Front	1917050	
AEF	The Training and Employment of Bombers	19160901	
AEF	More Notes on Recent Ops 07 1917	19170701	
AEF	Notes on Infantry Attacks and Raids	19170701	
AEF	Notes on Raids	19170701	
AEF	Artillery in Offensive Operations	19170801	
AEF	Field Artillery Notes, No. 7	19170801	Artillery
AEF	Notes on the French 75 mm	19171001	Artillery
AEF	Tanks and Their Employment Co-operation with Other Arms	19171201	Tanks
AEF	Scouting and Patrolling 1918	19180301	Infantry
AEF	German Lessons of 19180301	19180817	Tactics
AEF	A survey of German Tactics 1918	19181231	Tactics
AEF	Histories of 251 Div German Army	19190101	General
CDS 001	Notes on Field Defences (Part 1 - 7)	19141201	Trenches
CDS 002	Notes from the Front, Part I	19141101	Tactics
CDS 003	Notes from the Front, Part II	19141201	Tactics
CDS 004	Notes from the Front, Part III and Further Notes on Field Defences	19150201	Trenches
CDS 005	Trench Warfare: Notes on Attack and Defence	19150201	Trenches
CDS 006	Notes on Field Defences, No 15	19150301	Trenches
CDS 007	German land mines Spengvorschrift	19150201	Infantry
CDS 009	Co-operation of Aircraft and Other Arms	19150201	General
CDS 010	Notes on Landing Grounds	19150201	General
CDS 011	Stove Pipe Attachment for Machine Guns	19150101	Machine guns
CDS 012	Hyroscope Attachment for Machine Guns 1915	19150101	Machine guns
CDS 013	Co-operation of Aeroplanes with Artillery	19150101	Artillery
CDS 014	Notes on Field Defences, No 17	19150501	Trenches

CDS 015	The Training and Employment of Grenadiers	19150401	Training
CDS 016	Notes on Signal Communications within a Division	19150401	Comms
CDS 019	Notes on Field Defences, No 16	19150401	Trenches
CDS 020	Notes on Ranging Trials	19150501	Grenades
CDS 021	Notes on Protection Against Poisonous Gases	19150501	Gas
CDS 022	Notes on Field Defences, No 18	19150601	Trenches
CDS 023	Preliminary Deductions for Instruction from Recent Engagements	19150601	Tactics
CDS 024	Object and Conditions of Combined Offensive Action	19150601	Tactics
CDS 025	Splinter Proofs	19150601	General
CDS 026	Diagrams of Aeroplanes	19150601	General
CDS 027	Poisonous Air Encountered in Underground Work	19150601	Mining
CDS 028	Notes on Strengthening Defensive Portions of Line 1	19150601	Trenches
CDS 029	Notes on Field Telephone Work	19150601	Comms
CDS 029	Notes on Field Telephone Work	19151001	Comms
CDS 030	Close Shooting by Guns and Howitzers	19150701	Artillery
CDS 031	Notes on Registration of Artillery Targets	19150701	Artillery
CDS 032	Instructions for Calibration of Guns in the Field	19150701	Artillery
CDS 033	Co-operation of Aeroplanes with Other Arms	19150701	Artillery
CDS 035	German Aeroplane seen 29 <sup>th</sup> July 1915, over Houthulst	19150701	General
CDS 036	Notes on the Tactical Employment of Machine and Lewis Guns	19150601	Machine guns
CDS 038	Fire by Selected Batteries	19150701	Artillery
CDS 039	Instructions for Firing at Aeroplanes with Small Arm Ammunition	19150701	Tactics
CDS 040	Co-operation of Aeroplanes and Artillery when using Wireless	19150701	Comms
CDS 041	Report on captured German trenches	19150701	Trenches
CDS 042	Alterations to enable English ammunition into German guns	19150501	Machine guns
CDS 043	Further types of German aeroplanes	19150701	General
CDS 045	Amendments to "Object, etc., of combined offensive action"	19150801	Tactics
CDS 046	Fall of Shot	19150701	Artillery
CDS 047	Further type of German aeroplane	19150701	General
CDS 048	Reporting of Hostile airships	19150701	General
CDS 049	Range Table - corrections for temperature (18-pr.)	19150701	Artillery

CDS 050	Tactical Notes	19150731	Tactics
CDS 050	Tactical Notes	19150831	Tactics
CDS 052	Notes for the guidance of meteorological observers	19150701	Meteorology
CDS 053	Notes from the Front, Part IV	19150501	General
CDS 053	Notes from the Front, Part IV and Further notes on Field Defences	19150501	Trenches
CDS 054	Range Table for 18-pr, QF, Guns, Marks I and II	19150701	Artillery
CDS 055	German Document: Construction of shelters for machine guns	19150801	Trenches
CDS 056	Range Table - corrections for 15-pr, BLC	19150801	Artillery
CDS 057	German field artillery: extracts from range tables (Ia/6780)	19150101	Artillery
CDS 057a	Description, "Ball" grenade and instructions for use	19150801	Grenades
CDS 058	List of General Staff publications 1	19150901	Publications
CDS 058	List of General Staff publications:	19151201	Publications
CDS 059	Notes on the destruction of hostile batteries by artillery	19150801	Artillery
CDS 060	Notes compiled by the Experiments Committee	19140801	General
CDS 061	Range Tables for firing against aeroplanes with machine guns	19150801	Machine guns
CDS 062	Machine gun emplacements 1915	19150901	Machine guns
CDS 066	Notes on British, French, and German grenades 1915	19150901	Grenades
CDS 067	Notes on visual signalling with service electric lamps 1915	19150901	Comms
CDS 068	Pear-shaped grenade	19150829	Grenades
CDS 070	Tactical Notes	19150901	Tactics
CDS 071	Reports about German "Flammenwerfer"	19150901	General
CDS 072	Grenade, ISK	19150101	Grenades
CDS 073	Notes on improvised "Buzzer" telephone exchanges	19150901	Comms
CDS 074	The training and employment of Grenadiers	19151001	Grenades
CDS 076	Hints on remedying stoppages in the Lewis machine gun	19151001	Machine guns
CDS 077	Notes for the guidance of meteorological observers	19151001	Meteorology
CDS 078	Precautions when firing smoke shell from the Stokes mortar	19151001	Mortars
CDS 079	The employment of minenwerfer	19151101	Mortars
CDS 080	Minenwerfer	19151101	Mortars
CDS 081	German instructions regarding to strengthen their position	19151101	Trenches
CDS 082	Instructions regarding the construction of trenches	19151101	Trenches

CDS 083	The lessons of the recent fighting in the Ban de Sapt	19151101	Tactics
CDS 084	Army Corps, the Artillery, Generals of the South 5 <sup>th</sup> Army	19151101	Tactics
CDS 085	Lessons of the recent fighting in the Argonne	19151101	Tactics
CDS 086	Memorandum regarding gas shells	19151101	Gas
CDS 087	Instructions relative to the conduct of the artillery	19151101	Artillery
CDS 088	Artillery: general principles Argonne	19151101	Artillery
CDS 089	Barrage fire in case of attack	19151101	Artillery
CDS 092	Notes on artillery observation from kite balloons	19151101	Artillery
CDS 093	Report on Experimental Firing with 18 pr Shrapnel and HE at Calais	19151101	Artillery
CDS 093	Report on Experimental Firing with 18 pr Shrapnel and HE at Calais	19151101	Artillery
CDS 096	Notes compiled by the Experiments Committee (Second Series)	19151101	General
CDS 098/1	Artillery Notes No 1: Close Shooting in the Field	19160101	Artillery
CDS 098/2	Artillery Notes No 2: Field Artillery Ammunition	19160101	Artillery
CDS 098/3	Artillery Notes No 3: Counter Battery work	19160201	Artillery
CDS 098/4	Artillery Notes No 4: Artillery in Offensive Operations	19160401	Artillery
CDS 098/5	Artillery Notes No 5: Wire Cutting by Artillery	19160201	Artillery
CDS 098/5	Artillery Notes No 5: Wire Cutting by Artillery	19160601	Artillery
CDS 098/6	Artillery Notes No 6: Trench Mortars	19160301	Artillery
CDS 301	The stacking and storing of supplies	19151001	General
CDS 302	Water supply: Saint-Quentin	19150101	General
CDS 303	Experiences Gained in Champagne	19150414	Tactics
CDS 303	Experiences Gained in the Winter Battle in Champagne	19151101	Tactics
CDS 304	Methods to Attempt to Break Through a Strongly Fortified Position	19150414	Tactics
CDS 304	Technical Methods to Break Through a Strongly Fortified Position	19151101	Tactics
CDS 306	Notes on German fuzes and typical French and Belgian fuzes	19151101	Artillery
CDS 306	Amendments to Notes on German fuzes, No 1	19160601	Artillery
CDS 306	Amendments to Notes on German fuzes, No 2	19160901	Artillery
CDS 307	Defensive Measures against Gas Attacks	19151101	Gas
CDS 307	Supplement to CDS 307 Defensive Measures against Gas Attacks	19160201	Gas
CDS 308	Memorandum on gas poisoning in mines	19151101	Gas
CDS 309	Routine Orders GHQ BEF Adjutants-Generals Branch	19151201	General

CDS 310	Belgium, List of Billets	19151201	General
CDS 311	Notes on Signal Communications	19151201	Comms
CDS 312	GRO 1275 of 28/11/15. Chilled feet and frostbite prevention.	19151201	General
CDS 313	Field Almanac	19150201	General
CDS 313	Field Almanac	19160301	General
CDS 313	Field Almanac	19170301	General
CDS 313	Field Almanac	19180101	General
CDS 314	Notes for observers RFC	19160101	Artillery
CDS 314	Notes for observers RFC	19180101	Artillery
CDS 315	Notes on war diaries	19150801	General
CDS 331	Information to guide instruction in the use of rifle and grenades	19150701	Training
CDS 332	Memorandum regarding recommendations for honours dispatch	19151217	General
CDS 332a	Amendments regarding recommendations for honours	19151217	General
CDS 333	A Study of the Attack in the Present Phase of War	19151201	Tactics
CDS 334	Notes on field general courts martial	19150801	General
CDS 335	Instructions for mounting, operating	19151101	Grenades
CDS 336	Instructions for mounting, operating		Grenades
CDS 337	The care and working of field telephones	19150501	Comms
CDS 338	Instructions for working the switchboard telephone	19150801	Comms
CDS 340	Extracts from General Routine Order's	19151201	General
CDS 340	Extracts from General Routine Order's	19160401	General
CDS 341	Notes on Recent Signalling Experience at the Front	19150801	Tactics
CDS 342	Portable searchlights; instructions for working	19150601	Tactics
CDS 343	Notes on the employment of electric field searchlights	19151001	Tactics
CDS 344	The abolition of flies in camps, billets, and hospitals	19150401	General
CDS 345	Memorandum on the treatment of injuries in war	19150701	General
CDS 348	Instructions for the use of Salvus	19150901	Machine guns
CDS 349	Hospital notices regarding officers' kit	19151001	General
CDS 350	Silhouettes of Aeroplanes	19150701	General
CDS 352	Index of water supply	19150901	General
CDS 353	Water supply. Valenciennes	19150901	General



CDS 354	Notice (Warning Soldiers against Indiscreet conversation)	19150901	General
CDS 355	The German Forces in the Field	19150301	General
CDS 356	Handbook of the German Army		General
CDS 357	Regulations regarding the admission of British civilians	19150801	General
CDS 358	Instructions to Ordnance Officers in the Field	19150701	Artillery
CDS 359	List of standard packages issued from Woolwich		Artillery
CDS 360	Notes on Transport, ordnance, and supply services	19150501	Logistics
CDS 361	Table of components, accessories, and straps for service vehicles		Logistics
CDS 363	Details of harness required for the various service pattern vehicles	19150501	Logistics
CDS 366	Duties of Deputy Assistant Directors Railway Transport	19150201	Logistics
CDS 367	How a soldier should get his Pay	19150201	General
CDS 376	Naval and military dispatches. Part I.	19150101	Comms
CDS 377	Postal instructions for units and departments	19150801	General
CDS 380	Circular: Censorship	19151201	General
CDS 382	Hostile aircraft	19150101	General
CDS 382	Reporting of Hostile aircraft	19150701	General
CDS 383	Extract from Notes on the Minor Tactics of Trench Warfare	19150601	Tactics
CDS 384	Instructions regarding promotion of officers.	19150101	General
CDS 384	Instructions regarding promotion of officers.	19160101	General
CDS 384	Instructions regarding promotion of officers.	19160701	General
CDS 384	Instructions regarding promotion of officers.	19171201	General
CDS 384	Instructions regarding promotion of officers.	19181001	General
CDS 385	The new German field service uniform	19151229	General
CDS 386	Instructions for the administration of RE Works in the Field	19160101	General
CDS 387	Duties of the officers commanding divisional trains	19160101	Logistics
CDS 388	Defensive measures against gas attacks	19160101	Gas
<b>FSR 1</b>	<b>Field Service Regulations Parts I &amp; II</b>	<b>19120729</b>	<b>General</b>
GHQ	4th Army Tactical Notes.	19160630	Tactics
GHQ	Notes on Recent Fighting 1918	19180413	Tactics
GHQ	Lessons Taught by the Attack of 19180321	19180817	Tactics
SS 023	Preliminary Deductions, for Instruction, from Recent Engagements.	19151101	Tactics

SS 024	Object and Conditions of Combined Offensive Action.	19151101	Tactics
SS 029	Notes on field telephone work	19151001	Comms
SS 029	Notes on Field Telephones	19170301	Comms
SS 029	Notes on field telephone work	19180301	Comms
SS 058	List of special publications:	19161101	Publications
SS 058	Special Publications. Army Printing and Stationary Service	19170501	Publications
SS 058	Special Publications. Army Printing and Stationary Service	19170601	Publications
SS 058	Special Publications. Army Printing and Stationary Service	19170901	Publications
SS 058	Special Publications. Army Printing and Stationary Service	19180501	Publications
SS 058	Special Publications. Army Printing and Stationary Service	19180601	Publications
SS 067	Notes on visual signalling with service electric lamps	19150901	Comms
SS 071	Reports on the Subject of German 'Flammenwerfer'	19150101	General
SS 071	Reports on the Subject of German 'Flammenwerfer'	19170101	General
SS 071	Reports on the Subject of German 'Flammenwerfer'	19180101	General
SS 077	Notes for the Guidance of Meteorological Observers	19150701	Meteorology
SS 077	Notes for the Guidance of Meteorological Observers	19151001	Meteorology
SS 077	Meteorological Notes and Instructions for the use of Observers	19170801	Meteorology
SS 077	Meteorological Notes and Instructions for the use of Observers	19180801	Meteorology
SS 077	Meteorological Notes and Instructions for the use of Observers	19190901	Meteorology
SS 098	Artillery in Offensive Operations	19160401	Artillery
SS 098/4	Artillery notes. No 4: artillery in offensive operations	19160401	Artillery
SS 098/4	Artillery notes. No 4: artillery in offensive operations	19160601	Artillery
SS 098/5	Artillery Notes, No 5: Wire cutting by Artillery	19160201	Artillery
SS 098/5	Artillery Notes, No 5: Wire cutting by Artillery	19160601	Artillery
SS 098/6	Artillery notes No 6: mortars	19160301	Mortars
SS 099	Amendments to handbook .303 Lewis machine gun, Part I,	19160101	Machine guns
SS 100	Notes on Wireless	19160101	Comms
SS 101	Notes for infantry officers on trench warfare	19160301	Tactics
SS 101	Notes for infantry officers on trench warfare	19161101	Tactics
SS 101	Notes for infantry officers on trench warfare	19161201	Tactics
SS 101	Notes for infantry officers on trench warfare	19170501	Tactics

SS 102	Orders for Sentry and Gun team Commanders	19161001	Machine guns
SS 103	Orders regarding sending Messages within 1,500 yards	19160201	Comms
SS 103	Orders regarding sending Messages within 1,500 yards	19160401	Comms
SS 104	Précis of Divisional RE instructions	19160301	General
SS 105	Notes on RE preparations for offensive operations	19160301	General
SS 106	Notes on the Tactical Employment of Machine and Lewis Guns	19160301	Machine guns
SS 106	Notes on the Tactical Employment of Machine and Lewis Guns	19170501	Machine guns
SS 106	Notes on the Tactical Employment of Machine and Lewis Guns	19170701	Machine guns
SS 107	Notes on Minor Enterprises	19160301	Tactics
SS 108	Notes for CREs on organisation of RE works when holding a line	19160401	General
SS 109	Training of Divisions for Offensive Action	19160501	Training
SS 110	Medium Trench Mortar Gun Drill – 2” Trench Mortars	19160501	Mortars
SS 110	Medium Trench Mortar Gun Drill – 2” Trench Mortars	19170301	Mortars
SS 111	Lessons to be Learnt from Recent Gas Attacks	19160501	Gas
SS 111a	Lessons from the German gas attack on 16th/17th June 1916	19160617	Gas
SS 111b	Lessons from recent hostile gas attacks	19160801	Gas
SS 111c	Standing Orders for Action during Gas Alert and Hostile Gas Attacks	19160901	Gas
SS 112	Consolidation of trenches, localities, and craters	19160501	Trenches
SS 112	Consolidation of trenches, localities, and craters	19160801	Trenches
SS 113	Notes on the Attack: Impressions of a Battalion Commander	19151101	Tactics
SS 113	Notes on the Attack: Impression of a Battalion Commander	19160601	Tactics
SS 114	Note on the care of guns during prolonged bombardments	19160601	Artillery
SS 114	Notes on the Care of Guns During Prolonged Bombardments	19170301	Artillery
SS 115	Notes on Mining (translated from the French)	19160601	Mining
SS 115	Notes on Mining (translated from the French)	19161201	Mining
SS 116	Notes on cover against shell fire: with special reference to 5.9”	19160701	Trenches
SS 117	Instructions for Higher Formations in the Attack	19160701	Tactics
SS 118	Instructions regarding the use of shells filled with lethal chemicals	19160701	Artillery
SS 119	Preliminary Notes on the Tactical Lessons of the Recent Operations	19160401	Tactics
SS 119	Preliminary Notes on the Tactical Lessons of the Recent Operations	19160701	Tactics
SS 119	Preliminary Notes on the Tactical Lessons of the Recent Operations	19160901	Tactics

SS 120	Co-operation between Aeroplanes and Artillery during an Advance	19160901	Artillery
SS 122	Some Notes on Lewis Guns and Machine Guns	19160901	Machine guns
SS 123	Notes on the Use of Carrier Pigeons		Comms
SS 124	Notes for Artillery Officers on Shoots with Aeroplane Observation	19160801	Artillery
SS 125	Instructions for Training	19170601	Training
SS 126	The Training and Employment of Bombers	19160901	Training
SS 130	Notes on the Employment of 4" Stokes Mortar Bombs	19171101	Mortars
SS 131	Co-Operation of Aircraft with Artillery	19161201	Artillery
SS 131	Co-Operation of Aircraft with Artillery	19170801	Artillery
SS 131	Co-Operation of Aircraft with Artillery	19171201	Artillery
SS 132	Co-operation Between Aircraft and Infantry	19180401	Infantry
SS 133	No proper title; standardised markings for bombardment maps	19161130	General
SS 134	Instructions on the Use of Lethal and Lachrymatory Shell	19161201	Artillery
SS 134	Instructions on the Use of Lethal and Lachrymatory Shell	19180301	Artillery
SS 135	Instructions for the Training of Divisions for Offensive Action	19161201	Training
SS 135	Instructions for the training of Divisions for offensive action	19170801	Training
<b>SS 135</b>	<b>The Training and Employment of Divisions</b>	<b>19180101</b>	<b>Training</b>
SS 135	The Division in the Attack – 1918	19181101	Tactics
SS 137	Recreational Training		Training
SS 138/3	Effect on Enemy of Our Gas Attacks	19170101	Gas
SS 139/1	Artillery Notes No. 1, Close Shooting in the Field, Notes for Infantry Officers	19170301	Artillery
SS 139/3	Artillery Notes No. 3, Counter-Battery Work	19170301	Artillery
SS 139/3	Artillery Notes No. 3, Counter-Battery Work	19180201	Artillery
SS 139/4	Artillery Notes No. 4, Artillery in Offensive Operations	19170201	Artillery
SS 139/7	Artillery Notes No. 7, Artillery in Defensive Operations	19180201	Artillery
SS 143	Instructions for the training of platoons for offensive action	19170201	Training
<b>SS 143</b>	<b>Instructions for the Training of Platoons for offensive action</b>	<b>19170614</b>	<b>Training</b>
SS 144	The Normal Formation for the Attack	19170201	Tactics
SS 148	Intercommunication in the Field		Comms
SS 149	Notes on Meteorological Telegrams to the Artillery	19170301	Meteorology
SS 151	Notes and Information from Captured Enemy Documents	19170301	General

SS 151	Notes and Information from Captured Enemy Documents	19180801	General
SS 152	Instructions for Training within Schools at GHQ, Army & Corps Level		Training
SS 152	Instructions for the Training of the British Armies in France 1917	19170601	Training
<b>SS 152</b>	<b>Instructions for the Training of the British Armies in France 1918</b>	<b>19180101</b>	<b>Training</b>
SS 153	Notes on the 08 German Maxim Gun	19170401	Tactics
SS 155	Notes on Dealing with Hostile Machine Guns in an Advance	19170401	Tactics
SS 156	Notes on Recent Operations, Compiled by GS Fourth Army	19170401	Tactics
SS 157	Report on the Overseas Artillery School, Salisbury Plain	19161101	Artillery
SS 157	Report on the Overseas Artillery School, Salisbury Plain	19170301	Artillery
SS 157	Report on the Overseas Artillery School, Salisbury Plain	19170501	Artillery
SS 159	Tactical Schemes to Train Junior Officers and NCOs		Training
SS 160	Notes on Recent Operations	19170301	Tactics
SS 161	Instructions for Battle	19170501	Tactics
SS 162	Notes on Identification of Aeroplanes		General
SS 164	Notes on the Use of Tanks	19170501	Tanks
SS 167	Notes on Recent Fighting	19180405	General
SS 168	Notes on the Employment of Serviceable Guns and Trench Mortars	19170601	Artillery
SS 169	Notes on Recent Fighting	19170501	General
SS 170	Notes on Co-operation between Aircraft and Artillery	19170601	Artillery
SS 171	Notes on Inventions and New Stores (series)		General
SS 172	Preliminary Notes on Recent Operations	19170701	Tactics
SS 175	The Use of Smoke		Tactics
SS 184	Gas Warfare, Monthly Summary of Information		Gas
SS 185	Assault Training	19170901	Training
SS 188	Offence versus Defence in the Air	19171001	General
SS 191	Intercommunication in the Field		Comms
SS 192	The Employment of Machine Guns: Part 1 Tactical	19180101	Machine guns
SS 194	Wearing the Equipment for Carrying Lewis Gun Magazines	19161001	Machine guns
SS 195	Scouting and Patrolling	19171201	Tactics
SS 196	Diagrams of Field Defences		Trenches
SS 197	The Tactical Employment of Lewis Guns	19180101	Machine guns

<b>SS 198</b>	<b>Tactical Instructions for the Offensive of 1918</b>	<b>Not Published</b>	<b>Tactics</b>
SS 199	Co-operation of Sound Ranging Sections	19171101	Artillery
SS 199/1	Ranging with Observation by the Field Survey Company	19180501	Artillery
SS 201/3	Machine Gun Notes	19180701	Machine guns
SS 203	Instructions for Anti-Tank Defence		Tanks
SS 204	Infantry and Tank Co-operation and Training		Tanks
SS 205	Notes on Observation from Aeroplanes	19180401	Artillery
SS 210	The Division in Defence	19180501	Tactics
SS 214	Tanks and their Employment in Co-operation with Other Arms	19180801	Tanks
SS 217	Instructions for the Employment of 'BB' Shell	19180901	Artillery
SS 218	Operations by the Australian Corps against Hamel	19180701	Tactics
SS 350	Silhouettes of Aeroplanes and Airships	19160101	General
SS 356	Handbook of the German Army in War (Jan 1917)	19180401	General
SS 388	Defensive Measures Against Gas Attacks	19160101	Gas
SS 394	Notes on German Army Corps: XIV Reserve Corps & 52nd Division	19160301	General
SS 398	The Training and Employment of Bombers	19160301	Grenades
SS 419	Defensive Measures Against Gas Attacks	19160501	Gas
SS 421B	Circular Memorandum on Courts-Martial	19180801	General
SS 424	Notes on German Army Corps: IX Reserve Corps	19160501	General
SS 447	Duties and Employment of the 4th Artillery Survey Section	19160418	Artillery
SS 449	German Instructions Regarding Gas Warfare.	19160701	Gas
SS 454	Experiences Gained from the September Offensives	19151105	Tactics
SS 460	German Mining Officer's Diary captured at Fricourt	19160701	Mining
SS 462	Raid on the British Trenches Near La Boisselle	19160411	Tactics
SS 471	Principles for the Defence of Positions	19150801	Tactics
SS 473	Extracts from German Documents and Correspondence	19160101	General
SS 478	Experiences of the IV German Corps in the Somme During July 1916	19160822	Tactics
SS 480	Lessons Drawn from the Battle of the Somme by Stein's Group	19161001	Tactics
SS 485	Army Order Regarding the Execution of Counterattacks	19160823	Tactics
SS 486	German 'Lessons Drawn from the Battle of the Somme'	19161011	Tactics
SS 487	Order of the 6th Bavarian Division Regarding Machine Guns	19160903	Tactics

SS 490	The Principles of Trench Warfare	19160519	Trenches
SS 494	German Formations Employed on the Somme	19160919	Tactics
SS 531	German Instructions for the Employment of Flame Projectors	19161212	Tactics
SS 532	Extracts No 4 From German Documents and Correspondence	19170101	General
SS 537	Regarding the German Army and its methods.	19170101	General
SS 539	The Reorganisation of Transport		Logistics
SS 541	German Instructions for the Employment of Granatenwerfer	19161001	Grenades
SS 544	Experiences of the Recent Fighting at Verdun	19170201	Tactics
SS 546	The 1916 Pattern Bomb-Thrower for Stick Bomb	19150101	Grenades
SS 548	German Official Textbook Regarding Minenwerfer	19161115	Mortars
SS 552	Sound Ranging	19170301	Artillery
SS 553	German First Army in the Somme	19170130	Tactics
SS 555	Vocabulary of German Military Terms and Abbreviations	19170101	General
SS 555	Vocabulary of German Military Terms and Abbreviations	19180101	General
SS 560	Manual of Position Warfare for All Arms	19170501	Artillery
SS 561	Manual of Position Warfare for All Arms	19170301	Tactics
SS 562	Manual of Position Warfare for All Arms	19170101	Tactics
SS 563	Manual of Position Warfare for All Arms	19170525	Comms
SS 567	Diagram Showing the Organisation of a Regimental Sector	19170701	General
SS 570	Arrangements for Reporting the Approach of Aircraft	19170801	Comms
SS 572	German Anti-Aircraft Organization	19170801	General
SS 574	The Construction of German Defensive Positions	19180818	Trenches
SS 579	Extra Experiences of the Sixth German Army	19170901	Machine guns
SS 589	Notes on choosing charges for Howitzers to give the least wear	19170501	Artillery
SS 592	Catechism for Heavy and Siege Artillery Subalterns	19171001	Artillery
SS 592	Catechism for Artillery Officers	19180301	Artillery
SS 599	Technical Reconnaissance of an Artillery Position	19180501	Artillery
SS 600	Organisation of the Infantry Battalion, Normal for the Attack	19170401	Tactics
SS 614	Training Instructions for Siege Artillery	19180301	Artillery
SS 619	Manual of Position Warfare for All Arms	19171201	Artillery
SS 621	Manual of Position Warfare for all Arms	19170815	Tactics

SS 631	Notes on the Interpretation of Airplane Photographs	19180201	Artillery
SS 703	Manual of Position Warfare for All Arms	19170610	Tactics
SS 710	New Defensive Tactics	19171101	Tactics
SS 712	German Documents and Correspondence	19171125	General
SS 714	The German Tank 'Elfriede'	19180601	Tanks
SS 735	Translations of Captured German Documents	19180201	General
SS 737	[German Document 1918]	19180101	General
SS 742	[German Document 1918]	19180101	General
SS 745	Description of the Siegfried Line – German Second Army	19180901	Trenches
SS 753	Change in Discipline and Morale of the German Army	19180907	General
SS 754	[German Document 1918]	19180101	General
SS 757	Reconnaissance and Comparison with Air Photographs	19181001	General
SS 778	[German Document 1918]	19180101	General
SS 787	[German Document 1918]	19180101	General
Z 220	Mobilisation	19140101	

This list is an amalgam of those published by Chris Henderson on the First World War Forum (14 January 2013) and those compiled by Peter Hodgkinson, Simon Justice and Tony Ball at the University of Birmingham. With sincere thanks and my own additions, such as the 4<sup>th</sup> edition of SS 135, November 1918.