Reasonable Latitude: Learning and Adaptability in British Army Despatch Riders During the Second World War

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ABSTRACT

Communications are essential for success in war. Armies capable of reliable, sustained communications have a distinct advantage over armies who experience communications failures. This thesis uses communications as its main case study to examine the degree to which the British Army was capable of learning, innovation, and adaptability during the Second World War. Utilising the development and experience of the Royal Corps of Signals, it demonstrates that a pattern of informal and formal learning processes emerged during the war, shedding light onto how the wider British Army not only learned but made use of the knowledge it generated.

This study utilises oral histories and archival documents to find evidence of both informal and formal learning, focusing specifically on the role of despatch rider where possible. It finds that a complex process developed as the war developed, integrating battlefield adaptations, innovative strategy, and lessons-learned committees to evaluate and institute best practice. It determines that communications policy, strategy, and practice changes originated at all levels as the British Army sought to respond to a rapidly changing war.

This thesis contributes to a wide range of fields within history: the Second World War, learning during war, communications, policy and strategy formation, oral history studies, lived experiences, and even that of the motorcycle during war. It relies on the stories of individuals alongside broader developments in both British and Allied operational decisions. Though it looks deeply at individuals and their understandings of the war, this thesis considers broader issues of executing changes during war, integrating new knowledge, and determining the best path forward. My research demonstrates that looking at both individual and collective responses are crucial in answering these questions.

ABBREVIATIONS

AAI	Allied Armies Italy
AEF	Allied Expeditionary Force (Northwest Europe)
AIF	Australian Imperial Force
AFHQ	Allied Forces Headquarters
BEF	British Expeditionary Force
Bn	Battalion
BTE	British Troops in Egypt
cc	Cubic Centimetres (measure of engine capacity)
CAB	Cabinet Papers (National Archives)
C-in-C	Commander-in-Chief
CIGS	Chief of the Imperial General Staff
Coy	Company
Div	Division
DLI	Durham Light Infantry
DR, Don-R	Despatch Rider
GHQ	General Headquarters
HQ	Headquarters
IWM	Imperial War Museum
IWM FA	Imperial War Museum Film Archive
IWM PA	Imperial War Museum Photograph Archive
IWM SA	Imperial War Museum Sound Archive
LRDG	Long Range Desert Group
MEC	Middle East Command
MEF	Middle East Force
NAM	National Army Museum
PAIFORCE	Persia and Iraq Command (1942 onwards)
R/T	Radio Telephony
RAF	Royal Air Force
RAMC	Royal Army Medical Corps
RASC	Royal Army Service Corps
RE	Royal Corps of Engineers
RMC	Royal Marine Commandos
RN	Royal Navy
RSigs	Royal Corps of Signals
RSM	Royal Signals Museum
SAS	Special Air Service
SHAEF	Supreme Headquarters, Allied Expeditionary Force
TNA	The National Archives at Kew
W/T	Wireless Telegraphy
WDF	Western Desert Force
WO	War Office (National Archives)

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INTRODUCTION

Effective, efficient, and reliable communications serve a vital role in warfare, and many campaign failures throughout British military history have been traced to signals breakdowns. The War Office's 1932 Report of the Committee on the Lessons of the Great War identified communications as the 'crux of the matter' and an intrinsic facet of a military organization, with Major-General J. Kennedy adding that 'Without communication, command cannot function; it can neither receive information, nor get out its orders. The army is then fighting without a brain; or worse still, with a disordered brain which acts regardless of reality.'[1] Though Kennedy emphasised the importance of communications in 1932, communications and their governing body in the British Army, the Royal Corps of Signals, remain relatively unexplored areas of the Second World War.[2] Historians have argued to various degrees that the British Army was capable of adaptability, innovation, and technological advancement; however, Royal Signals has not yet been evaluated as extensively as the combat arms branches of the Army.[3] For this reason, this thesis utilises Royal Signals as its main case study, analysing its development and how it responded to the war that evolved around it. By asking questions of Royal Signals, a pattern of learning and transfer of knowledge emerged, shedding light onto

[1]'Report on Operations on the Western Front, by Major-General J. Kennedy', in Report of the Committee on the Lessons of the Great War: Appendices, the War Office 1932, WO 32/3116, The National Archives (TNA), in Brian Hall, 'The 'Life-Blood' of command? The British Army, Communications and the Telephone, 1877-1914' *War & Society* 27:2 (October 2008): 43.

[2]"Notes on Certain Lessons of the Great War" WO 33/1305 TNA. The body of academic work investigating the Royal Corps of Signals and British Army communications is slim. The only work to date that solely concerns the Royal Signals during the Second World War is R.F.H Nalder, *The History of British Army Signals in the Second World War: General Survey* (London, 1953). The few descriptive histories that give an overview of the Corps's history are Nalder, *The Royal Corps of Signals: A History of Its Antecedents and Development (Circa 1800-1955)* (London, 1958); Cliff Lord and Graham Watson, *The Royal Corps of Signals: Unit Histories of the Corps (1920-2001) and its Antecedents* (London, 2003); and the less analytical Ralph Maxwell Adams, *Through to 1970: Royal Signals Golden Jubilee* (London, 1970). R.E. Priestley's *Work of the Royal Engineers in the European War, 1914-19: The Signal Service (France)* (London, 1921) is the only work that solely addresses communications in the British Army on the Western Front of the First World War, and Philip Warner's *The Vital Link: The Story of Royal Signals 1945-1985*(London, 1989) is one of the few works that addresses Royal Signals post-WWII.

[3]The use of 'Army' and 'army' will both be used in this thesis with different meanings. When referring to the 'British Army,' the capitalised Army will be used, but when referring to 'army' or 'armies' more generally, the lower-case practice will be maintained. This is done, in part, to differentiate between official practices and more general usage.

how the wider British Army not only learned during the war but made use of the knowledge it generated.

Though Gary Sheffield has argued that 'the main difference' between the First and Second World Wars was 'that in the later war technological advances had provided effective communications and a usable instrument of exploitation,' it is only recently that historians have begun examining the role of Royal Signals in the context of which methods were available and when they were deployed.[4] Though the main focus has traditionally been on the 1914-18 War, recent scholarship, such as Simon Godfrey's *British Army Communications in the Second World War: Lifting the Fog of Battle* and Edward Smalley's analysis of the 1939-1940 British Expeditionary Force (BEF) have begun to include communications as a lens to analyse the British Army in specific contexts. While Godfrey focuses on the role of communications related to enabling command, Smalley investigates the performance of communications systems within the BEF.[5] This thesis takes a different approach than both Godfrey and Smalley, utilising communications to access the systems through which soldiers, officers, and the War Office learned during the war, established processes to gather that information, and sought to disseminate changes to both communications policy and practices. Furthermore, the sources used rely heavily upon oral histories collected from a diverse group of soldiers to incorporate the learning experiences of individuals into the Army's process of acquiring, developing, and actioning knowledge across theatres. In order to account for the individual, the command, and the organisational levels of learning and knowledge, this thesis understands an 'army' to be a heterogenous mix of skilled individuals who utilises initiative within the command structure

[4]G. D. Sheffield, 'The Shadow of the Somme: the Influence of the First World War on British Soldiers' Perceptions and Behaviour in the Second World War,' in *Time to Kill: The Soldier's Experience of War in the West 1939-1945*, (eds.) Angus Calder and Paul Addison (London, 1997), p. 36.
[5]Brian N. Hall, 'The "Life-Blood" of Command? The British Army, Communications and the Telephone," *War & Society* 27:2 (Oct. 2008): 43-65; Simon Godfrey, *British Army Communications in the Second World War: Lifting the Fog of Battle* (London, 2013); Edward Smalley, *British Expeditionary Force, 1939-1940*; Edward Smalley, 'Signal Failure: Communications in the British Expeditionary Force, September 1939-June 1940,' *War in History* 28:1 (2021), pp. 143-165.

and strategy directives. As will be shown throughout the thesis, the ways in which this initiative was regulated changed as the Army's learning process developed. By looking specifically at Royal Signals, this thesis identifies a significant shift in allowing initiative in 1942 with the codification of 'reasonable latitude.'[6]

For this analysis, the lived experience of individuals receives extensive analysis to determine the presence and occurrence of informal learning processes, which mostly manifested in the 'tips and tricks' taught to one another outside formal curriculum. The reflection and self-constructed stories also allow insight into the sense-making of learning, allowing the interviewed soldiers to determine the importance of knowledge gained through various means. In order to structure the study around a group of individuals with similar functions, despatch riders, the motorcycle messengers utilised by Royal Signals, are studied closely. While other case studies, such as both women's and medical services will be considered in later chapters, despatch riders remain a constant throughout the war, allowing an exploration of the ways in which individuals responded to the war. Furthermore, communications policy documents and the committees that examined wartime experiences, known as lessons-learned committees, reveal extensive formal learning processes taking place at command level. Together, informal and formal learning approaches created knowledge processes that led to significant policy considerations and changes throughout the war.

As will be shown, the utility of a study that looks at communications as well as learning allows historians to conceptualise not only how practices adapt to the field but also the varying paths through which strategy and combat support policy change in response to warfare. This thesis covers a broad range of interests – not just the despatch riders and history of Royal Signals, but also policy formation, oral history usage, learning during wartime, and comparisons between the British Armies of the First and Second World Wars. It integrates

[6]Report of the Godwin-Austen Committee, IWM WO 32/15071

learning into the heart of innovation studies and contributes a process through which knowledge was acquired, disseminated, and adopted during a conflict. The understanding of how this information transferred to practice better shapes the historians' conversation of how change occurred within the British forces.

This thesis sits within the field of innovation studies, particularly those regarding how change is created and implemented during wartime, as well as within the more recently emerging studies evaluating learning within warfare. The ubiquity of communications and its role in facilitating combat arms are likely responsible for the smaller interest by historians, who have traditionally focused on infantry, armoured divisions, air power, and command structures.[7] This study, however, argues that in order to understand how all of these arms worked together, it is important to understand how the Army generated, maintained, and used knowledge to its advantage. By using what Captain Austin Patrick Corcoran referred to in 1918 as the 'nerves of the modern army' responsible for 'the channels through which the brain of command communicates its orders to the main body,' this thesis uses communications and the Army's 'dependence' on communications to seek out the answers to how and why communications policy changed over time, how the Army facilitated learning, and what oral histories can tell historians about capturing informal processes.

The British Army that went to war in 1939 as the BEF changed tremendously by the war's cessation in 1945. This thesis investigates ways in which that change manifested and the processes the Army put into place to manage it. Throughout the study, important terminology is used, most recently clarified by Laura Schousboe: *advancement* does not equal *advantage*, and *innovation* does not equal *implementation*.[8] That is, the introduction of new technologies,

[7]See, for example, Timothy Harrison Place, *Military Training in the British Army 1940-1944: From Dunkirk to D-Day* (London, 2000), p. 14.
[8]Karl Lautenschläger, 'Controlling Military Technology,' *Ethics* 95:3 (Apr. 1985): 692-711; Christopher Bellamy, *The Evolution of Modern Land Warfare: Theory and Practice* (London, 1990); Laura H. Shousboe, 'How Innovations Cease to be New: Routinizing Technological Innovations Within Military Organizations,' Unpublished PhD Thesis, University of Southern Denmark and the Royal Danish Defence College, 2021; For

equipment, and ideas, though considered advancements and innovations, do not immediately transfer to increased success or efficiency. When considering learning, the processes through which combatants used an advancement or effectively implemented an innovation's potential to create a battlefield advantage are crucial to understand. This introduction includes discussion concerning learning theories and their place within the context of these processes for that reason.

Despatch riders (DRs) serve as this study's vehicle to explore the complexities of the communications structures and explore larger themes of adaptability and learning. DRs are the embodiment of the point at which the supposition of reliability, safety, and security of traditional and tested means outweighed the risks of newer technologies. The 'old-fashioned' methods, as Philip Warner terms them, became essential during many operational and campaigns when the 'advanced methods' proved impractical, unsecure, and impassable.[9] As will be shown, the end of the 'Phoney War' and evacuation to Dunkirk serve as a clear example of the limitations of total reliance on an underdeveloped and insufficient communications system.

The overall consideration of despatch riders and the broader signal corps demonstrates the need to view the armed forces as a collection of individuals and groups rather than a homogenous monolith organised and controlled from the top down. This thesis shows that the adaptability and innovation of the signals arm of the British Army occurred at the lowest ranking levels, in this case specifically the despatch riders, alongside other, simultaneous changes that occurred at headquarters and higher command levels. In recognition of this nebulous process, the War Office officially amended signals strategy to reflect many of the *de*

context on technological determinism, see David Edgerton, *The Shock of the Old: Technology and Global History Since 1900* (Oxford, 2007) and Kendrick Kuo, 'Military Innovation and Technological Determinism: British and US Ways of Carrier Warfare, 1919-1945,' *Journal of Global Security Studies* 6: 3 (2021), doi. https://doi.org/10.1093/jogss/ogaa046.

[9]Warner, *Vital Link*, pp. 5-6.

facto policies already widely implemented within Royal Signals, particularly those adaptations deemed necessary by active service DRs.[10] Significantly, it also codified the concept of 'reasonable latitude,' which, as will be shown, acknowledged the growing presence and importance of accounting for informal, local knowledge in developing specific military policy and instructing commanders.[11]

Communications Literature of the Second World War

The scholarship on the British Army during the Second World War largely focuses on operations, strategy, and tactics, mostly omitting communications as a 'less glamorous aspect of war.'[12] The most noted aspect of despatch riders in the existing historiography is their absence, often relegating them to footnotes and passing mentions. One particular role within one corps of the military might not, ostensibly, seem like a major omission from the broader historiography; however, this thesis contends that including despatch riders reveals the complexity of communications technology during 1939-1945. By including a broader picture of the available methods of communication, this study articulates the importance of commanders' decisions regarding which methods to use in addition to despatch riders' contributions to maintaining communication. Whilst the historiography of communications has increasingly focused on innovations in signals intelligence and cryptology, the frontline realities of the war tell a different, but just as important, tale: technology failures, adaptation in the field, and, importantly, making do with what works under pressure, climates, and geographies never before faced.[13]

[10]Report of the Godwin-Austen Committee, IWM WO 32/15071.
[11]Ibid.
[12]Aimée Fox,'"Putting Knowledge in Power": Learning and Innovation in the British Army of the First World War,' Unpublished PhD Thesis, University of Birmingham, 2015, p. 11.
[13]See, for example, Christopher Andrew, 'Codebreaking and Signals Intelligence,' *Intelligence and National Security* 1:1 (1986), pp. 1-5; David Alvarez, ed., *Allied and Axis Signals Intelligence in World War II* (London, 1999); John Ferris, 'The British Army, Signals and Security in the Desert Campaign, 1940-42,' *Intelligence and National Security* 5:2 (2008), pp. 255-291; John Ferris, 'The British Army and Signals Intelligence in the Field During the First World War,' *Intelligence and National Security* 3:4 (1988), pp. 23-48; William C. Meadows, *The*

Despatch riders, and the need for their services, do not fit neatly into the dialogue of the Second World War as a war of science. The despatch rider (and the increasingly less common despatch runner) is a very simple concept: a human messenger utilising a vehicle, usually a motorcycle or jeep, to transport a written or verbal message. It requires skills such as driving, map-reading, navigation, and the ability to adapt one's route as necessary. These are not glamorous skills; they do not require the level of technical training of linesmen, wireless operators, or codebreakers. As such, DRs do not appear to fit into the increasingly technologically advanced system of communications that developed in the twentieth century. Instead, the adaptability and innovation of the DR is found in the individual DR's ability to do his (or her on the Home Front) role and not be captured whilst in transit. The DR often became the last resort and only means of communication—the mantra of "you had to get through" appears regularly in their accounts—and so appears in discussions of communications as simply the last recourse, with limited to no analysis or research into the actual role.[14]

Guy Hartcup described the Second World War as 'a watershed in the progress and organization of science' that was greatly shaped by its many advancements and innovations.[15] As noted earlier in the introduction, Sheffield argues that the main factor that differentiated the First and Second World Wars was that technological advancements had provided the later war with "effective communications and a usable instrument of exploitation.'[16] Whilst technology

Comanche Codetalkers of World War II (Austin, Tx., 2002); Liza Mundy, *Code Girls: The Untold Story of the American Women Code Breakers of World War II* (New York, 2017); Walter Anthony Gagajewski, 'British Cryptographic Efforts in World War II: The Struggle Against the German ENIGMA machine,' Unpublished MA Thesis, California State University Dominguez Hills, 1999); Wesley K. Wark, 'Cryptographic Innocence: The Origins of Signals Intelligence in Canada in the Second World War,' *Journal of Contemporary History* 22:4 (1987), pp. 639-665; John Ferris, 'The Road to Bletchley Park: the British experience with Signals Intelligence, 1892-1945,' *Intelligence and National Security* 17:1 (2002), pp. 53-84; B. Jack Copeland, *Colossus: The Secrets of Bletchley Park's Code-breaking Computers* (Oxford, 2006); and Philip Warner, *Phantom: Uncovering the Secrets of the WW2 Special Forces Unit* (Barnsley, 1982).

[14]IWM, Interview with William E.F. Avery, Sound Archive 22341, Reel 3.

[15]Guy Hartcup, *Challenge of War: Britain's Scientific and Engineering Contributions to World War Two* (London, 1970), p. 17.

[16]G. D. Sheffield, 'The Shadow of the Somme: the Influence of the First World War on British Soldiers' Perceptions and Behaviour in the Second World War,' in *Time to Kill: The Soldier's Experience of War in the West 1939-1945*, (eds.) Angus Calder and Paul Addison (London, 1997), p. 36.

certainly advanced between the two wars and there were significant gains made in the development of radio sets, the routine neglect of the frequent failure of wireless transmissions and broken lines of telephones highlights the deficits of the current historiography's understanding of the communications infrastructure.[17] Jonathon House argued that the instances of failure and unreliability led to the British Army's inability to establish an effectual encryption and secure transmission system for radio until 1943.[18] This effectively means that four years of communications uncertainty has been glossed over in favour of an oversimplified understanding of what became available towards the closing years of the war.

Additionally, historians' frequent assumption that communications technology automatically equated to an advantage is cause for concern. Eliot Cohen, Christopher Bellamy, and Karl Lautenschläger all reiterate that historians tend to attribute 'transformational change' to new technologies by themselves. The assumption is 'that technology is the overwhelmingly dominant factor in war, and that the sophistication of that technology, must, of itself, confer a decisive advantage.'[19] The argument that technology can be hindered by the conservatism of its operators and commanders rarely finds its way into the broader histories of the war. According to Bellamy, historians 'are frequently unsympathetic to the problems faced by military men in assimilating new technology as part of a total paradigm change – "new weapons: old mind-sets."'[20] Laura Schousboe is more critical, noting that the 'mere existence and adoption of new military technologies is no guarantee of their practical utility,' noting that the field 'appears myopic' when not accounting for the complexities of technological

[17]RFH Nalder gives a detailed account of the various radio sets, and their flaws, developed before and during the Second World War in his two books *The History of British Army Signals in the Second World War: General Survey* (London, 1953) and *The Royal Corps of Signals: A History of Its Antecedents and Development (Circa 1800-1955)* (London, 1958).
[18]Jonathan House, *Combined Arms Warfare in the Twentieth Century* (Lawrence, Kans., 2001), pp. 74, 124.
[19]Eliot Cohen, 'Change and Transformation in Military Affairs,' *Journal of Strategic Studies* 27:3 (2009), p. 399; Karl Lautenschläger, 'Controlling Military Technology,' *Ethics* 95:3 (Apr. 1985): 692-711; Christopher Bellamy, *The Evolution of Modern Land Warfare: Theory and Practice* (London, 1990), pp. 30-31.
[20]Bellamy, pp. 30-31.

innovation.[21] Kenrick Kuo's study of technological determinism also highlights historians' assumptions concerning the '"right" way to use military technology.'[22] Thus, it can be argued, the current historiography that does address communications does so largely to analyse how the new radio technologies were adapted on the front lines and how the signals structure coped during the onslaught of a mobile war. The complexities of these arguments will be addressed later in this chapter's discussion of innovation studies.

Unfortunately, the body of work on the Royal Corps of Signals and its history is very slim. The most notable works have been produced by the official historian Major General Reginald FH Nalder in the 1950s but do not offer a substantive critical analysis. Nalder provides insight into the development of Royal Signals and, in *The History of British Army Signals in the Second World War: General Survey*, a broad overview of the signals structure during the war.[23] His work must be read in the context of post-war reflection and recollection of the contribution of Royal Signals to victory. Together with his letters and committee involvement, these works provide a valuable source to not only what Royal Signals achieved, but also how it considered itself within the broader context of the Army. An earlier work by Raymond Priestley, *The Signal Service in the European War of 1914 to 1918 (France)* as well as an unpublished memoir 'Service Memories round and about the First World War', contribute similar studies – in both broadness and inclusion of the author's personal experience – of the Royal Engineers Signal Service of the First World War.[24] Philip Warner provides the most incisive look at Royal Signals but his study pertains to the period of 1945-1985 so incorporates only the lessons learned from the Second World War; Cliff Lord and Graham Watson's lengthy

[21]Schousboe, 'How Innovations Cease to be New,' p. 8, 19.
[22]Kuo, 'Military Innovation and Technological Determinism,' p. 3.
[23]Both of Nalder's works are reinforced by his papers present at the Imperial War Museum. IWM 93/19/1 'Papers of Major General Reginal Francis Heaton Nalder.' Nalder's role as Chief Signals Officer of 15 Army Group in the Italian Campaign will be discussed in detail in later chapters.
[24]R.E. Priestley, *The Signal Service in the European War of 1914 to 1918 (France)* (Chatham, 1921); CRL XUS38, 'Service Memories Round and About the First World War,' in 'University of Birmingham Staff Papers: Papers of Sir Raymond Edward Priestley,' January 1958.

and descriptive *The Royal Corps of Signals: Unit Histories of the Corps (1920-2001)* offers a broad, narrative overview of Royal Signals but again the shortcoming is its lack of academic debate.[25] Other works are illuminating but, with limited interpretation and academic scholarship, struggle to contribute more than a popular overview of the corps and its entertainment display team, the White Helmets.[26] Thus, while each work contributes to the area it intended, the wider academic historiography of the war includes little specifically pertaining to communications and Royal Signals.

There are two major exceptions to the omission of communications from the exploration and incorporation of communications into the broader history and understanding of the war. Brian N. Hall largely began to redress the absence of scholarship pertaining to 'the extent to which British commanders embraced the latest communication device of the period – wireless – and whether they harnessed its full military potential.'[27] Hall's study, however, focuses on the First World War; Simon Godfrey's work on command and communications during the Second World War proves the more momentous scholarship impacting the historiography.[28]

Godfrey's study has many similarities with parts of this thesis. Its focus, however, is on broader communications systems and how they 'allowed commanders to exercise a 'measure of voice control,' as well as the contribution of communications systems to the British Army's 'victories and defeats' in the Second World War. Whilst demonstrating the lack of a 'consistent, objective account of the efficiency of British Army forward communications nor

[25]Philip Warner, *The Vital Link: The Story of Royal Signals 1945-1985* (London, 1989); Cliff Lord and Graham Watson, *The Royal Corps of Signals: Unit Histories of the Corps (1920-2001) and its Antecedents* (London, 2003).
[26]These works include Laurette Burton, *The Royal Corps of Signals: A Pictorial History* (Stroud, 2002); Ralph Maxwell Adams, *Through to 1970: Royal Signals Golden Jubilee* (London, 1970); James Ladd, *The White Helmets: The Royal Signals Motor Cycle Display Team* (Somerset, 1977).
[27]Brian N. Hall, 'The British Army and Wireless Communication, 1896-1918,' *War in History* 19:3 (2012), p. 290. See also Nicholas Lambert, 'Transformation and Technology in the Fisher Era: the Impact of the Communications Revolution,' *Journal of Strategic Studies* 27:2 (2009), pp. 272-297.
[28]Simon Godfrey, *British Army Communications in the Second World War: Lifting the Fog of Battle* (London, 2013), pp. 1-2.

of their impact on the success or failure of operations, nor of the way in which they interacted with command systems,' Godfrey prioritises aspects of command, control, and their interplay with doctrine to explore wartime communications, aligning his study more closely with the discussion of command, control, and communications studies (C3).[29] This thesis takes a fundamentally different approach, exploring not only the development of policy but also the growth of a learning process which embeds informal knowledge networks into the larger narrative. Like Godfrey, it does not focus on 'the frequent theme of the British soldier overcoming the obstacles placed in his way by incompetent auxiliary services' but instead takes the stance that the autonomy enjoyed by despatch riders gave them the advantage to adapt 'on the fly' versus the difficulties faced by the use of more advanced methods. This autonomy emerges clearly with another fundamental difference between this study and Godfrey's: the reliance on oral histories, which will be discussed in the methodology section of this introduction.

Learning Theories and Models

Learning and its relationship with knowledge management are intrinsic parts of the adaptation model developed and discussed in this thesis. Defined by Peter Brown, Henry Roediger, and Mark McDaniel as 'acquiring knowledge and skills and having them readily available from memory so you can make sense of future problems and opportunities,' learning forms a central concept of this study.[30] An 'iterative' process, it 'requires that you revisit what you have learned earlier and continually update it and connect it with new knowledge.'[31] To understand learning, then, is to understand it as an ongoing process that requires feedback for continuous knowledge acquisition to build on prior knowledge, but it is also 'an acquired

[29]Ibid.
[30]Peter C. Brown, Henry L. Roediger III, and Mark McDaniel, *Make it Stick: The Science of Successful Learning* (Cambridge, Mass., 2014), p. 2.
[31]Ibid., pp. 21-22.

skill.'[32] This study identifies a learning process that emerged within the British Army's communications arm with the goal of increasing effectiveness and efficiency, while equipping its members to respond to the emergence of new challenges. As will be shown, this process led to adoption of new practices, as well as communications policies that allowed for increased latitude in battlefield decision-making, increasing the speed with which the Army could respond to issues as they emerged, such as the terrain of new theatres, new enemy tactics, or manpower shortages.

Theories of learning attempt to explain and understand how learning takes place for both individuals and for organisations; however, as Geoffrey Sloan noted in his evaluation of organisational learning within the Royal Navy, disagreement regarding these theories exists among scholars.[33] Regarding the organisational level of learning, theories of learning, particularly concerning military learning, fall into two areas: individual learning theory and social learning theory. Whilst they differ in the foci of how learning occurs, both theories attempt to explain how an organisation learns. As will be discussed, this study situates social learning theory at its core and proposes the emergence of a nebulous learning process that equates formal and informal learning in significance, particularly when considering British Army communications from 1939 to 1945.

Individual and Social Learning Theories

Individual learning theory served as the dominant organisational learning theory until the development of social learning theory in the 1990s. This concept places the learning at the individual level, and the sum of individuals' knowledge results in organisational level learning through both formal and informal learning systems. Individual learning focuses on the

[32]Ibid., p. 2.
[33]Geoffrey Sloan, 'The Royal Navy and Organizational Learning-The Western Approaches Tactical Unit and the Battle of the Atlantic,' *Naval War College Review* 72:4, 9 (2019).

individual's ability to acquire knowledge and transfer that to the organisation. Growing from criticism of the individual learning theory, social learning theory sees organisational learning that fuses the social context and the individual, that organisational learning occurs as a social process. For social learning theory, there is very little separation between the individual and the organisation concerning the learning process due to the requirement of both existing together, 'synergistically,'[34] A proponent of the social theory of learning, Sergio Catignani notes that

> Organizational learning is not only determined by an organization's formal learning systems, but also influenced by the pervasiveness of informal learning systems in which individuals are able to interpret and make sense of their experiences and share new operational knowledge through social interaction…Nevertheless, while such informal learning systems have a crucial role in obviating some of the organization's knowledge production deficiencies, these do not necessarily lead to learning throughout the organization. Rather they affect adaptation, which is necessary, but not sufficient condition for organizational learning to occur.[35]

This study agrees with Catignani's assessment with the exception of his distinction that informal learning mechanism do not necessarily lead to learning throughout the organization, instead creating 'localized adaptation' that often does not 'endure beyond immediate operational challenges.'[36] The model developed and proposed by the study situates informal learning as an essential stage in organizational learning, as both a dissemination method and a source of new knowledge. Before discussing the British Army's relationship with learning, however, this introduction explains both formal and informal learning systems. In the context of this thesis, the examples of formal learning systems are the Army's formal training programmes, curriculum and manuals such as *Field Service Regulations* designed to teach

[34]See, for example, Ulrik Brandi and Bente Elkjaer, 'Organizational Learning viewed from a Social Learning Perspective,' in *Handbook of Organizational Learning and Knowledge Management*, 2nd Ed, ed. by Mark Easterby-Smith and Majorie A. Lyles (Chichester, 2011), pp. 23-41; Max Visser, 'Organizational learning capability and battlefield performance: The British Army in World War II,' *International Journal of Organizational Analysis* 24:4 (2016), pp. 573-590; Max Visser, 'Teaching giants to learn: lessons from army learning in World War II,' *The Learning Organization* 24:3 (2017), pp. 159-168.
[35]Sergio Catignani, 'Coping with Knowledge: Organizational Learning in the British Army,' *The Journal of Strategic Studies* 37:1 (2014), pp. 30-31.
[36]Ibid., pp. 37-38.

soldiers, and formal instruction. Informal methods include peer learning, informal lessons from another soldier, and knowledge passed among regiment members to make their jobs easier, more understandable, or less dangerous. Both systems have advantages and disadvantages, which the next section defines in order to better explain the learning process examined by the later chapters of the thesis.

Formal Learning System

Formal learning system encompasses the traditional understanding of education and learning: the formal, 'codified' and institution-led instruction, training, and disseminated knowledge. For the Army, this largely comprises its training, manoeuvres, pamphlets, booklets, lectures, and the 'sponsored' dissemination of information.[37] The formal system is largely top-down, as lower ranks are largely unable to distribute formal knowledge through the infrastructure of the Army. Formal learning is where information requires policy to determine what will be distributed, to whom, and when; however, it suffers from a shortcoming due to its nature of being a formal process: the time lag between knowledge acquisition and dissemination. Hans Hasselbladh and Kar Ydén term this the 'temporal aspect of organizational experience,' and argue that it is 'profound because experiences are by definition *retrospective*. If the structural perspective of organizations…is taken into account, experiences are the collective and structurally mediated *outcomes* of retrospective sensemaking.'[38]

Referred to by Hasselbaldh and Ydén as a 'temporal aspect,' the time lag of learning plays an important role in how we understand learning; furthermore, overall effectiveness, recognition of adaptability, and the process of implementation all rely heavily on understanding this 'temporal aspect' as an integral part of any learning process. As will be discussed throughout this study, historians must be cognizant of simultaneous theatres, protracted

[37]Ibid., p. 35.
[38]Hans Hasselbadh and Kar Ydén, 'Why Military Organizations Are Cautious About Learning?' *Armed Forces & Society* 46:3 (2020), p. 480.

learning processes, and the dissemination process when evaluating efficiency and effectiveness of lessons learned. As Aimée Fox has shown, considering the British Army as similar to an industry organisation allows the introduction of organizational literature to considering its approaches to learning and adaptability. Studies in this area, such as Gabriel Szulanski's 1994 study, 'found that even in the best of firms, in-house best practices took an average of *27 months* to wind their way from one part of the organization to another.'[39] The issues of time lag, or the temporal aspect of learning, resurface throughout this study, challenging understandings of so-called failures of innovation and efficiency, such as Smalley's study of the BEF, that largely do not account for the required timeframe to make substantial, systemic changes.

In this thesis, the formal learning system is represented largely by the committees and reports used to frame the war. They served as the internal benchmarking process whereby the War Office self-assessed its progress and made recommendations to change. Carla O'Dell and C. Jackson Grayson define internal benchmarking as 'the process of identifying, sharing, and using the knowledge and practices inside its own organization,' internal benchmarking, along with 'transfer of best practice is one of the most tangible manifestations of knowledge management—the process of identifying, capturing, and leveraging knowledge to help the company compete.'[40] Compared to 'external benchmarking,' internal benchmarking better accounts for the 'vast amount of untapped knowledge and best practices already residing inside organizations.'[41] As will be discussed, internal benchmarking exercises—the Norman, Kirke, Jackson, Bartholomew, and Godwin-Austen Committees—form the basis of this study's

[39]Carla O'Dell and C. Jackson Grayson, 'If Only We Knew What We Know: Identification and Transfer of Internal Best Practices,' *California Management Review* 40:3 (Spring 1998), p. 155. See also, Gabriel Szulanksi, *Intra-Firm Transfer of Best Practices Project* (Houston, TX, 1994), emphasis in the original; Aimée Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918* (Cambridge, 2017); and Aimée Fox, '"Putting Knowledge into Power": Learning and Innovation in the British Army of the First World War.' Unpublished PhD Thesis, University of Birmingham, 2015.
[40]O'Dell and Grayson, 'If We Only Knew What We Know,' p. 154.
[41]Ibid., p. 156.

structure and frame the chapters that follow. These formal learning system mechanisms demonstrate the existence of formal learning systems in communications; however, their largest flaw, which will be shown with each report, remains the aforementioned time lag. In the Second World War, theatre changes accompany these temporal challenges, which reduced the effectiveness of the system. Without understanding organisational learning and the role of the formal learning system, however, these committees appear to be failures rather than structural attempts to exercise learning at the highest levels.

The formal learning systems are, therefore, captured in this thesis's use of military policy and training documents, the correspondence of officers such as Brigadier Ralph Bagnold, founder of the Long Range Desert Group (LRDG), and, more significantly for communications, Major-General Reginald FH Nalder, both of whom worked to implement change in the field. Though correspondence does not always align with formal methods of exchange, Nalder's memos and newsletters used by this thesis do: they are official updates to his superior officer. This study often refers to changes made through the formal learning system as 'policy changes,' 'macro changes,' or 'doctrinal changes.' Brett Steele argues that a better term for this process is 'reengineering', which 'denotes a fundamental change in an organization's processes,' particularly in place of the idea of 'transformation' in doctrine.[42] Steele's analysis supports the importance of considering the temporal element of change in noting that

> large-scale reengineering follows years of smaller-scale efforts, because it (1) takes time to understand problems and develop solutions, even when technology is at hand and broad direction is understood, and (2) organizational resistance to change is very strong until necessity is manifested unambiguously or until a new generation of leaders takes over without the same vested interests.[43]

[42]Brett Steele, *Military Reengineering Between the World Wars* (Santa Monica, 2005), p. ix.
[43]Ibid., p. xix.

As will be discussed throughout the study, and as articulated by Schousboe, availability of technology and introduction of innovations do not immediately result in change. Instead, a complex process of implementation must be undertaken, cementing the innovation's integration by becoming standard practice.[44] The journey to standard practice requires utilising formal learning methods, and this thesis argues that the Army and War Office's routine convening of lessons learned committees as internal benchmarks to deliver new guidance demonstrates an understanding of this process. By utilising the formal learning system at its disposal, the Army made concerted efforts to reengineer its communications structures throughout the conflict, overcoming specific and considerable challenges in the process.

Informal Learning System

Informal learning systems, which according to Tom Dyson's study of organisational learning in the British Army, 'involve the dissemination of lessons through social networks,' and tend to centre around short-term, specific problem solving in the field.[45] Catignani and Dyson both argue that informal learning occurs to overcome 'the deficiencies experienced with the organization's formal learning systems.'[46] That is, informal learning emerges in response to perceived shortcomings in the formal system established by armies. In their evaluation of the modern Australian Army, Paddy O'Toole and Steven Talbot, however, hold that the 'complexities of the military environment' require 'unpacking the learning systems,' and once done, 'the prevalence of informal systems and the individual's involvement and compliance within the social norms pertaining to these informal learning systems' further shape the organizational learning of an army.[47] Agreeing that soldiers utilise informal networks to acquire knowledge they determined to be missing, O'Toole and Talbot argue that rather than filling in

[44]Schousboe, 'How Innovations Cease to be New,' pp. 5-8.
[45]Tom Dyson, *Organizational Learning and the Modern Army: a New Model for Lessons-Learned Processes* (New York, 2020), p. 3.
[46]Catignani, 'Coping with Knowledge,' p. 31. Dyson, *Organizational Learning and the Modern Army*, p. 3.
[47]Paddy O'Toole and Steven Talbot. 'Fighting for Knowledge: Developing Learning Systems in the Australian Army.' *Armed Forces & Society* 37:1 (2011), p. 43.

for deficiencies in formal systems, informal systems demonstrate that individual soldiers should be perceived as 'fighting for knowledge,' as they consciously overcome 'perceived inadequacies of the formal learning system.'[48]

The social aspect of these methods of transferring knowledge remained significant: informal learning largely stayed within the other ranks or the officers. This study considers the experience of the other ranks learning through a variety of methods, focusing largely on situational and participative learning as forms of experiential learning. Situational learning, as defined by O'Toole and Talbot, comprises:

> learning that takes place in a context where learning and practice are integrated into performance of the task…One of the powerful benefits of situational learning, therefore, is its emphasis on the real-life acquisition and application of knowledge in work environments.[49]

Meanwhile, participative learning includes 'acquiring skills and knowledge from the performance of tasks in training and other environments.'[50] This action-based method of learning found great use in situations of few resources, particularly when soldiers found themselves reassigned as despatch riders, many of whom had to start with learning to ride motorcycles. These methods form an example of experiential learning, which occurred when soldiers learned through their own first-hand experience, and 'often occurred in those moments when they were thrown into the deep end, or in other words, expected to perform certain tasks with little to no guidance.'[51] Combined with the temporal challenges of receiving formal instruction on how to approach challenges as they emerged, the unique environment of military learning, and the stakes faced by the individual soldiers, made utilising these methods imperative. 'Filling the gaps' of formal learning as in Catignani's, Dyson's, and Theo Farrell's

[48]Ibid.
[49]Ibid., p. 50.
[50]Ibid., p. 51.
[51]Ibid., pp. 51-52.

conceptualisation of informal knowledge acquisition proved inadequate.[52] Furthermore, informal learning did not function as an add-on to a formal system. As this study demonstrates, an intertwined learning process developed within despatch riders and communications more broadly that required connections between both formal and informal learning systems in order to introduce new information to the organizational knowledge base.

The difficulty with informal learning systems, particularly with studying the effects of informal learning, is that it remains difficult to document. Without the artefacts of the formal learning system, most informal knowledge, as Nina Kollars has noted, falls by the wayside or out of knowledge after the immediacy of its utility ends.[53] The challenge for historians, then, remains to reconstruct this informal knowledge in order to restore it to its equal footing with formal learning. This thesis uses oral histories and the words and experiences of despatch riders as an example and lens of how to do this. As will be discussed later with the overall methodology it utilises, this study seeks to reintegrate informal knowledge and the process of its acquisition into understandings of learning and adaptation during the war. To do so, it first considers the relationship of learning to innovation studies.

Relationship with innovation and adaptation

Innovation, according to Farrell, occurs at the strategic level and requires institutionalised change manifested in production of new doctrine, structures or technology. Adaptation, on the other hand, refers to improvements to operational performance that occur from improvements to tactics, techniques, or existing technology, often on the frontlines.[54] The field of innovation studies, then, attempts to determine from where these changes originate

[52]Theo Farrell, 'Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006-2009,' *The Journal of Strategic Studies* 33:4 (2010), pp. 567-594.
[53]Nina Kollars, 'War's Horizon: Soldier-Led Adaptation in Iraq and Vietnam,' *The Journal of Strategic Studies* 38: 4 (2015), pp. 52-553. See also, Nina Kollars, 'Military Innovation's Dialectic: Gun Trucks and Rapid Acquisition,' *Security Studies* 23:4 (2014), pp. 787-813.
[54]Farrell, 'Improving in War;' Theo Farrell, 'The Dynamics of British Military Transformation,' *International Affairs* 84:4 (2008), pp. 777-807; Haaland, 'The Limits to Learning in Military Operations,' p. 1001.

and how they make a military more effective and efficient. The flaw in each model of innovation, the top-down, bottom-up, and even the dynamic interplay, comes in the lack of understanding of the links between learning and change. Without integrating the two fields, that of learning and of innovation, the dissemination of any change and the paths by which innovations become practice are missing a large component of how militaries change. Catignani, Max Visser, Dyson, O'Toole and Talbot, Torann Laugen Haaland, Bond, Kollars, and Fox have all introduced concepts and models of learning concerning adaptation and innovation within the military. However, except for Visser's social science approach, these studies do not specifically address the British Army in the Second World War. When historians do address British Army learning in the Second World War, studies such as Brian Bond's do not engage with the fields of military learning and war adaptation studies that have emerged since the mid-2000s.[55] Except for Fox's work on the First World War, learning and innovation are largely treated as separate subdisciplines when considering warfare prior to 1950.[56]

As will be seen in the following discussion, the terminology of military innovation studies can be confusing as concepts emerged and developed into new patterns of thoughts. Though a relatively new field, innovation studies has produced much scholarship tracing where these changes originate, with four main models: top-down, bottom-up, adaptation, and horizontal innovation. Prior to the development of this scholarship, innovation served as the central thread of what became wartime adaptation studies. Since Adam Grissom's 2006 call to include bottom-up change in literature, the field expanded to include change at different levels concurrently with the US and British military engagements in Iraq and Afghanistan.[57] This

[55]Brian Bond, *Britain's Two World Wars Against Germany* (Cambridge, 2014).
[56]Fox, *Learning to Fight*.
[57]Michael A. Hunzeker and Kristen A. Harkness, 'Detecting the Need for Change: How the British Army Adapted to Warfare on the Western Front and in the Southern Cameroons,' *European Journal of International Security* 6 (2021), pp. 67-68; Adam Grissom, 'The Future of Military Innovation Studies,' *Journal of Strategic Studies* 29:5 (2006), pp. 905-934. See also, Stuart Griffin, 'Military Innovation Studies: Multidisciplinary or Lacking Discipline?,' *Journal of Strategic Studies* 40:1-2 (2017); Williamson Murray, *Military Adaptation in War: With Fear of Change* (Cambridge, 2011).

section gives a brief overview of each of these schools of thought in order to place the current study within them.[58]

According to Grissom, top-down scholarship focuses on four main sources of innovation: 'civil-military relations, interservice politics, intraservice politics, and organizational culture.'[59] Considered the first in the field of military innovation studies, Barry Posen's 1984 *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* assessed Britain's interwar doctrinal developments and determined military innovation originated in civil-military dynamics. Specifically, Posen argued that innovation only occurs with the interference of civilian statesmen, assisted by 'maverick' officers.[60] The second model, that of interservice politics, holds that 'resource scarcity is a key catalyst for innovation,' which stems from competition among services to gain additional resources.[61] The third school, that of intraservice politics, emerged from the model in Stephen P. Rosen's *Winning the Next War: Innovation and the Modern Military*, published in 1991.[62] The final model of top-down innovation—organizational culture—originated in the 1990s and established that 'culture sets the context for military innovation, fundamentally shaping organizations' reactions to technological and strategic opportunities.'[63] Epitomised by the work of Theo Farrell and Terry Terriff, this model places military cultures at the centre of innovation, shaping not only the belief system of the military but also how it interprets change.[64] Elizabeth

[58]For a more in-depth analysis of the field's beginnings, see Robert T. Foley, Stuart Griffin, and Helen McCartney, '"Transformation in Contact': Learning the Lessons of Modern War,' *International Affairs* 87:2 (2011), pp. 253-270.
[59]Grissom, 'Future of Military Innovation Studies,' p. 908.
[60]Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, N.Y., 1984).
[61]Grissom, 'Future of Military Innovation Studies,' pp. 910-911.
[62]Stephen P. Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, N.Y., 1991).
[63]Grissom, 'Future of Military Innovation Studies,' p. 916.
[64]Theo G. Farrell and Terry Terriff, *The Sources of Military Change: Culture, Politics, Technology* (Boulder, Colo., 2002); Theo G. Farrell, 'Figuring Out Fighting Organizations: The New Organizational Analysis in Strategic Studies,' *Journal of Strategic Studies* 19(1) (Spring 1996), pp. 122-135; Theo G. Farrell, 'Culture and Military Power,' *Review of International Studies* 24(2) (Fall 1998), pp. 407-416; and Theo G. Farrell, *The Norms of War: Cultural Beliefs and Modern Conflict* (Boulder, Colo., 2005).

Kier has also convincingly argued that culture played a definitive role in development of interwar doctrine.[65] These models of top-down innovation root themselves in the concept that the military hierarchy and structure dictates that change must originate at the top levels because, as argued by Michael Hunzeker and Kristen Harkness,

> … other forms of learning are probably neither necessary nor sufficient on their own to enable widespread, enduring shifts in doctrine and practice. Change of this magnitude requires endorsement by top-level leaders in order to divert resources, update training, and overcome resistance among frontline leaders who oppose change, particularly in hierarchical military organisations.[66]

Thus, the top-down model of innovation depends upon an understanding that only the top-levels of command hold enough authority within the military hierarchy to institute change and create a space that allows for higher-level learning, the term used for learning that occurs within high command or at the operational level. Rooted in this understanding of hierarchy, the top-down model is most directly opposed by the bottom-up model reviewed next.

The 'bottom-up' model of understanding military innovation developed in response to the emergence of the top-down model discussed above. Grissom noted the 'bottom-up innovation' model's infancy in his 2006 work, arguing that 'bottom-up causality is more complex than top-down causality, involving more actors possessing less formal authority and tacit or complex causal chains.'[67] Bottom-up innovation, then, proved more challenging to trace in archival records as well as identify as a direct thread through the military structure to effected change. Eliot Cohen recognized this model, which he referred to as 'bottom-up transformation' noting that

> Throughout most of military history, to include the current period, change tends to come more from below, from the spontaneous interactions between military people, technology and particular tactical circumstances. The critical question is whether an organization is capable of taking those changes and adopting them widely.[68]

[65]Elizabeth Kier, *Imagining War: French and British Military Doctrine Between the Wars* (Princeton, 1997).
[66]Hunzeker and Harkness, 'Detecting the Need for Change,' p. 70.
[67]Grissom, 'Future of Military Innovation Studies,' p. 925.
[68]Eliot Cohen, 'Change and Transformation in Military Affairs,' *Journal of Strategic Studies* 27:3 (2009), p. 400.

As Kollars indicates, the 'vectored language of up and down' delineates 'the work of the practitioners and that of planners in military organizations.'[69] Farrell and Terriff's work, she notes, 'elevated the relevance of war experiences' and transforming the concept of 'bottom-up innovation' to 'adaptation.'[70] Thus, Farrell and Terriff, and later Farrell, Osinga, and Russell advanced the scholarship from a cultural perspective of top-down innovation to one of adaptation by the individual practitioners in the field, the scholarship of which engages more consistently with the language and scholarship of organisational learning, creating a more interactive process of adaptation as the field developed in the 2010s.[71]

Scholars such as Kollars, Russell, and Robert Foley have determined that the process of change occurs as a more horizontal process *across* the hierarchy rather than a vectored up or down process. Kollars notes that this occurs when soldiers 'knew that an official solution from above was not immediately forthcoming, so they took the matter into their own hands.'[72] Foley furthered the understanding with his case study of the German Army in the First World War, including junior officers as instrumental agents in applying best practices across units and training schools.[73] Kollars builds on the bottom-up adaptation model, and, in 2015 proposed a 'network theory' that 'can account for both the development of ad hoc networked systems (the adaptation process) as well as their potential effects (bottom-up adaptation).'[74] In sum, the field of bottom-up adaptation combines the soldier-led, practitioner-instigated adaptation model with organisational learning theories to create a model that emphasises the experience of war on the front-lines as the primary origin of significant change within a military. It does, however,

[69]Nina Kollars, 'War's Horizon: Soldier-Led Adaptation in Iraq and Vietnam,' *Journal of Strategic Studies* 38:4 (2015), p. 533.
[70]Ibid.; Theo Farrell, Frans P.B. Osinga, and James A. Russell, *Military Adaptation in Afghanistan* (Stanford, 2013).
[71]Kollars, 'War's Horizon,' pp. 533-534.
[72]Ibid., p. 530
[73]Ibid., p. 535; Robert T. Foley, 'A Case Study in Horizontal Military Innovation: The German Army, 1916-1918,' *Journal of Strategic Studies* 35:6 (2013), pp. 799-827.
[74]Ibid., p. 537.

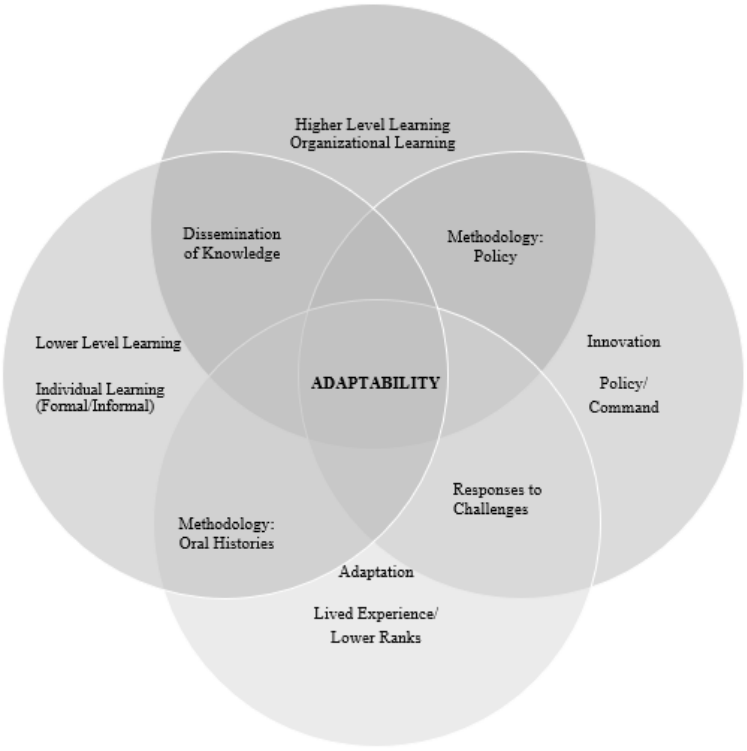
largely recognise the inherent flaw in bottom-up adaptation that also challenges informal learning: the 'preservation of knowledge,' which Catignani, Williamson Murray, and Chad Serena characterise as 'adaptation traps.'[75]

This study combines the higher-level learning and top-down policy changes with the lower level learning and bottom-up adaptation approach discussed above. It fits most closely with Kollars's premise of adaptation that cuts across the hierarchy rather than holding to the vectored language of the field of top-down or bottom-up. Foley, Stuart Griffin, and Helen McCartney, in their discussion of the US and UK forces in Iraq and Afghanistan note that

> These [lessons-learned] systems, created by senior leaders in both armies, are designed to capture lessons from the front line and transmit this information upwards to be disseminated throughout the respective armies. Thus, both organizations have recognized that bottom-up learning is crucial to creating an adaptive and flexible army capable of meeting the challenges of twenty-first-century conflict, and both organizations have made effective use of top-down innovation to make this happen.[76]

This study argues that a lessons-learned system, as described above, emerged within British Army communications of the Second World War. It developed a nebulous approach to learn from its experience, implement strategic change, and capitalise on practitioner developments in the field. In doing so, it situates change as occurring at all levels and in all directions; however, the process also requires each part of the process must be included to be considered adaptable. As such, it does not understand military learning as a spectrum; instead, it presents it as a more nebulous structure as demonstrated in the diagram below.

[75]Kollars, 'War's Horizon,' p. 536; Catignani, 'Coping with Knowledge'; Murray, *Military Adaptation in War*; and Chad C. Serena, *A Revolution in Military Adaptation: The US Army in the Iraq War* (Washington, D.C., 2011).
[76]Foley, Griffin, and McCartney, 'Transformation in Contact,' p. 266.



By drawing on this nebulous view of learning, this study traces the development of these steps through the lens of despatch riders and signallers leading up to, and then during, the Western European and North African theatres of the conflict between 1939 and 1945. In doing so, it contributes to the field by bringing the discussion of lessons-learned and adaptability to the Second World War. As Fox contends, innovation studies rarely have a focus outside modern militaries or operational studies relevant to contemporary military action.[77] Thus far, the majority of scholarship in innovation and adaptation studies centre upon more recent conflicts, beginning with the Vietnam War and largely focussing on the conflicts in Iraq and Afghanistan[78]. Though pivotal scholarship has more recently emerged to examine the First World War, little scholarship has picked apart the British Army of the Second World War's adaptability model.[79] This study does so by examining communications, determining processes

[77]Fox, 'Putting Knowledge into Power,' p. 16.
[78]For the definite text on Western forces learning in Malaya and Vietnam, see John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam* (Chicago, 2002).
[79]See, for example, Fox, *Learning to Fight*.

developed, and demonstrating the relevance to the broader context of army-wide approaches to adaptation and innovation.

Research Questions

This thesis responds to the gaps highlighted in the literature in three ways. First, it moves beyond the standard narrative of communications as a necessary, but inferior in significance, area of combat support. It considers the experiences of despatch riders in various theatres and campaigns to demonstrate how communications are in fact the 'nerves of the army' and deserve to be studied broadly and in conjunction with the infantry, artillery, and air power.[80] This allows for a more complete understanding of the army's experience, responding to Sheffield's, Boff's, and Godfrey's call for further research into communications, technology, and the army's attitudes to both of these factors.[81] By engaging communications, technology, and both individual soldiers and military policy, this thesis examines these aspects and highlights the responsiveness of Royal Signals and regimental signallers to the changing character of warfare faced during the Second World War. It considers the vastly different requirements for communications and the requisite equipment in the treacherously cold Norwegian campaign, the static 'Phoney War,' the abruptly rapid movement of the retreat to Dunkirk, the deserts of North Africa, the rugged terrain of Italy, and the amphibious campaign of Normandy.

By comparing these theatres and campaigns, this study moves away from an assumption of a rounded, uniform signals policy to one that changed and adapted based upon the climate, geography, and road conditions of each place the army found itself. David French has argued that one cannot focus on a single campaign and 'determine how and to what extent doctrine and practice developed over time.'[82] This thesis, then, considers multiple campaigns and

[80] Corcoran, *The Daredevil of the Army*, p. x.
[81] Godfrey, *British Army Communications*, p. xiv.
[82] David French, *The British Way in Counter-Insurgency, 1945-1967* (Oxford, 2011), p. 7.

environments but also examines how and why the army's signals policy changed over time. It does so largely by examining the use of despatch riders as a conscious decision by commanders, necessitating investigation into what this reveals about operations and confidence in technology and 'advanced methods.' The Army, in particular, maintained its DR sections and increased DR numbers in theatres throughout the war. This thesis examines this choice and how it reveals the Army's ability to weigh advantages by adapting and implementing innovations during combat.

Secondly, this study asks whether the British Army's combat support and logistics arms, specifically Royal Corps of Signals and regimental signal units, facilitated transformation and learning during the Second World War. In answering this question, it again predominantly follows despatch riders' experiences but also includes soldiers in similar positions and roles. This study tackles the questions of whether the British Army transformed in a broader sense through examining the War Office's role in a series of committees convened throughout the war to review outcomes and make policy recommendations for improvement. These committees, referred to within this thesis as 'lessons-learned committees,' led to significant changes in communications policies and practices but did so by a process of internal benchmarking. As will be discussed later, they also form the backbone of the study, providing the scaffolding for its structure and conceptualisation of the war.

The question of the Army's ability to transform and embrace learning to the extent of developing a learning process during the war draws on literature from the fields of education and organisational learning. These studies, along with drawing on geographical and medical research, provide an important interdisciplinary aspect essential to reaching the conclusions inherent in a question that explores a highly complex process such as learning and knowledge acquisition. This area of research demonstrates that availability of technology is not the advantage historians have often held it to be; the ability to learn how to use, incorporate, and

adapt efficient technology, however, conveys distinct advantages in conflict. This study, then, investigates not just the intricacies of technology, such as wavelengths and distances of radio effectiveness, but the impact soldiers were able to make by learning how to use technology effectively and examining how this knowledge moved from soldier to soldier as well as up and down the command structure.

Thirdly, this study explores the use of oral histories to examine learning processes during war, expanding the availability of accounts from those who left written material in archives to those who left little to no written documentation of their war experience. As discussed later, oral histories hold a complex and complicated place in reconstructing histories of events, challenged by memories, influences, and recollections; however, they are also a relatively untapped source of informal knowledge buried in soldier's narratives. As this study demonstrates, learning processes take time, and the time between the war and the collection of oral histories allowed for the completion of the learning process in many cases—often giving soldiers the opportunity to contextualise their individual experiences and make sense of their newly acquired knowledge. Oral histories also often provide a methodological tension when used alongside War Office documents by offering differing perspectives based on the speakers' position within the Army, and this study not only acknowledges this tension but also uses it to examine the development of a learning process during the war.

The approach taken to these questions is an examination of the Army's front line signal troops in the various campaigns of the North African and European theatres of the Second World War. This examination focuses on despatch riders in order to shift the attention away from technology and onto larger questions of signalling tactics, training, and individuals' abilities to reconcile official policy with wartime realities. These themes offer a way to interrogate and test the army's communications systems and its responsiveness in a time of war. As it falls outside the scope of this thesis to consider all aspects of the enormous

communications network required to support the entire British land forces, it employs a targeted approach focusing on a single role as a vehicle for further examination. As the theatres and campaigns selected needed to be representative of those most likely to influence signals policy, this study investigates the European and North African theatres. As such, signals policy in the Eastern/Asian theatres differed too greatly with the use of the Indian Signal Service to fit within the remit of this thesis. Due to the nature of the learning process and the importance of place to the context of informal learning, this study also largely, but not exclusively, follows the BEF and then the Eighth Army. Though the study's focus remains active campaigns, it includes the UK-based forces, concentrating on the period of 1940-1942 between active operations in the European theatre, due to their wide use of despatch riders, including in the women's services.

Methodology

This study utilises a broad scope of sources, which will be discussed in this section and applied throughout the following chapters. In addition to the above contextual secondary literature, secondary sources spanning the Second World War, communications history, and the history of technologies such as the motorcycle have been consulted at length. The primary sources utilised for this study divide into three main categories: official documents at the United Kingdom National Archives at Kew (TNA), private papers at various archives, and, most significantly, oral histories housed in the Sound Archive of the Imperial War Museum (IWM).

This study largely compares changes in military policy with the actions of practitioners. For sources of the former, it relies on documents, reports, letters, and war diaries held at TNA in the collections from the War Office (WO), Allied Expeditionary Force, Cabinet Papers, Admiralty, Home Office, Air Force, Ministry of Supply, and medical boards. The major benchmarking, lessons-learned committee reports discussed in this study all originate from the

War Office collection at TNA. Examining records from a number of different government organisations and departments highlights the extent to which the army and War Office discussed and monitored its communications system and its development. Furthermore, the war diaries at TNA provide the contextualisation and serve as a means of verification and triangulation of the numerous personal narratives that will be discussed. The fluid nature of war often meant that these diaries and official reports originated after the fact or were, in fact, reconstructed. The level of detail in the reports also varies, with some despatch riders referred to by name, for example, whilst other reports simply note the number of despatch riders used.

The private papers consulted are housed at several different archives within the UK, namely TNA, IWM, the Royal Corps of Signals Museum, the National Army Museum (NAM), and the Cadbury Research Library of the University of Birmingham. These papers take the form of private diaries, unpublished memoirs, personal letters, private photographs, and other unpublished documents that when consulted in tandem with other sources, provide an insight into the lived experience of practitioners at war. Despatch riders' accounts from the army, marines, women's services, and Home Guard form the basis of written perspectives utilised. Likewise, this thesis draws on non-textual sources held at IWM and NAM, particularly photographs (see Appendix), film reel, and posters produced during the war. Material sources and their archiving reveal an important sense of the time and place, especially when considering the state of technology and the lived experience. The weight of jackets and bulk of motorcycles, for example, greatly impact the effectiveness of soldiers. The existence of such artefacts as part of the historical record allows for a better reconstruction of many of the theatre and equipment-related challenges discussed throughout the study.

Lastly, one of the most significant contributions to the field from this study is its use of pre-existing oral histories from the IWM. The IWM's Sound Archive comprises over thirty thousand recordings but has, until now, been underutilised in examining learning and

adaptation in the British forces. While oral histories from the Sound Archive serve as supplemental sources in many studies, this thesis puts them in the centre and argues that the Sound Archive contains a robust documentation of informal knowledge. The use of oral histories for this purpose, however, requires some exploration of the issues and considerations of this type of historical record.

Oral history, which largely emerged as a field of historical studies after the Second World War, challenges the primacy of textual forms of historical records.[83] This study uses Lynn Abrams's definition, which defines oral history as

> a practice, a method of research. It is the act of recording the speech of people with something interesting to say and then analysing their memories of the past…one is confronted by the oral history interview as an event of communication which demands that we find ways of comprehending not just *what* is said, but also *how* it is said, *why* it is said and *what* it means…Oral history involves communicating with living, breathing human beings. No other history method does this. This may seem so obvious that it is not worth saying, but we should always remember that at the heart of our practice are real people: the researcher who is asking the questions and the respondent doing his or her best to answer them. And it is this that is the key to oral history's uniqueness. All the features that distinguish oral history stem from this one element.[84]

As an 'umbrella term that incorporates both the practice and the output,' oral history refers to both the process and the actual interview, and this thesis uses oral histories extensively as primary sources.[85] The introduction of the voice recorder brought an important element to the field as it 'captured a verbatim record of the narrator's speech from a content standpoint, it also

[83]For the evolution of oral history, see Paul Thomson, *Voice of the Past: Oral History*, 3rd ed. (Oxford, 2000); David Henige, *Oral Historiography* (London, 1982); Michael Frisch, *A Shared Authority: Essays on the Craft and Meaning of Oral and Public History* (New York, 1990); Alessandro Portelli, *The Death of Luigi Trastelli and Other Stories: Form and Meaning in Oral History* (New York, 1991); Sherna Gluck and Daphne Patai, eds., *Women's Words: The Feminist Practice of Oral History* (New York, 1991); Elizabeth Tonkin, *Narrating Our Pasts: The Social Construction of Oral History* (Cambridge, 1992); Donald A. Ritchie, *Doing Oral History: A Practical Guide,* 3rd ed., (Oxford, 2014); Valerie Raleigh Yow, *Recording Oral History: A Guide for the Humanities and Social Sciences*, 3rd ed. (London, 2014); Robert Perks and Alistair Thomson, eds., *The Oral History Reader*, 3rd ed. (London, 2016); Thomas L. Charlton, Lois E. Myers, and Rebecca Sharpless, *Handbook of Oral History* (Oxford, 2006).
[84]Lynn Abrams, *Oral History Theory*, 2nd ed. (Oxford, 2016), p. 1, 18-19.
[85]Ibid., p. 2. See also, Julie Cruikshank, 'Oral Tradition and Oral History: Reviewing Some Issues,' *The Canadian Historical Review* 75:3 (September 1994), p. 404.

captured the added informative content in the form of tone of voice, inflection and defects.'[86] In order to maintain the 'orality' of oral history and, as Abram notes, 'recognising that memory stories are contingent and fluid,' this study uses the audio files of all oral histories referenced, rather than relying solely upon transcripts.[87] It does so in effort to include the narrators' idiosyncrasies, emphases, regional dialects, and tone of voice.

The oral histories utilised originated with interviewers unconnected to this study; they were, for the most part, created by the IWM and its projects over the years since the Second World War, primarily in the 1980s-2000s. The IWM's programmes, however, collected interviews during the respondents' lifetimes, allowing for the archiving of interviews to be analysed at a later date by researchers. The interviews used, therefore, are not specific to this study and do not contemplate learning directly. Instead, the oral histories required interpretation and identification to extract evidence of informal knowledge. While on the one hand, this adds another layer of interpretation and removes the collaborative nature of researcher-respondent, pre-existing oral histories can be seen to avoid the pitfalls of leading questions and bias on the part of the interviewer. Because the narrators were not interviewed about their experiences of learning, any reference to learning, informal knowledge, formal training, and related topics forms a broader part of their individual recollection of the war.

Alessandro Portelli noted in 1992 the importance of considering oral histories as 'history-telling' to distinguish it from 'story-telling,' arguing that:

> prompted by the interviewer, the history-teller weaves personal recollections into a broader historical background, and is encouraged to expand the tale toward a full-sized oral autobiography in which the self-contained narrative units of anecdotes or tales are included in a more complex framework.[88]

[86]J.D. Carruthers, 'Narratives Afield: an Oral History Experience,' Unpublished M.A. Thesis, University of Kentucky (2020), pp. 6-7.
[87]Abrams, *Oral History Theory*, p. 6.
[88]Alessandro Portelli, 'History-Telling and Time: An Example from Kentucky,' *Oral History Review* 20:1-2 (Spring-Fall 1992), p. 51.

Or, as Abrams explains, 'oral history is a *dialogic* process; it is a conversation in real time between the interviewer and the narrator, and then between the narrator and what we might call external discourses or culture.'[89] That is, narrators give their personal recollections in a shared discussion with the interviewer, who must be cognizant of the shared authority of the creation of this kind of historical record. Michael Frisch set out to expound upon this concept of shared authority in his 1990 work *A Shared Authority: Essays on the Craft and Meaning of Oral and Public History,* and the concept remains debated with discussions of the decolonisation of history documenting different global understandings of who 'owns' oral histories. It is important to note that this study is rooted in English-speaking oral history scholarship from the North (ESOHSN) and does not engage with oral tradition, instead focusing on oral history as a methodology.[90]

As Rebecca Sharpless notes, 'oral history, easily accessible and useful for talking with almost any type of person, became a primary tool for documenting the lives of ordinary people.'[91] This study follows this model and uses oral histories primarily to include the memories of soldiers who would not otherwise be included in the historical narrative. Memory, as Abrams writes,

> …is not just the recall of past events and experiences in an unproblematic and untainted way. It is rather a process of remembering: the calling up of images, stories, experiences and emotions from our past life, ordering them, placing them within a narrative or story and then telling them in a way that is shaped at least in part by our social and cultural context.[92]

The majority of narrators referenced left formal schooling between the ages of fourteen and eighteen and did not leave behind substantive written records. Critics of oral histories question their veracity, accuracy, and validity, often citing the flaws of memory. Simon Ball argued that

[89]Abrams, *Oral History Theory*, p. 19.
[90] Frisch, *A Shared Authority*; Hilliary Francis et al., 'Decolonizing Oral History: A Conversation,' *History: Journal of the Historical Association* 106: 370 (March 2021), pp. 265-281.
[91]Rebecca Sharpless, 'History of Oral History,' in Charlton, Myers, and Sharpless, eds., *Handbook of Oral History*, p. 24.
[92]Abrams, *Oral History Theory*, pp. 78-79.

personal recollections can 'mislead or conceal as much as they reveal. Without any lies being told, information can be simply incorrect.'[93] This study embraces the interpretive differences between oral histories, acknowledging that they are a method that includes not only the narrator's past experience but also their present understanding of that experience. This is particularly true in the discussions of emotions and feelings, including narrators' admissions of fear and loneliness, which form part of the evidence used for chapters two, three, and four. Contemporary sources, unit diaries, and official documents serve as fact-checking for evidential information, but as Abrams and Paul Thompson both note, 'all evidence is socially constructed, all is a product of a purpose, and many documents were deliberately shaped to present a particular picture or interpretation of an event or phenomenon.'[94]

The tensions that emerge throughout this study between official documents and oral histories demonstrate that the use of both of these methods gives a stronger, more rounded understanding of processes such as learning and adaptation. As noted previously, learning takes time, and often, the collection of oral histories years later allows that time to pass and sense made of new knowledge and its meaning. This study uses the time lag to its advantage rather than viewing it wholly as a detriment: by giving narrators the time to consider and contextualise their experiences, oral histories provide a window into informal learning and knowledge. Very specific details are often forthcoming, particularly when concerned with important knowledge gained informally and in combat. This study proposes that not only should historians be more inclusive of oral sources but that they should be collected regularly by militaries to capture their informal learning and knowledge as it emerges and feed it back into organisational knowledge capture systems.

[93]Simon J. Ball, 'Harold Macmillan and the Politics of Defence: The Market for Strategic Ideas during the Sandys Era Revisited,' *Twentieth Century British History* 6:1 (1995): 99.
[94]Abrams paraphrase of Paul Thompson, *The Voice of the Past*, 3rd ed. (Oxford, 2000), pp. 118-128.

Published primary accounts also form an integral part of this study. Five memoirs of despatch riders have been published: Raymond Mitchell's *Commando Despatch Rider: From D-Day to Deutschland 1944-45*; Ernest Sidney Nicholson's *Adventures of a Royal Signals Despatch Rider;* and John Hillier's *The long long road to victory: diary of an Infantry Despatch rider 1940 to 1946* consider their roles in the Second World War. Earlier works by Austin Patrick Corcoran and W.H.L Watson describe their experiences of DR work in the First World War. All of these memoirs are problematic in places – Nicholson's widow, for example, completed his from his notes. Mitchell's memoir is the easiest verified, as his wartime diaries have been consulted at the IWM and otherwise compared with Robert Brooks's *The Royal Marines: 1664 to Present*.[95] Both published and unpublished memoirs, like oral histories, offer a window into the lived experience of practitioners but remain the individual experience, each told through the lens of their author. While these memoirs will always offer the version of the story the author wants to present, their strength is epitomised by the publication in 2011 of Chester Nez's *Code Talker*. Nez's memoir is history-telling from the perspective of a highly underrepresented group – Navajo servicemen—and offers a route to incorporating more diverse lived experiences into the broader historical narrative.[96] Other published primary documents include the use of David Croll's *Despatch Rider's Primer and Alphabet of Map Reading (Conventional Signs)* as well as *Field Service Regulations* to illuminate the training requirements and process of becoming a despatch rider.[97]

Learning model used

[95]Raymond Mitchell, *Commando Despatch Rider: With 41 Royal Marines Commando in North-West Europe 1944-1945* (Barnsley, 2001); Robert Brooks, *The Royal Marines: 1664 to the Present* (London, 2002); Ernest Sidney Nicholson, *Adventures of a Royal Signals Despatch Rider* (Leicestershire, 2003); John Hillier, *The Long Long Road to Victory: Diary of an Infantry Despatch Rider 1940 to 1946* (1995), IWM 97/1400 23(=4)/5.
[96]Chester Nez with Judith Schiess Avila, *Code Talker* (New York, 2011). Nez's memoir covers his early life, time as a Navajo Code Talker for the US Marines in the Second World War, and his life after his service, incorporating traditional Navajo culture.
[97]David Croll, *Despatch Rider's Primer and Alphabet of Map Reading (Conventional Signs)* (Aldershot, 1943).

This thesis understands learning as a nebulous process that can take many different directions to become organizational knowledge. It models the developing organizational learning of the Army through looking at how communications changed and responded to the war. It, therefore, uses a hybrid of individual and social learning theories, arguing that the unique and complex environment of a military at war calls for the flexibility to move between systems. Whilst the Army's peacetime structure may depend more on individual learning theory with a focus on formal learning systems, once war began, it increasingly relied upon a social learning theory, primarily pragmatism, that relied heavily on informal learning systems. But this was not a total shift – a new paradigm emerged of a fluid, nebulous process that adapted and flexed as solutions were required for new challenges. Unlike the repercussions in corporations and educational settings, the stakes of 'getting it right' in a military context became, by December 1939, extraordinary. What historians learn by picking apart this learning process is how signals in the British Army adapted in the war and facilitated new knowledge creation – and then how historians can reintroduce some of the lost informal knowledge through the mining of oral histories and personal accounts of soldiers who served as other ranks accounts.

Thesis Structure

This thesis is divided into four substantive chapters periodized by lessons learned committees that met from 1932 to 1942. The chapters investigate the presence of despatch riders within the British communications infrastructure and the various themes that this highlights, including adaptability, difficulty, and policy challenges. The first chapter provides necessary context on the development of communications and signals policy prior to the 1932 Kirke Committee on the Lessons of the Great War. It examines the evolution of the Royal Corps of Signals, its predecessor the Signal Service of the Royal Engineers, and the signals environment of the First World War, finding reticence on the part of communications policy to

embrace new methods and means of communication fully. This reticence shows that the army continually chose to maintain the human messenger. It also finds that the failure to incorporate regimental signallers into a single umbrella signals corps resulted in communications not participating fully in the growing mechanisation and reorganisation of the army during the interwar period. It further proves that the languishing of the army's budget due to interwar stringency greatly hindered development, leaving much of the technology to develop in the civilian industry. Finally, this chapter examines the rearmament of the British army and identifies the recruitment and training of despatch riders and the policy under which communications functioned in 1939.

The second chapter begins with 1936 Jackson Committee and ends with the Bartholomew Report of 1940, examining the rearmament period and the opening theatres of war in France (1939-1940) and Norway (1940). During these years, communications altered tremendously as the war moved from the stagnation of the 'Phoney War' in France to the rapid and sudden movement in the retreat to Dunkirk. This chapter challenges the common perception of limited activity by the British Expeditionary Force by showing the role and use of despatch riders as forward intelligence gatherers. The retreat to Dunkirk, as well as the earlier disaster of the Norway campaign, both demonstrate the innate challenges of utilising radio and telephone for communications. Thus, this chapter finds multiple examples of when the more 'advanced methods' failed, forcing signal sections to disregard policy in favour of adapting methods that worked. This suggests that from the beginning of the war, signals policy struggled to keep up with the rapidly changing conditions of mobile warfare; the inclusion of DRs in recruitment whilst the UK-based forces recouped before further deployment reinforces this notion.

The third chapter follows the Bartholomew Report's release in 1940 and considers the realities of communications during the North African, and to a lesser extent Middle Eastern,

campaigns, leading to the Godwin-Austen Report of 1942. It examines how mobility and vast distances challenged the signals structure that had adapted to European warfare and how the responses to these changes impacted the efficiency of communications. In doing so, this chapter proves communications adaptation occurred at all levels, and the War Office readily accepted changes from lower levels. The Army also needed to reassess its knowledge of and provision for radio security once the distances of the North African theatre became clear; it responded by laying a large amount of telephone cable, which was subsequently destroyed in bombardments like that at Tobruk and the Italian campaign. Crucially, this chapter answers the question of whether the repeated need to *not* use a method of communication despite carrying the equipment and supply lines outweighed the benefits of utilising radio, including when and where it could be employed. The vast number of despatch riders that found themselves transferred to units in Italy clearly demonstrates that the disadvantage of the technology in this theatre became apparent early on and the General Staff's consideration of communications policy took this into account for the later landing at Normandy.

The final chapter follows on from the Godwin-Austen Report, evaluating its effectiveness in the subsequent campaigns in Italy and Northwest Europe from 1943-1945. The conditions of the campaign, coupled with the absolute need for security, challenged the signals units to their utmost logistical capabilities. The failure of much of the radio equipment, for example, due to weight and need to avoid water provided disadvantages from the planning stages to the operation's fruition. The speed and secrecy needed led to a great loss of equipment, but despatch riders proved to be an adaptable set of troops, as they were able to change and even requisition equipment from French civilians when necessary. The chapter also investigates and shows that the infamous communications issues in Operation Market Garden were not isolated but that the historiography has focused largely on failures. The final question the chapter answers is what became of despatch riders at the end of the war: if they were, as

many have contended, an insignificant last case scenario, then why were so many deployed to the Pacific theatre after the European victory?

Finally, the conclusion threads these theatres, campaigns, and policies together. It argues that, through a combination of unsuitable doctrine and forward adaptability, the Royal Signals managed to advance greatly during the war through a learning process that capitalized on adaptation and change from all ranks. By utilising a targeted approach of following the role and experience of the despatch rider, this thesis demonstrates that the vectored debate over reactivity or proactivity of the British army is both flawed and short-sighted, that the army was in fact both and this is what led to the rapid development needed to respond to the German strategy of 1939-1945. This thesis concludes by suggesting the broader implications of this work on the understanding of the British army and how it introduces and adopts new technologies and the problems faced therein. The effect of this remains relevant as battlefields and tactics continue to transform faster than policy can respond.

CHAPTER ONE:

The Norman Committee of 1913 to the Kirke Report of 1932

'Deliver your despatch at all costs'[98]

Introduction

In 1918, former Signals Service despatch rider Captain Austin P. Corcoran noted that 'when an Army is in motion or under a fierce barrage or artillery fire, only individual effort will maintain communications, and that [will be] supplied mainly by the Motor Cycle Despatch Corps' (MCDC).[99] The remarks in his memoir concerning his First World War service provide an insight into the British Army's organisation at the beginning of the war in 1914 – and that it relied heavily on the newly established MCDC of the Signal Service, which itself had recently developed within the Royal Corps of Engineers. The British Army that went to France in 1914 proved very different to the one that emerged during the conflict, growing from the small, professional British Expeditionary Force (BEF) of 247,432 in 1914 to a conscripted, civilian-based army of 2,668,736 by the end of the war in November 1918.[100] This rapid growth and expansion included many changes in the methods, materiel, and policy of communications. For example, signals units within the Royal Engineers grew from seventeen in August 1914 to 321 by November 1918, outpacing the growth of the Army as a whole. Given the accelerated growth and augmentation of the personnel, it is not unreasonable to suggest that this change, especially the influx of non-

[98]Austin Patrick Corcoran, The Daredevil of the Army: Experiences as a "Buzzer" and Despatch Rider (New York, 1918), p. xiii
[99] Corcoran, *The Daredevil of the Army*, p. viii.
[100]War Office, *Statistics of the Military Effort of the British Empire during the Great War 1914-1920* (London: HMSO, 1922), pp. 30,62-63, 64. This figure does not include the reservists.

professional soldiers, impacted the Army's sphere of communications, stretched its capabilities, and thus generated lingering effects on policy after the war.[101]

In 1913, the War Office Wireless Telegraphy Committee (Norman Committee) reported that the 'Army wireless service' was 'so inefficient as to be unreliable, and is therefore practically valueless in time of war.'[102] This committee serves as the first of the internal benchmarking committees examined in this study and demonstrates an early interest in improving British Army communications. Later, in 1932, when considering the First World War experience, the Committee on the Lessons of the Great War (Kirke Committee) declared that communications proved to be 'the crux of the matter' in reconciling the lessons of 1914-1918 with the future of the British Army.[103] Given this declaration, the question of why relatively little seemed to change in communications between the First and Second World Wars remains a largely unexplored area of scholarship. This chapter examines the developments that created the need for the Norman Committee, its impact, and the subsequent establishment of the Kirke Committee of 1932, paying particular attention to the time period between the committees. This serves as the background to the following chapter's discussion of the 1936 Jackson Committee and rearmament for the Second World War. Furthermore, it lays the foundation of the series of lessons-learned committees that began in 1913 and matured between the years 1932 and 1942, demonstrating the beginnings of the learning process that will be discussed in later chapters.

[101]Ibid., The Army's overall growth was 1078% whereas the signal units increased 1880%. The Royal Engineers increased over 3000% between 1914 and 1918.
[102]'War Office Wireless Telegraphy Committee,' The National Archives of the United Kingdom (Hereafter, TNA) WO 32/8879. Hereafter referred to as the Norman Committee Report.
[103]'Report on Operations on the Western Front, by Major-General J. Kennedy,' in Report on the Committee on the Lessons of the Great War: Appendices, The War Office 1932, TNA WO 32/3116. (hereafter, Kirke Committee Report). This committee and its report are most often referred to as the 'Kirke Commission' and 'Kirke Report' after its chairman, Lieutenant-General Walter Kirke.

The interrogation of communications during the Second World War cannot be approached without an understanding of the processes and experience prior to the war. The interwar trajectory of British defence policy, combined with the economic climate and strategic responses to the experiences of, and changes in, warfare during 1914-1918, directly impacted the ability of the 1939 BEF to fight a new, mobile style of warfare. In short, without looking at the transitions from pre-1914 mobile to static trench warfare and then to more modern mobile and open warfare, the adaptability within communications in the context of 1939-1945 cannot be appreciated.

This chapter answers three questions: first, the extent to which innovation and implementation of communications advancements took place before, during, and after the First World War as considered in the lessons-learned committees; secondly, the degree to which the British Army's signals policy responded to its economic, political, and structural circumstances prior to the outbreak of war in 1939; and, lastly, whether a dichotomy between policy and practice emerged. The extent of change evaluated in this study cannot be fully appreciated without first considering the foundational developments of modern communications structures. Furthermore, this chapter outlines the events that led to the emergence of the lessons-learned committee system that periodises this thesis. Recognition of the interwar committees' attempts—and how they could appear as failures—to achieve timely reform results in a clearer understanding of the landscape of communications, technology, and adaptation that faced the British Army in its initial engagements of 1939-1940. Additionally, the experience of altering communications 'on the fly' during the First World War served as a distinct precedent for how knowledge originated and transferred on the battlefield. Finally, the growth of the dichotomy of policy and practice, the reasons behind its pervasiveness, and the significance of its resolution through informal knowledge transfer networks cannot be realised without first analysing why this disparity emerged in the first place.

To answer the questions posed above, the chapter first looks at the foundations and subsequent maturation of the Royal Corps of Engineers Signal Service and its Motor Cycle Despatch Corps, their context in the developing signalling structure, and the outcome of the interwar period's considerable deliberations on lessons-learned and mechanisation. Furthermore, to realise the answers to these questions, the chapter outlines the interwar strategy and attitudes towards communications; examines the financial and policy environment faced by the newly formed Royal Corps of Signals; evaluates the challenges of the centralisation of communications; and identifies reliance on civilian advancements in mechanisation and mobilisation. Finally, it concludes with the lead-up to the rearmament period of the mid-1930s, the growing urgency in increasing the reach of signal units, and the recruitment of despatch riders in preparation for the Second World War. This latter section highlights the growth of discrepancies between official policy and actual practice. The rearmament discussion continues in the following chapter by introducing the 1936 Jackson Committee, the next lessons-learned committee to consider communications.

Victorian and Edwardian Army Communications

Legislating change had, prior to the twentieth century, not proven entirely effective for the British Army. Its largest, most extensive transformation occurred with the passage of the 1868-1874 reforms of Edward Cardwell, William Gladstone's Secretary of State for War. A sign of their times, these transformations combined Gladstone's Victorian reform-minded ministry with the changing military environment of Continental Europe, increasingly characterised by the Prussian model of Carl von Clausewitz.[104] The Victorian Army of Britain, however, embraced the changes from Parliament reluctantly, and by 1900, 'much of the old continued' while many changes simply

[104]For the transformation of the Victorian British Army, see Edward M. Spiers, *The Late Victorian Army, 1868-1902* (New York, 1992) and Hew Strachan, *The Politics of the British Army* (New York, 1997).

'failed to take hold.'[105] The Army's response to Parliament's changes, displaying a disinclination to modernise and embrace the increasing social mobility and inclusion of the growing middle class in the officers' ranks, mirrored that of its approach to adapting emerging communications technologies such as the telegraph and telephone. The extent to which the British high command resisted or embraced technology remains a topic of great debate amongst historians, but Brian Hall's study of the telephone on the Western Front demonstrates that despite the British Army's growing wartime dependence on the telephone, the Army of 1914 would struggle to adapt its communications framework from its imperial, small wars experience to the warfare that quickly took root in France.[106]

The warfare that characterised the Victorian and Edwardian British Army's approach to land conflict simply did not have much room – or, it felt, need– for developing a more sophisticated approach to communicating. This belief included both its intra-Army and intra-service communication, creating a notable gap in Army-Navy communications methods and capabilities. This gap existed at both the equipment and the policy level, as will be discussed later in this chapter. After the electronic telegraph made its military debut in the Crimean War and subsequently, to far greater extent and success, the American Civil War, its inclusion in the regular British Field Army seemed inevitable. The telegraph brought with it security and logistical concerns that the Royal Engineers felt best suited to overcome. John Ferris has suggested that foreign observers of the American Civil War noted the issues of security and line integrity with the telegraph, which prompted the Royal Engineers' insistence upon control and security over all

[105]Albert Tucker, 'Army and Society in England 1870-1900: A Reassessment of the Cardwell Reforms,' *Journal of British Studies*, 2:2 (May 1963), p. 110.
[106]Brian N. Hall, 'The "Life-Blood" of Command? The British Army, Communications and the Telephone, 1877-1914,' *War & Society* 27:2 (Oct 2008), pp. 44-45.

telegraph systems deployed within the field army in the African campaigns of the nineteenth century.[107]

The foundations of the first permanent, centralised signalling unit, 'C' Telegraph Troop Royal Engineers under Captain Montague Lambert, occurred only three years before its debut in the 1873 Ashanti Campaign and subsequent deployment to the 1879 Zulu War.[108] The basic existence of a telegraph troop, however, did not mean that the troop was properly supplied. Though the 1879 conflict saw seven officers, 200 men, and 110 horses assigned to the unit, only twenty miles of cable were provided, greatly diminishing the unit's effectiveness.[109] Responsible at first for telegraph, visual signalling, and mounted orderlies, 'C' Telegraph Troop quickly devolved into only holding responsibility for telegraph. By 1884, another reorganisation resulted in the creation of the 1st Telegraph Battalion, Royal Engineers, with successive reorganisations in 1900, 1901, 1903, 1905, and 1907 as the role of the telegraph and communications rapidly developed alongside modernising changes within the Edwardian Army and the Army explored the utility of the new technologies.[110]

The British Army's dismal performance during the Anglo-Boer Wars highlighted the shortcomings of both its adaptability and modernisation, particularly in the realm of communications. The conflict exemplified the disconnect between the capabilities of the Army and the requirements of modern forces. L.L. Fordred has argued that prior to this conflict, the role of military signallers, whether Royal Engineers or regimental, were 'small and uncomplicated' with the reliance being mostly on written or verbal messages through mounted orderlies, despatch

[107]John Ferris, 'Before "Room 40": The British Empire and Signals Intelligence, 1898-1914,' *The Journal of Strategic Studies* 12 (1989), p. 432.
[108]'C Troop,' *The Royal Engineers Journal* 1:2 (Oct 1870), p. 17; Cliff Lord and Graham Watson, *The Royal Corps of Signals: Unit Histories of the Corps (1920-2001) and Its Antecedents* (Solihull, 2003), 16.
[109]Philip Warner, *The Vital Link: The Story of Royal Signals 1945-1985* (London, 1989), p. 9.
[110]J.E.E. Craster, 'Communications,' *Journal of the Royal Engineers* 6 (1906), p. 7.

runners, or, 'if circumstances allowed,' signallers utilising flags or heliographs.[111] Basing his argument on the notion that the General Staff 'felt threatened by the advances being made in the scientific and mechanical fields' and therefore 'tried to discourage change of any kind,' Fordred holds that the hierarchy of the Army 'were loath to adapt' new weapons or techniques with the great exception of the electric telegraph.[112] This attitude stemmed from the experience of the Crimean War in which the first submarine telegraph cables had been laid, but the level of communication and extent of cables 'were considered a hindrance rather than a help.'[113]

Fordred's stance proves characteristic of the traditionally held views of an inflexible hierarchy that did not welcome any change or introduction of new technologies. More recently, however, historians such as Dan Todman and Gary Sheffield have argued that in fact, despite criticism of the pre-1914 Army for being rigid and limited in its imagination, the BEF that emerged in 1914 'proved able to recognise and adapt' both new technologies and tactics.[114] Furthermore, Aimée Fox has shown that not only could the Army adapt by 1918, but it also had an infrastructure that encouraged learning new methods and techniques, as well as developing knowledge transfer concerning new technologies and employment of the latest tactics and techniques across theatres. Fox is also careful not to conflate ethos and tradition when considering the flexibility of the Army, a more nuanced approach that identifies adaptability and forward-thinking in its ethos, or 'prevailing character,' as opposed to the more traditional interpretation of doctrine as the

[111]L.L. Fordred, 'Wireless in the Second Anglo Boer War 1899-1902,' *The Transactions of the South African Institute of Electrical Engineering* (Sept. 1997), p. 61.
[112]Ibid., p. 61.
[113]Ibid.
[114]Dan Todman and Gary Sheffield, 'Command and Control in the British Army on the Western Front,' in Gary Sheffield and Dan Todman, eds., *Command and Control on the Western Front: The British Army's Experience 1914-1918* (Staplehurst, 2004), pp. 6-7. See also, Timothy Bowman and Mark Connelly, *The Edwardian Army: Recruiting, Training, and Deploying the British Army, 1902-1914* (Oxford, 2012).

quintessential example of the Army's approach.[115] Though Fox has demonstrated the infrastructure to support a learning culture existed by the end of the First World War, the utility of her argument for this thesis lies in the organisational experience and precedent of adapting in this fashion. As will be shown, many factors changed the British Army by 1939 and it changed further during the following six years of war. While parallels exist with the learning culture identified by Fox, the Second World War required the Army to re-establish and reformulate methods of learning and adaptation.

Doctrine, but especially the military's reverence of its tradition, as Theo Farrell has identified, can be seen as 'a brake on innovation,' becoming problematic for influxes of new ideas and change.[116] It is, then, more accurate to view the British Army, and military organisations in general, 'as a culture of sub-cultures,' taking into account the great variation of devolved ethos and approaches found across a complex, heterogenous military organisation. To sum up the British Army as having a homogenous, monolithic approach is not only a misconception but also largely a fallacy of suppositions.[117] Shelford Bidwell also wrote of this individuality of subcultures, an observation gained not only from his academic work but from his experience within the British Army, with the description that 'the Army, then as now, was not a homogenous entity like the other two services, but a gallimaufry of semi-autonomous units agreeable to cooperation in time of war.'[118] The Army made service-wide decisions; however, the desire to integrate communications technology remained largely contained within a dynamic signal service, and as

[115]Aimée Fox, '"Putting Knowledge into Power": Learning and Innovation in the British Army of the First World War,' Unpublished PhD Thesis, University of Birmingham, 2015, p. 28; See also, Aimée Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918* (Cambridge, 2015).
[116]Terry Terriff, '"Innovate or Die": Organisational Culture and the Origins of Maneuver Warfare in the US Marine Corps,' *Journal of Strategic Studies* 29:3 (2006), p. 478; T. G. Farrell, 'The Dynamics of British Military Transformation,' *International Affairs* 84:4 (2008), p. 783; Fox, '"Putting Knowledge into Power,"' pp. 27-28.
[117]Fox, '"Putting Knowledge into Power,"' pp. 29.
[118]Shelford Bidwell, 'After the Wall Came Tumbling Down: A Historical Perspective,' *The RUSI Journal*135:3 (1990): p. 60.

will be detailed later within the chapter, the independent corps that emerged. As will be shown in later chapters, the ability to not only develop subcultures but also share learning within them allowed for the creation of informal learning processes, which proved essential in transferring knowledge during the war.

Historians' prioritisation of the Royal Navy's early encounters with communications technologies can be explained partly in the services' contemporary approaches to the new developments. As will be detailed later, one reason that historians have focused on the naval implications is simply because the Navy demonstrated early interest and enthusiasm for the potential of wireless communication. The Army's disastrous struggles and 'obvious dissatisfaction' with the Marconi company's leased equipment, however, led to an army disinclined to make the necessary changes to institute an effective embryonic wireless infrastructure. After the Army became discouraged by the challenges of altering its communications structure and network, the Navy took over the Army's lingering contracts and the gap between naval and army use of wireless communication began in earnest.[119] Thus, the approach of the Royal Navy, one of 'enthusiasm and optimism' greatly contrasted the British Army's 'doubt, suspicion, and scepticism,' according to Hall, one of the few historians to offer a scholarly evaluation of Army communications during this period.[120] Without looking more closely at the Army, however, the scope of what was possible outside the physical space of a ship becomes far more obscured. Nicholas Lambert argues that 'the twentieth century communications revolution was, at the very least, a key enabler and arguably the cornerstone of the Fisher revolution' of the Royal Navy, making the Navy's use of wireless of pivotal importance in its

[119]Fordred, pp. 69-70.
[120]Brian N. Hall, 'The British Army and Wireless Communication, 1896-1918,' *War in History* 19:3 (2012), pp. 291; for Naval adaptability see Geoffrey Sloan, 'The Royal Navy and Organisational Learning-The Western Approaches Tactical Unit and the Battle of the Atlantic,' *Naval War College Review* 72:4, 9 (2019).

modernisation and development.[121] Though examining the naval implications of wireless, Lambert notes that naval engineers did not develop a set small enough to be effective on a destroyer until 1907, and even then, it only had a range of fifty miles.[122]

As this was only seven years prior to the outbreak of the First World War, the state and development of the Army's signalling capabilities, inclinations, and aspirations can be seen within this context – if the Navy's smallest sets needed a destroyer, then the question of the Army's capability by this point emerges. The answer is a complex array of methods of communication, many of which were untested on a large scale and required highly complex technical training to operate. The Army's efforts in modernising its signalling abilities had two distinct facets: the centralisation of communications provision and the development and adaptation of new technologies to suit the needs of this newly centralised policy.

Centralisation became the driving force of change in communications prior to 1914 as it became common thought that the newly available electronic telegraph could be best operated through a centralised structure rather than the scattered, autonomous regimental signalling. As regiments adhered to no standard training for their signallers, the capabilities, as well as the equipment, varied far too widely for any single telegraph policy to be implemented. Prior to the electronic telegraph, centralisation had been required when faced with the conflicting alphabets of semaphore and the increasingly common Morse Code. As flags, heliograph, and lamps had previously served as the main long-distance signalling methods, adopting a universal alphabet became increasingly essential. When faced with the advent of the electronic telegraph, the combination of practicality and security resulted in the universal adoption of Morse Code over

[121]Nicholas Lambert, 'Transformation and Technology in the Fisher Era: the Impact of the Communications Revolution," *Journal of Strategic Studies* 27:2 (2004), p. 274.
[122]Ibid., 279.

semaphore.[123] A move towards centralisation, through necessity and the need for a universal strategy, characterised the development of the Royal Engineers Signal Service from its early conception as a Telegraph Group of the Royal Engineers. Prior to discussing centralisation further, this chapter first outlines the existing communications technologies and their required techniques, demonstrating the increasing sophistication of training and need for centralisation.

Before the electronic telegraph, the British Army trialled several forms of visual signalling, though these trials had no central coordination, and each regiment's employment depended on its commander's understanding and flexibility. The use of 'primitive forms of intercommunication' such as flags, lamps, beacons, and 'naval visual "telegraphs"' corresponded with the warfare of the time: generally small armies with short range weapons and forces massed together within relatively short distances of one another.[124] As weapons technology advanced and firepower grew to allow for more distance between units and combatants, communications required adapting. Britain saw its first semaphore telegraph in 1795 after the Admiralty adopted Lord George Murray's version of the French mechanical telegraph, building several permanent relay stations for long-distance communication between London and Portsmouth, Dover, Chatham, Harwich, and Yarmouth. Again, the Navy showed earlier initiative than the Army until the latter adopted a semaphore telegraph concurrently developed by John Gamble, the first Chaplain-General to the Forces, in 1797. Unlike the Navy, however, the Army's version of the telegraph was mobile: mounting each station on a cart allowed up to five miles between stations depending on terrain.[125] The Army, then, had begun to adapt technologies to its particular circumstances, even if it still

[123]*Brown's Signalling: How to Learn the Commercial Code and All Other Forms of Signalling As Required at B.o.T. Examinations, to which is Appended the British Signal Manual, Comprising A Complete Signal Book for Small Vessels* (Glasgow, 1916), p. 199.
[124]Nalder, *The Royal Corps of Signals*, p. 2.
[125]Ibid., p. 4.

faced limitations of distance, terrain, and atmospheric conditions, variables that will recur throughout this study.

A complicating factor in creating an advanced and mobile system of communication arose in the Army's characteristic unpredictability of where it might next be engaged. Mixed with the changing structure of the Army itself, signals adaptability became both essential and fraught with difficulties: by the time the Army had solved issues of communicating with flags and lamps in mountains, for example, it found itself in the desert with an entirely different set of challenges. As will be shown in later chapters, this challenge persisted. As Fox and Palazzo have identified, the geographic and cultural extent of the global empire meant that all terrains and environments had to be considered.[126] As late as 1911, the General Staff expressed this inherent complexity:

> We must remember that our officers must be prepared to fight in every country on the globe. Arrangements that are desirable in England, or even on the continent of Europe, will be very different from those which will be necessary in South Africa, or on the North Western Frontier of India.[127]

Thus, again, unlike the Navy, the nature of the Army and its remit on land meant that newer technologies often proved harder to adapt.

The introduction of heliograph in 1865 proved a similarly slow and problematic process. In an effort to reduce the time it took runners and horse-mounted orderlies to convey messages, heliograph, when used effectively, enabled units to transmit messages as far as the visual field could manage, which could, under the right conditions, equate to approximately one hundred miles.[128] The British Army soon constructed a network of fifty stations in Afghanistan to cover

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[126]Fox, '"Putting Knowledge into Power,"' p. 34; A. Palazzo, *From Moltke to Bin Laden: The Relevance of Doctrine in the Contemporary Military Environment* (Canberra, 2008), p. 24.
[127]Quoted in Hew Strachan, 'The British Army, its General Staff and the Continental Commitment', 1904-1914', in D. French and B. Holden Reid (eds.), *The British General Staff: Reform and Innovation* (London, 2002), p. 91.
[128]Lewis Coe, *The Telegraph: A History of Morse's Invention and Its Predecessors in the United States* (Jefferson, N.C., 1993), pp. 8-9; Laurette Burton, *The Royal Corps of Signals: A Pictorial History* (Stroud, 2002), p. 11.

one hundred fifty miles, but heliograph had a number of limitations to its effectiveness. As the name suggests, a heliograph utilises sunlight to pass messages, using the Morse alphabet and tripod-mounted mirrors. The device, though effective in clear weather, suffered from atmospheric and environmental conditions. John Ferris noted the main issues of heliograph resulted in the inhibition of transmission caused by 'smoke, darkness, weather and terrain.'[129] Thus, an enemy only had to create smoke or wait until the weather was not clear to disrupt communications. By 1914, the Army's official stance on the effective range of heliography was simply 'the limitation is the intervisibility of stations,' leaving the judgement of effectiveness up to the signallers and commanders.[130]

Centralisation

An underlying requirement of all means of communication, no matter how advanced the technology, remained a universal alphabet and language of transmission. Previously, the cavalry's semaphore alphabet dominated signals, but the introduction of the electronic telegraph problematised this as Samuel Morse's system of dots and dashes emerged as a preferred alphabet alongside Morse's telegraph design. The disunity of the communications structure became highly evident with the introduction of the Royal Engineers-adopted Morse Code as regimental signallers preferred the semaphore alphabet. The result was that the Army, for a time, utilised two different alphabets for sending visual signals and telegraphs. Fundamental issues such as a uniform language for communication – not yet considering security – led to an increased desire for a centralised signals administration. When the Army universally adopted Morse Code, however, its signalling tradition fundamentally changed and, in the process, challenged long-held traditions of autonomy and amateurishness: Royal Engineers superseded regimental autonomy and set the

[129] Ferris, 'Before "Room 40": The British Empire and Signals Intelligence, 1898-1914,' p. 447.
[130] War Office, *Field Service Pocket Book: 1914*, p. 64.

standard, bringing regimental signallers in line with it latest developments. Differences between regimental signallers and the Signal Service, however, remained intact until the Army reorganised its communications again after its wartime experiences during 1914-1918.[131]

The Royal Engineers again challenged the training and nature of the Army's amateur character with the technical training required to utilise new technologies. Put simply, any notions of amateurism and 'muddling through' did not fit with the increasingly sophisticated requirements of communications.[132] The lack of resources available to the small British Army meant that the Royal Engineers, who already required more technical training than the infantry and cavalry, developed a relationship with the civilian telegraph monopoly-holder, the General Post Office (GPO).[133] The Royal Engineers agreed that most of the training would be implemented alongside the training the GPO provided its operators. While effective, the difference in the workplace setting of a GPO employee and a Royal Engineers telegraph operator must not be understated. Thus, the first issue the Army faced outside of the practicalities of having the equipment was a very basic issue – one of having an effective, efficient, and adaptable operating force that could convert an advancement in technology to a tangible advantage on the battlefield.

The use of the electronic telegraph during the Crimean War changed the Army's command structure by allowing the commander-in-chief (C-in-C) to remain far behind the front lines and, at its greatest extent, allowed politicians in London to interfere with the Army's traditional command practices. For communications, upholding this system became a massive task and fundamentally altered the scope of the signaller's role. Now, communications became more than just making sure

[131]See Gibbs, 'Nerves of the Army.'
[132]See Fox, "'Putting Knowledge into Power,'" for discussion of the importance of amateurism and 'muddling through' to the ethos and character of the British Army.
[133]John Gooch, *Armies in* Europe (London, 1980), p. 141; James Marshall-Cornwall, *Wars and Rumours of Wars: A Memoir* (London, 1984), p. 2.

various levels of command could communicate with one another but rather extended farther behind the lines and back to the War Department and its successor, the War Office. As the distance between the sender and recipient grew, the security of the message became an increasingly important issue. Complicating the issue was the unfamiliarity with the new technologies, as well as the alien nature of turning messages into new forms of transmission. The paradigm shift that accompanied technological change during this period resulted in an incongruous situation of what Christopher Bellamy refers to as 'new weapons: old mind-sets' among commanders.[134] The inadequacies of the Army in the Crimea mixed with the later failures and underperformance during the Boer Wars only stymied putting the Cardwell reforms into practice. Along with reticence and a lack of enthusiasm to adopt the technologies the new signal units could potentially exploit, 'much of the old continued,' and even the changes mandated by Parliament failed to take root fully.[135]

In relating the challenges of the developing system of telegraph and telephone lines, Captain J.E.E. Craster in 1906 posed the question of 'how to restore to a modern force its lost mobility; how to preserve it as a mobile and coherent body, so that it may fight, manoeuvre, and fight again as long as human endurance render movements and fighting possible,' arguing that 'good communications' was the answer.[136] Thus, though the Signal Service sought to pose and answer questions in order to advance communications abilities and technologies, the efforts rarely resulted in practical improvements due to limitations of abilities, equipment, and training. It was 1918 before the Signal Service began to reach Craster's goal of 'restoring' mobility, when rudimentary wireless telegraphy and telephony emerged alongside the mobility of the later stages of the First World War. Craster's prediction about the nature of Cs-in-C's relationship with

[134]Bellamy, *The Evolution of Modern Land Warfare*, p. 44.
[135]Albert Tucker, 'Army and Society in England 1870-1900: A Reassessment of the Cardwell Reforms,' *Journal of British Studies* 2:2 (May 1963), p. 110.
[136]J.E.E. Craster, 'Communications,' *Journal of the Royal Engineers* 6 (1906), p. 9.

communications, however, proved accurate as Cs-in-C became increasingly removed from the battlefield, often inhabiting the very 'quaint country house miles from the scene of the action' he anticipated.[137] Furthermore, he noted that this growing distance between C-in-C and the frontlines 'enormously added to our burden of work and responsibility' whilst the simultaneous developments in 'range and accuracy of modern weapons' rendered the 'necessity for covered communications every day more urgent.'[138] As such, the developments in artillery impacted the ability of communications to develop by requiring more efforts in effecting longer distance wired, electronic means and additional care in maintaining protection of those lines.[139] With these additional challenges facing the Army's communications, it is no surprise that it remained behind the Navy in its development of wireless. It is, however, surprising that the signals infrastructure's response to each challenge as it arose has not become part of the wider understanding and discourse of the Army's experience.

Though Guglielmo Marconi's invention of wireless marks a major milestone in science and technological history, historians must use caution in correlating its relevance to wartime communications to the date of its invention. The slow adaptation and even slower fruition of results clearly demonstrated that there was, in the case of communications, a noticeable delay in turning new technologies into decisive advantages, recalling the complexities of Schousboe's implementation process described in the Introduction. Both Bellamy and Karl Lautenschläger note that historians in the past have assumed that 'the sophistication of [technology] must, of itself, confer a decisive advantage.' [140] Especially true of communications, to understand the totality of

[137]Ibid., p. 7
[138]Ibid., p. 8.
[139]War Office, *Field Service Pocket Book 1914* (London: HMSO, 1914, p. 59.
[140]Christopher Bellamy, *The Evolution of Modern Land Warfare: Theory and Practice* (London, 1990), p. 30; Karl Lautenschläger, 'Controlling Military Technology.' *Ethics* 95:3 (Apr. 1985), pp. 692-711.

the communications evolution of the first half of the twentieth century, one must exercise caution in recognising the difference between emergence of use and implementation. The mere existence of new methods resulted in a new set of problems that needed to be solved before wide adoption could even be considered, including how the limitations of new methods altered the mobility and autonomy of signallers through equipment and materiel requirements. Furthermore, the ability of signals to adapt would, as will be explored later, be hindered by the logistical requirements of the rest of the Army. The fact that signals developed increasing levels of autonomy did not divorce it from its obligations, responsibilities, and role in the wider efforts of the Army. As the world inched towards the First World War, so came new challenges that the embryonic centralised Signal Service had to solve.

Despite this change in warfare and the changing tactics that emerged with the Edwardian Army, the level of communications available for practical use remained much the same as it had in the nineteenth century. It had, for the most part, limited advancement by 1914 when, as Field Marshal Harold Alexander recalled

> the only means of intercommunication in the field was by flag and lamp and, when the situation became static, by the laying of a telephone line. In battle, many a gallant runner lost his life carrying a hastily scribbled message between company headquarters and a leading platoon. In those days, communication was simple and primitive—also slow, hazardous and not very effective.[141]

Whilst experimenting with possible methods and means of communication, the Signal Service developed a clear pattern of adoption: one of trial and error and of protracted use before realising effectiveness. Implementation of new technologies then, despite Craster's earlier call for development, remained highly problematic for the Signal Service, but adaptation and informal learning in the field became an essential part of the Army's culture. As the experience of the First

[141]Field Marshal Harold Alexander, as Alexander of Tunis, 'Foreword' to R.F.H. Nalder's *The Royal Corps of Signals*, p. vii.

World War would come to show, the dual issues of new technologies and the practical exploitation of these technologies dominated communications during the conflict. Just before the war, however, the Army convened the first major committee to consider the modernisation of communications. The committee, as will be discussed in the next section, set a precedent of lesson-learned committees that will be explored throughout this study.

The Norman Committee of 1913

The context of the policy of the 1930s and its subsequent direct repercussions on the opening years of the Second World War cannot be understood without first looking at the first major internal benchmarking process of Army communications. Due in part to the changes taking place within the organization of the Army, as well as the new technologies available, the War Office convened the highly consequential Committee on Wireless Telegraphy of 1913 (Norman Committee) led by Sir Henry Norman, Liberal MP for Blackburn. Responsible for the most extensive and most damning communications policy report prior to the 1930s, the Norman Committee formed in July 1912 to address the Army's failure to stay abreast of the developments in wireless telegraphy and to suggest ways in which wireless communication 'could be improved to suit the needs of the Army,' forming the earliest and smallest-scale lesson-learned committee discussed in this study.[142] Resolutely supported by Field Marshal Sir John French in his attached Chief of the Imperial General Staff's (CIGS) Report, the committee presented its report to the War Office in 1913, declaring the Army's wireless organisation 'so inefficient as to be unreliable, and is therefore practically valueless in time of war.'[143] One of the core criticisms of the Army's communications structure proved to be its lack of highly trained officers and men, affirming geologist and explorer Sir Raymond Priestley's confusion at being considered a wireless expert

[142]Hall, 'The British Army and Wireless Communication,' p. 294.
[143]TNA, WO 32/8879: Report of the Norman Committee on Wireless Telegraphy

because '[a]s a matter of fact, none of the officers employed on telegraph work in the Signal Service are themselves competent operators.'[144]

The misgivings of the Norman Committee did not end with its criticism of the lack of training and effective operators of wireless telegraphy (W/T). It did, in fact, result in a very negative attitude towards W/T, reinforcing the doubts and suspicions that had already emerged from the Boer Wars as it declared that

> the efficiency of our forces in time of war would be better promoted by the abandonment of wireless communication altogether and the substitution of other means of military communication, as an inefficient wireless service in war would be a constant source of doubt and danger.[145]

Coupled with evidence from witnesses interviewed by the committee, it supported this decree with its assertion that

> grave doubts are generally felt by senior officers as to the reliability of Army wireless…and they would not feel safe in time of war unless an alternative means of communication were provided. These views were chiefly based upon experience at manoeuvres.'[146]

The issues of 'old-mindsets,' then, fundamentally influenced the Army's approach to wireless technologies prior to the First World War. The 1914 outbreak of war found Army communications 'in a period of transition' and caught between the potential of the 'new and more elaborate' methods of communication and the more traditional practices.[147] This, coupled with the more traditional, top-down style of command found within the British Army, resulted in greater emphasis on despatch riders and visual signalling in an effort to assert the commanders' preference for 'a more personalized style of communications' that relied heavily on face-to-face contact with

[144]Ibid.
[145]Ibid., p. 24
[146]Ibid., p. 14
[147]Ibid.

subordinates. Put simply, 'wireless simply did not conform to the favoured British communication style,' and after the Norman Committee's report, it did not conform to the War Office's strategy.[148]

The First World War

Despite having access to telegraph and telephone systems, in 1914, both the *Field Service Pocket Book* and *Field Service Regulations (FSR),* the War Office insisted that 'Communications in the field may be verbal or written, according to the circumstances' but

> Orders issued by the higher commanders and reports will normally prepared in writing. When issued verbally their substance should be recorded in writing by the recipient or his staff officer whenever it is practicable to do so. In war, verbal messages are often incorrectly delivered, especially in the excitement of an engagement.[149]

The War Office also insisted that important despatches 'be sent by more than one means,' rather than relying on a single method of communication.[150] The advice for officers' construction of messages took into account these instructions; Captain B.C. Lake quite bluntly illustrated this in writing his handbook for officers on the front and casually indicated the risks inherent in sending messages via messenger:

> Points to remember.
> Number your messages.
> Give a reference to the map used.
> Start with 'To,' so that if the conveyor of the message is killed or wounded, it can be seen at once for whom the message is intended and forwarded.
> Put names of places in block capitals.
> Put your own position and the time the message is sent.
> How it is sent.
> Above all WRITE DISTINCTLY.[151]

Issues of security, however, emerged due to a lack of appreciation of the extent of their necessity. In the same passage concerning sending messages by more than one means, the War

[148]Hall, 'The British Army and Wireless Communication,' pp. 296-297.
[149]War Office, *Field Service Pocket Book: 1914*, p. 55; War Office, *Field Service Regulations: Part I; Operations* (London, 1909; Reprinted with amendments, 1914), p. 23. Text is identical.
[150]Ibid., p. 56.
[151]B.C. Lake, *Knowledge for War: Every Officer's Handbook for the Front*, 5th ed. (London, c. 1916), p. 159.

Office qualified its use of ciphers: 'Communications of a secret nature should usually be in cipher, but it must be remembered that enciphering and deciphering causes loss of time. One part of a message must not be enciphered and the remainder left in clear.'[152] Despite acknowledging a need for a level of security, the War Office's policy judged the extra time required to be of equal, if not more, importance than the use of encryption. The Army's cunctation in formulating a definitive communications strategy prior to the outbreak of war in 1914 resulted in a communications structure in which many of its senior officers, already wary of the new technologies, remained suspicious and averse to implementing recommendations. As a result, the Army lacked the ability – and, largely, desire - to deploy these technologies effectively in 1914, constraining the training required to adopt tactics that utilised wireless telephony and telegraphy to its fullest potential.

When the BEF was dispatched to France in 1914, it took with it a rudimentary centralised signal service under the banner of the Royal Engineers. The earlier drive for centralisation came to fruition and is evidenced in the Army's 1914 *Field Service Pocket Book* that indicated that the 'signal units,' as they became known, 'do not include regimental signallers.'[153] Despite this, the entirety of signals policy did not come under the authority of the Signal Service until 1916.[154] The move to centralise remained a goal throughout the conflict, and at the end of the war, despite its wartime transformation in both size and strategy, the Army contracted and returned to a pre-1914 size after the war's end. The Signal Section, however, had remained independent of regiments and become even more established under the auspices of the Royal Engineers. As will be discussed later, the growth of the service and its growing autonomy throughout this period led directly to its eventual break from Royal Engineers and establishment as an independent corps.

[152]War Office, *Field Service Pocket Book 1914*, p. 56.
[153]Ibid., p. xii.
[154]Raymond Priestley, *The Signal Service in the European War of 1914-1918 (France)* (Chatham, 1921), pp 36-37.

The Despatch Rider during the First World War

During the war, however, the massive transition away from what Thomas Hames terms first generation massed manpower and towards second generation warfare characterised by increasingly massed firepower resulted in another paradigm shift in communications policy.[155] The initial use of telegraph and telephone wires proved immensely difficult to maintain during artillery bombardment, but the use of wireless and its requirements of trucks and towers proved even more challenging. The result was a reconfiguring of the array of communications methods utilised, and in 1914, and later 1918, one of the primary means of intercommunication was the newly developed Motor Cycle Despatch Corps. Established in 1912, it allowed a relatively speedy hand-delivery of messages and for the establishment of the Motor Cycle Despatch Rider Letter Service (DRLS) to deliver missives between battalions, regiments, and headquarters. The use of modern despatch riders developed from the ancient role of the despatch runner, which itself found new purpose in trench warfare, as well as the cavalry's horse-mounted orderlies. Utilising the newly developed motorcycle, despatch riders provided not only a method of communication, but to many officers, a way to circumvent their aversion to new technologies that required transmission through radio waves, as well as a solution to constantly bombarded wires and lines.

The image of the despatch rider soon came to be one of a romanticised role. Corcoran described the popular imagery of the despatch rider in his memoir:

> the picture of the despatch rider, tissue paper strapped to his finger, revolver strapped to his waist, scurrying at his sixty-odd miles an hour over a shell-shot and often enemy infested highway…Death, capture, accidents – any may overtake him on his road, but none may deter or terrify.[156]

[155]Thomas X. Hames, 'Insurgency: Modern Warfare Evolves into a Fourth Generation,' *Strategic Forum: Institute for National Strategic Studies* 214 (Jan. 2005), pp. 1-8.
[156]Corcoran, *Daredevil of the Army*, p. x, xiv.

But Corcoran's imagery and imaginative descriptions did not limit themselves to the romantic notion that emerged in the public's mind. As an early member of the Motor Cycle Despatch Corps, his articulation of the role, to the point of hyperbole, indicates a great awareness of the growing importance of the Signal Section within the Royal Engineers:

> Metaphorically and very happily this branch has been named the 'nerves of the modern Army.' They supply the channels through which the brain of the command communicates its orders to the main body…For when an Army is in motion or under a fierce barrage or artillery fire, only individual effort will maintain communications, and that is supplied mainly by the Motor Cycle Despatch Corps.[157]

His colourful anecdotes and enthusiasm aside, Corcoran's account is one of the few that characterises not only the responsibilities of the despatch rider but also the limitations, risks, and place in the wider Signal Section. Coupled with the accounts of W.H. Watson and Albert Simpkin, the surprisingly autonomous despatch riders demonstrate the concept of a forward-thinking, highly adaptive subculture and identity within signals quite clearly. Not only did despatch riders, for example, have the right to commandeer any vehicle or horse from anyone, including officers, but they received orders to destroy any despatches that might fall into enemy hands and memorise the messages in case they had to deliver them verbally instead. The reliance upon the judgment of the individual DRs greatly contrasts the increasingly dismissed image of the woeful Tommy blindly led astray by the hierarchy.[158] It is also within these memoirs that glimpses of the importance of informal learning from one another emerges in memories of information and tips and tricks that improved their skillset.

The experience of the Signal Service during the First World War is recounted in depth in Raymond Priestley's *Signal Service (France)*, which gives highly detaileddescriptions of the

[157]Ibid.
[158]Ibid., pp. 14-15; See also W.H.L. Watson, *Adventures of a Motorcycle Despatch Rider During the First World War* (Liskeand, UK, 2006; First published as *Adventures of a Despatch Rider*. London, 1915) and David Venner, ed., *Despatch Rider on the Western Front 1915–18: The Diary of Sergeant Albert Simpkin MM* (Barnsley, 2015).

Western Front. As a wireless officer who eventually became the second-in-command of the 46th Division Signal Company in France during 1918, his insights prove useful. Though Brian Hall demonstrates that the telephone remained the preferred means of communication throughout the war, Priestley details that by August 1918, the Army had 90,000 privates trained as 'pigeonniers' and had increased its reliance on pigeons from their debut as 'an Army auxiliary' at the Battle of Loos in 1915.[159] Analysing the extent of the development of wireless, then, we must consider that the Army concurrently increased its number and training of pigeons. By 1918, and just prior to taking his position with the 46th Div Signals, Priestley joined the 1st Division Signals at Ypres Sector 'up to my ears in mud learning what burying cable really meant.'[160] Here, Priestley articulates the importance of field-based, informal learning that, as will be shown in later chapters, became an essential process of knowledge transfer within the Army's communications structure.

Priestley's personal recollections also speak to the Army's methods of selecting officers for wireless and signals positions in general. After coming from the Cambridge University Officer Training Corps (CUOTC), he was offered a second lieutenancy with the London Wireless Section T.F. due to being listed as a wireless expert by his commanding officer to which he noted 'as a practising geologist, I never was.'[161] The appointment of an unqualified officer to lead a technical unit had previously been identified as one of the main challenges facing wireless communications. The Norman Committee clearly identified this as a problem that needed resolving when it reported that '[a]s a matter of fact, none of the officers employed on telegraph work in the Signal Service are themselves competent operators.'[162] The integral part of the 'triangle' of 'weapons, training

[159]Cadbury Research Library, University of Birmingham, US38/1: Papers of Raymond E. Priestley.
[160]Ibid.
[161]Ibid.
[162]TNA, WO 32/8879, Report of the Norman Committee on Wireless Telegraphy.

and tactics,' then, remained problematic as non-experts were to be moulded into experts due to their status as officers rather than, initially, utilising them in their areas of expertise.

Just as Priestley and his colleagues came from the CUOTC, the university officer training corps contributed greatly to the initial signal units raised in 1914. According to Corcoran, 'a special call came for University men to form a corps of motor-cycle despatch riders' and, as a result, the Signal Service gained many students in its ranks.[163] In addition to recruiting from the universities, the Signal Service required that despatch riders provide their own vehicles, effectively limiting recruitment to those of a certain level of wealth. Furthermore, due to its engrained hierarchical structure, the Army made despatch riders begin as corporals rather than privates, as 'no man in the ranks' could approach a commissioned officer unaccompanied.[164] Though this was an essential part of signalling duties, the Army saw fit to promote all despatch riders rather than revise its regulations on the divide between officers and other ranks. Though it could adapt certain elements to make things work where necessary, fundamental change, even if it would be more efficient, proved much more difficult. As will be shown, the socio-economic status of despatch rider recruits changed over the course of the First World War and, as noted in later chapters, transformed the 'who' of communications by the Second World War.

In September 1914, at the outbreak of the war, Royal Engineers numbered 10,396; by November 1918, that number had increased to 357,389, growing the corps from 4.2 percent of the total Army to 13.39 percent. Moreover, the number of signal units increased from seventeen in 1914 to 321 in 1918.[165] This increase not only in numbers but also in prominence in the Army meant that Royal Engineers, and all of its services and divisions, found an expanding purpose in

[163] Corcoran, *The Daredevil of the Army*, p. 5.
[164]Ibid., p.12-13.
[165]War Office, *Statistics of the Military Effort of the British Empire during the Great War 1914-1920* (London, 1922), pp. 79, 156, 166-165.

the wartime Army. The catalyst for this growth and development was clearly the changing nature of warfare: the proliferation of trench warfare, the attrition of long conflict, the protracted stalemates, introduction of tanks and massed artillery, and the British Army's first major continental war since the Napoleonic era. All of these factors directly affected communications and resulted in the Signal Service constantly searching for solutions to new challenges. In this context, how historians evaluate adaptability, and how adaptability and 'advancement' differ, must be made clear: adaptability can, and did, often mean reverting to more primitive means of communication when the advanced methods became either unsafe or untenable. Furthermore, the decision process of individuals to choose 'primitive' methods over technology such as wireless must be understood as an important extension of individual agency during the war. This agency remained an important facet of the execution of communications policy, but as will be demonstrated in later chapters, did not receive official recognition until 1942, when it was termed 'reasonable latitude' to encompass the 'considerable elasticity' required in war.[166]

As a mobile means of communication, despatch riders formed an important component of the signals framework mustered and sent to France in 1914. The extent of their training was limited because, as Priestley noted about the new recruits, they were 'so urgently required that refinements of training had to be dispensed with.'[167] Corcoran confirmed this by noting that less than a week after enlisting, he and his fellow DRs sailed to Europe.[168] Once in France, the conditions and circumstances that the Signal Service had to overcome became apparent very quickly. The experiences it had amassed during its transition from a 'small, traditional Army' that struggled

[166]Report of the Godwin-Austen Committee, TNA 32/15071.
[167]Raymond E. Priestley, *The Signal Service in the European War of 1914-1918 (France)* (Chatham, 1921), p. 12.
[168]Corcoran, pp. 8-9.

during the Anglo-Boer Wars to the increasingly professional Army that deployed had in no way prepared the soldiers for what they would face. Despatch rider W.H.L. Watson noted this in 1915:

> I wonder if you realise at home what the Frontier meant to us at first? We conceived it as a thing guarded everywhere by intermittent patrols of men staring carefully towards Germany and Belgium in the darkness, a thing to be defended at all costs, at all times, to be crossed with triumph and recrossed with shame. We did not understand what an enormous, incredible thing modern war was—how it cared nothing for frontiers, or nations, or people.[169]

The despatch rider experience highlighted the early stages of the emerging evolution of the modern era of warfare: moving as Hames would argue from the first to second generations, away from massed manpower and into massed firepower.[170] As separate from the infantry and artillery, the signal units often adapted in more nuanced areas; for example, when faced with the retreat from Mons in August 1914, the signal officers 'viciously smashed' the telegraph equipment and destroyed the wires in order to prevent the German Army co-opting them.[171] In cases where the orders included destruction of their own equipment, signal units still had to maintain the lines of communication; thus, the need to adapt became pressing and often resulted in reversion to more simplistic methods such as the despatch rider, and as trench warfare became progressively more common, the despatch runner. Early experiences at Mons formed the basis of these decisions: Field Marshal John French mentioned the Motor Cycle Despatch Corps on 20 November 1914.

> I am anxious in this despatch to bring to your notice the splendid work which has been done throughout the campaign by the [motor-]cyclists of the Signal Corps." Carrying messages at all hours of the day and night in every kind of weather, and often traversing bad roads blocked with transport, they have been conspicuously successful in maintaining an extraordinary degree of efficiency in the service of communications. Many casualties

[169]W.H.L. Watson, *Adventures of a Motorcycle Despatch Rider During the First World War* (London, 1915; Liskeand, UK, 2006), p. 17.
[170]Hammes, 'Insurgency: Modern Warfare Evolves into a Fourth Generation,' pp. 1-8; See also William S. Lind, Keith Nightengale, John F. Schmitt, Joseph W. Sutton, and Gary I. Wilson, 'The Changing Face of War: Into the Fourth Generation,' *Marine Corps Gazette* (Oct. 1989), pp. 22-26.
[171]Watson, p. 21.

> have occurred in their ranks, but no amount of difficulty or danger has ever checked the energy or ardour which has distinguished their Corps throughout the operations.[172]

French's description became the stance of the wider Army; when circumstances during the mobile phases became too arduous, signal units utilised the more simplistic methods of communication at their disposal. Training for signal officers soon became broad enough to incorporate all methods of signalling.[173] Simon Godfrey notes that 'paradoxically,' the BEF's reliance on the less 'sophisticated' methods, particularly the 'despatch riders, liaison officers and visual signalling,' resulted in an advantage in maintaining communications, especially when compared to the many failures of the extensively electronic methods employed by the German forces in 1914.[174]

In this light, the Signal Service, despite retaining less advanced means, gained an advantage without necessarily utilising an advancement; its hesitancy to deploy the more modern electronic means served it well, and as a result, in many cases, reinforced 'the general feeling of suspicion and anxiety of late Victorian and Edwardian society' towards technology.[175] This lingering mind-set, though evident at the beginning of the war, grew to accept the changing playing field that developed as the BEF faced two additional challenges: the move from mobile warfare to trench warfare and the integration of the citizen-soldier army that came with the expansion of the ranks in 1915. In answer to the broader scope of how to maintain communications, the Signal Service, and, by extension, commanding officers, increasingly began to utilise communications technology. Once the battlefield stagnated, for example, laying and burying cable made more practical sense;

[172]John French, quoted in Priestley, *Signal Service*, p. 42. Alternate versions of this despatch, such as the one in the Royal Signal Institute's publication, vary slightly, most notably to read 'motor-cyclists' rather than 'cyclists'. Ralph Maxwell Adams, *Through to 1970: Royal Signals Golden Jubilee*, edited by EG Day (London, 1970), pp. 35-36.
[173]CRL US38/1.
[174]Simon Godfrey, *British Army Communications in the Second World War: Lifting the Fog of Battle* (London, 2013), p. 15.
[175]Hall, 'The British Army,' p. 45.

when trench warfare became standard for the Western Front, the demands of maintaining mobility subsided. As a result, wires became less challenging than ever before.

As Hall demonstrated, the telephone emerged as the preferred method of signalling during the war. Its major drawback of requiring wires resulted in cable companies rarely able to lay wire at more than six miles per hour and required a team of ten men and four horses in 1914; once trench warfare set in, teams reduced to four men.[176] Differences in airline and buried line, dependent on the trench architecture, developed for more security and protection against artillery blasts. The poet Robert Graves, in *Good-bye to All That*, described the construction of the field wires within the trenches:

> I had never been told about the field telephone wires. They were fastened by staples to the side of the trench, and when it rained the staples were always falling out and the wire falling down and tripping people up. If it sagged too much one stretched it across the top of the trench to the other side to correct the sag, and then it would catch one's head.[177]

As the war progressed, concerns over wireless security continued to eclipse protection of the wires for telephone and telegraphy in the forefront of concerns for the Signal Service. Reflecting on this in 1925, Navy Commander C.H.N. James argued that the experience of the war 'has shown that, wherever use can be made of it, the cable and the telegraph have more likelihood of secrecy than the most elaborate coded wireless messages; and…communications are secret only if *not* sent by wireless.'[178]

As Hall argues, the Signal Service thus geared itself towards heavy reliance upon the telephone and, after 1915, the Fullerphone. By the Cambrai Offensive in 1917, the requirements to sustain the immense infrastructure of the wired lines had reached the point at which 'over 13,000

[176]Corcoran, pp. 98-100.
[177]Robert Graves, *Good-bye to All That: An Autobiography* (New York, 1930), p. 122.
[178]C.H.N James, 'Communications the Vital Thread of War,' *Journal of the Royal United Services Institution* 70 (Feb 1925), p. 439.

miles of wire were laid in a month; and as an example of the phenomenal traffic handled on such lines we have on record that, on the zero day of the Passchendaele offensive, one divisional signals formation handled 1,010 "urgent operations" messages in the twenty-four hours.'[179] Such operations characterised the increasingly complex communications networks necessary to support the growing Army. The years 1915-1917, especially, revealed a harsh reality for the Signals Service. Whilst combating the development of signals intelligence and the subsequent risk of interception with both wired and wireless technologies, the increase in artillery bombardment, the introduction of tank warfare, and increased use of airplanes only threatened the stationary communications trenches further. John Ferris describes the changing landscape and obstacles of this period quite succinctly:

> Signals intelligence fed from communication systems and, like all parasites, sapped the strength of its host…In the west during 1915-17, all communications on the front line collapsed in battle, as cables were cut, runners killed and carrier pigeons shot down and eaten by one's own hungry men.[180]

The risks of interception, particularly of the already suspicious wireless means of communication, combined with the logistical challenges faced by continued warfare, led to a period of almost complete reliance on telegraph and telephone communication for these years. A latent consequence of this move towards wire and cable emerged, however, with a renewal of mobility in 1918. As a result of 'the long period of immobility,' signallers had grown accustomed to 'universal telephone facilities' and lacked experience in moving. The outcome in one case, according to Morgan, ended with one army allowing '140 subscribers to accumulate on its exchanges, with an average of 20,000 calls a day,' a traffic flow that became unsustainable once the challenges of movement re-entered the Signal Service.[181] Whereas previously the buried cables proved an advantage in

[179]Morgan, 'Development of Communication and Command,' p. 134; See also, Priestley, *Signal Service*, pp. 220, 232.
[180]John Ferris, ed., *The British Army and Signals Intelligence During the First World War* (Stroud, 1992), pp. 5-6.
[181]Morgan, 'Development of Communication and Command,' p. 135.

protecting against enemy artillery, now, the wired means of communication became a disadvantage as they were neither mobile nor easily destroyed. This change in the style of warfare meant that the Signal Service had to again reconfigure its communications practices and effected a reversion to mobile forms such as despatch riders and runners, as well as deployment of the increasingly sophisticated and refined wireless methods.

The dangers for the messengers involved, however, increased in parallel with the increase in mobility. A runner for the 21st (Yeoman Rifles) Battalion, King's Royal Rifle Corps, and later the Machine Gun Corps, Corporal Robert Iley recalled his experience in March 1918 at Achiet-le-Grand:

> News came through that all in front had perished, and I was detailed with another runner to go forward and discover the position of the enemy. Our commanding officer gave us each a revolver and instructions that if necessary we had each to shoot five Germans and then ourselves.[182]

Unlike telephone, telegraph, and wireless operators, despatch riders and runners offered an additional form of adaptability: as versatile soldiers in their own right, they often also became scouts and riflemen or could be used generally as factotums. The challenge of not only maintaining communications but also maintaining security could often be overcome with the use of traditional methods such as messengers; Ferris notes that with the exception of 'unusually fluid circumstances' it was unlikely for despatch riders to be captured, offering a security advantage missing from the already suspect wireless means.[183] Adaptability within the Signal Service in particular, then, needs to take into consideration the extent of not only *what* adapted during war, but also *who* adapted, and, of equal importance, who drove the change. Focusing on the technology of the conflict obscures the extent of the learning processes that transpired. With the need to

[182]Robert William Illey, 'A Runner's Story, 1916-1918,' in Charles Purdom, ed., *Everyman at War*, p. 195
[183] Ferris, ed., *The British Army and Signals Intelligence During the First World War*, p. 4.

'Deliver your despatch at all costs,' despatch riders developed informal learning networks, generating change at both the front and rear lines.[184] As identified earlier, however, the learning systems that existed at the end of the First World War, such as Fox's learning culture, did not survive to 1939 fully intact due to changes experienced during the demobilisation and interwar periods. As the next section discusses, the reorganisation and reconsideration of military structures, funding, and purpose greatly affected the Army and its ability to maintain structures it had established during the war.

The Interwar Period

The myriad of available methods of communication during the First World War, and the disparity in their effectiveness, combined to create a new signals practice that, by the end of the war, the War Office felt needed independence from the Royal Engineers.[185] By creating an independent Corps of Signals in 1920, the War Office and the Army legitimised communications as a separate logistical entity and afforded a distinct identity to the individuals responsible for its policy, practice, and training. Furthermore, the formation of the Corps of Signals, later the Royal Corps of Signals by Royal Warrant, gave a permanence to the adaptations and advancements gained through the war experience.[186] The formation of Royal Signals, however, proved to be the extent of the immediate adoption of the lessons and expertise gained during the war. Despite the initial enthusiasm for signals, the 1920s saw very little change in communications policy and, more importantly, practice. Major General Reginald FH Nalder noted that the War Office's 'sense of wartime urgency…vanished.'[187] The relevance of wireless remained debatable, despite advances

[184]Corcoran, p. xiii.
[185]Nalder, *Royal Corps of Signals*, p. 223.
[186]'Royal Warrant for the Formation of the Royal Corps of Signals,' Royal Signals Museum, Blandford Camp, United Kingdom.
[187]Nalder, *Royal Corps of Signals*, p. 228.

in its use with tanks, and as the Army as a whole suffered a 'progressively chronic shortage of funds during peacetime,' signals fell behind the civilian sector.[188] Furthermore, 'the financial retrenchment' from the British Government's 'dictum of "no war for ten years" applied the brake on new development.'[189] So, though it began with great potential and enthusiasm for advancing the communications ability of the Army, the Royal Corps of Signals rather quickly became a paper tiger concerning logistical improvements.

Though radio advanced for commercial and civilian use during the 1920s, the Army's stringent budget meant innovation gained little attention.[190] Instead, the status quo endured in the newly formed corps. Alongside the newly formed Royal Air Force, the Royal Navy received more funding than the Army, as they were seen as the future of the British military. Furthermore, as land tactics underwent transition towards more mobility and manoeuvrability during the 1920s, infantry and tank formations received priority within the Army's limited funding. Signals, then, by the time of the outbreak of war in 1939, had advanced relatively slowly; in many cases, 1918 and 1939 looked the same. The Army underwent an experiment in eliminating wires forward of brigade headquarters in an effort to encourage proficiency in wireless communication and reduce expenses for cables. The experiment's ultimate failure, however, meant the signals policy in the mid-1920s reintegrated cable use as a primary method of intercommunication. David French noted that as a result, the Army instructed signallers to

> rely upon a mixture of cable, wireless, despatch riders, and aeroplanes to reduce their dependence on one single form of communication. Within division, commanders were told to reduce their dependence on vulnerable electronic means of communication by placing

[188]Peter Gudgin, *British Army Equipment: Combat Vehicles and Weapons of the Modern British Army* (London, 1981), p. 6.
[189]Nalder, *Royal Corps of Signals*, p. 230.
[190]Lewis Coe, *Wireless Radio: A Brief History* (Jefferson, N.C., 1996), p. 91.

> their headquarters close enough to the front that they could intervene in person if necessary.[191]

The slow and, at times, non-existent spirit of change and development of communications proves somewhat surprising due to the central role it would subsequently play in the later discussed recommendations of the Kirke Committee of 1932, which highlighted the limited degree of change achieved through both the First World War and the interwar period.[192]

The extent to which the Army's signal policy accounted for its financial and manpower circumstances after 1918 was indicative of its complexity. As technology and techniques progressed in the civilian world, the formal training and official equipment of Royal Signals remained similar to that of 1918. As such, while it continued to resemble a smaller scale version of the Signal Service that existed at the end of the First World War, it had to adapt to an army changing around it. An overarching question remains, however: how did the signal corps that went to war in 1939 differ from the Signal Service that de-mobilised in 1918 and in what ways did this nearly twenty-one-year interval shape the Army's communications? This peacetime transformation, ostensibly rooted in wartime experience, proved less far-reaching that one might at first assume. Not only is it imperative to compare peacetime policy, but this chapter also outlines where changes and discussions considered wartime experiences and the extent to which wartime adaptation and knowledge impacted policy. Along with the next chapter, it also examines the longevity of these efforts.

The return to an Army not actively engaged in global conflict on the scale of 1914-1918 meant that politicians setting budgets often proved to have short memories in funding allocation.

[191]David French, 'Doctrine and Organization in the British Army 1919-1932,' *The Historical Journal* 44:2 (June 2002), p. 510.
[192]'Notes on Certain Lessons of the Great War,' Committee led by Lieutenant-General W.M.St.G. Kirke, 1933, TNA WO 33/1305.

Coupled with the increasingly dire financial straits of the Government in the late 1920s and early 1930s, the Army failed to receive the funding necessary to sustain transformations it had undergone during the First World War. The Army's increasingly dominant goal of full mechanisation further complicated the efforts to integrate and maintain its knowledge gained from its wartime experience. By advocating increased mechanisation and the subsequent development of tank warfare, the Army inadvertently prevented Royal Signals from developing and progressing in its own right. The very nature of being the communications wing of the military meant that any changes made in any other corps had to be accounted for and resolved. Royal Signals, prior to the Second World War, then, became trapped in a cycle of responsive adaptation, in making, for example, tank warfare more effective by working to make communications within tank battalions efficient. This meant that comprehensive internal innovation and strategy progression for Royal Signals became nearly impossible.

The role of innovation is often seen as the crux of understanding transformation and adaptability. By this understanding, where a service or unit innovates is where transformation and adaptation occur. Discussing the Iraq War of 2005-2007, James Russell defines innovation as 'the development of new organizational capacities not initially present when the units deployed into the theatre.'[193] In communications, however, as an essential constituent of any organization, transformation and responsiveness often emerged in different lights. The result of this investigation leads to the more fundamental question about transformative forces: can an organization be seen as adaptive and responsive without innovating? Can the two issues be separated, particularly in times of war and with organizations as complex as the British Army? Impaired by its interwar budget and constrained by the Army's determined move towards mechanisation, Royal Signals

[193]James Russell, 'Innovation in War: Counterinsurgency Operations in Anbar and Ninewa Provinces, Iraq, 2005-2007,' *Journal of Strategic Studies* 33:4 (2010), p. 596.

and its personnel largely failed to innovate for themselves; rather, most innovations in the field of communications during this period occurred in the civilian industry and crossed over the civilian-military divide during the rearmament period through recruitment of civilian-trained individuals into both the regular and territorial armies. This reiterates that Royal Signals was adaptable – when it could not create changes for itself, it found another solution.

Interwar Policy Debates

The Army's wartime experience and the many failures of wireless did not fully remove this prejudice by the end of 1918.[194] The first War Office manual devoted to communications, 1917's *SS146: Forward Intercommunication in Battle*, still evidenced the hesitance to adopt wireless wholeheartedly. Telegraph and telephone remained ranked above wireless in preference and *SS146* argued that

> No one means of communication is infallible; at training and rehearsals, therefore, all troops must be practiced on an organized system in the use of every means of communication likely to be used in action, with a view to their becoming so familiar with each that the change from one means to another is automatic.[195]

Therefore, by the formation of the Royal Corps of Signals in 1920, the feelings and influence of senior officers had not yet been fully extracted from policy. Eliot Cohen reiterated this by positing that 'Military organizations can do business the old way longer, particularly if they are not operational,' noting that activity and the costs of mistakes can reinforce conservatism at the level found in the Norman Committee's witnesses.[196]

Furthermore, this general sentiment trickled down into equipment and funding, another core issue discussed by the Norman Committee with no firm recommendation of where the

[194]See, for example, Priestley, *Work of the Royal Engineers in the European War, 1914-1919: The Signal Service (France)*.
[195]War Office, *SS148: Forward Intercommunication in Battle*, 1917.
[196]Eliot Cohen, 'Change and Transformation in Military Affairs,' *Journal of Strategic Studies* 27:3 (2004), p. 399.

additional funding or improved equipment should originate. In fact, despite acknowledging the failings of 'the present type of apparatus employed,' the committee did 'not recommend its immediate abandonment,' favouring instead a recommendation that 'steps should at once be taken to determine' more suitable equipment 'for which provision could be made in forthcoming Estimates.'[197] This attitude and lack of immediate action, largely due to the training and personnel required, meant that very few of the committee's objectives had been fully understood let alone put into action by the time of the First World War. Though by 1918, the Army had successfully begun to both appreciate and integrate limited wireless, after the war, the experience of the last two years rather paled in comparison to the major failures that remained in the collective memory of where and when communications went wrong.[198] The result, complicated by the rapid growth of Royal Engineers and influx of civilians into the Signal Service, meant that by 1920, little had changed in peacetime policy.

The financial situation and efforts to balance the budget of the interwar government did not create an environment in which the Army flourished. The Cabinet made it quite clear that the Royal Air Force and the Royal Navy would receive prioritisation over the Army due to the so-called 'Ten Year Rule.' As war with both Japan and Germany became an increased threat, the Government felt that it needed the Navy to maintain security in the Far East and that the air force would provide the greatest defence against a 'knock-out blow' from a resurgent Germany. This led to the expansion of the air force at the expense of the Army, which though expanded and receiving increased funding by the mid-1930s compared to a decade earlier, had undergone a paradigm shift in purpose in the eyes of the Cabinet and the public.[199] No longer was the Army

[197]TNA, WO 32/8879, p. 21.
[198]Hall, 'The British Army and Wireless Communication,' p. 292.
[199]TNA, CAB 24/273/41 Thomas WH Inskip, Defence Expenditure in Future Years, 1937, p. 3.

needed to maintain a Continental balance; instead, it found itself reduced to a defensive role in support of the RAF's efforts and as a force to be deployed in the event of a war in the empire. In 1927, the Cabinet approved the underlying basis for the Army estimates as 'the British Empire will not be engaged in a European war during the next ten years, and that the immediate plans of the Army should be based upon preparedness for an extra-European war.'[200]

Further expounding on this, the Committee of Imperial Defence intended,

> so long as existing international conditions prevail, to postpone bringing our defensive arrangements…to that pitch of readiness for a major war which was aimed at in 1914 and the immediately preceding years. There is, however, no intention to rule out those developments of Imperial Defence which are essential to security, nor to allow their postponement or retardation to be carried to a point at which, in the event of a deterioration in the international situation, it would either be physically impossible to overtake the accumulation of deficiencies within a reasonable time, or at which the mere attempt to do so would arouse suspicion and endanger peace.[201]

Thus, the Army received funding and sought to maintain its ability in the event of an imperial conflict; however, the lack of resources at home meant that the Army struggled to keep up with the changing technologies of the 1920s and early 1930s. Building on the 1926 Imperial Defence Review that determined 'there was little reason to anticipate the necessity for military intervention anywhere, unless it were to liquidate the somewhat indefinite liability' from the Locarno Treaty, the 1928 Review called for a Regular Expeditionary Force of only five divisions, to which the Committee responded:

> This reduction in the rate of mobilization has been imposed on us by financial stringency which limits the number of the effectives who will be available on mobilization; our only justification for accepting this disability is that the present European situation does not demand a greater degree of preparedness, and that the money thus saved is available for increasing the efficiency of the Army in the direction of further mechanization.[202]

[200]TNA, CAB 24/198/48 H. Trenchard, Charles E. Madden, and G.F. Milne, Imperial Defence Policy: A Review of Imperial Defence, 1928, p. 3.
[201]Ibid., pp. 3-4.
[202]Ibid., p. 8, 11.

This study, though, remains concerned with the effects of these shifts on communications. The questions that arise from the shift in both funding and purpose of the Army led to changes in the development of Royal Signals and its capabilities. The frustrations of Royal Signals, then, stemmed from a confluence of circumstances outside its control: not just budgetary considerations and lower priority, but, as detailed below, the very structure of the Army's mechanisation and mobilisation efforts inadvertently constricted Royal Signals's ability and opportunity to develop in its own right. The lingering materiel shortages only furthered this, which in turn, were complicated by the 'constraints of the Cardwell system,' which created and maintained the system of reserves and localisation of units, and the subsequent dispersion of the British forces throughout the garrisons of the empire, creating inevitable delays in the response to any attempts at changing attitudes or equipment, leaving imperial signal units noticeably underequipped by 1939.[203]

Interwar Communications Strategy

As a result of the push for increased mobility, during the 1920s, communications strategy and experiments largely comprised responding to the broader Army's strategic goals and formulating methods by which the move towards mechanisation could be achieved while maintaining satisfactory intercommunication. Wireless telephony between tanks, for example, became a major concern; however, the technology utilised in short-range wireless in these situations and manoeuvres could not be replicated on a larger scale to connect larger units.[204] By 1926, *Infantry Training* relegated 'communications' to six mentions, including a rather revealing passage that 'it is only by the most careful arrangements for the passing of information that victory

[203]David French, 'Doctrine and Organization in the British Army, 1919-1932,' *The Historical Journal* 44:2 (2001), p. 509; Imperial War Museum, Sound Archive 7390: Oral History of George Stanley Grey.
[204]French, 'Doctrine and Organization in the British Army, 1919-1932),' pp. 497-515.

can be achieved.'[205] F.S. Morgan later bemoaned that *Infantry Training* 'fell back on the orderlies and still more orderlies –"other means," it was stated, "are often impracticable within a battalion." Yet there existed a battalion signal section, for they were instructed not to carry flags on parade.'[206] Morgan's 1931 argument in favour of expanding the Army's use of alternate methods did not stop at what he saw as an overreliance on orderlies. When *Infantry Training* referred to Verey Lights as '"the best means of communication in the defence, against an enemy using smoke"' Morgan retorted that 'One could only assume that all of the telephonists had been smothered.'[207] Though more outspoken than most, the publication of Morgan's suggestions in the *Journal of the Royal United Services Institute* shows that these were not the obscure and private beliefs of a single Royal Signals officer; instead, they speak to broader implications of Royal Signals individuals desiring not only improvement in their craft but also a more progressive and modernised communications framework in general.

Morgan also criticised the *Field Service Regulations* of 1929 though he indicates progress in 'Intercommunication' achieving recognition as its own section in the Operations chapter. However, his critique of the annual training programme demonstrated this recognition and its theoretical policy change did not necessarily transfer to the practices and field manoeuvres that would integrate any progress into the broader practice of Royal Signals. These field tests, influenced by 'the natural desire of commanders to supervise their commands as closely as possible,' created a flawed construct by placing the COs at the 'battle line' in private cars as this was 'undoubtedly regarded as the quickest way of obtaining "early, accurate and reliable information" on manoeuvres. But this is hardly an image of war, and the practice must at once

[205]War Office, *Infantry Training (1926)*, quoted in F.S. Morgan, 'Modern Communications and Command,' *Journal of the Royal United Services Institute* 76 (February 1931), p. 411.
[206]Morgan, 'Modern Communications and Command,' p.411.
[207]Ibid., p. 411-412.

bring about an unfair comparison, while it forms a waste of the brief opportunity for Signal Training.'[208] Furthermore, reliance on a civilian telephone system during these manoeuvres by the 'exiguous' Army hindered Royal Signals's ability to test and develop its communications methods. Thus, the interwar exercises whereby most innovation and mechanisation trials had the chance to test new technologies, methods, and approaches did not allow for Royal Signals to innovate in its own right; rather, it had to create a construct that allowed commanders to oversee the manoeuvres for all other arms and units within the Army. This made Royal Signals, and the Army as a whole, according to DR Douglas Wheeler of 1st Bn Rifle Brigade, 'really 1914.'[209]

David French has argued that the general staff 'radically re-wrote its doctrine in the 1920s,' rejecting 'the manpower-intensive doctrine that had sustained the Army in 1914 in favour of one that placed modernity and machinery at the very core of its thinking.'[210] The backbone of this argument concerning communications, however, falls to the 1929 *Field Service Regulations* that called for reliance on a multitude of communication methods in order to 'reduce dependence on one single form' with commanders told to limit reliance on 'vulnerable electronic means' by 'placing their headquarters close enough to the front that they could intervene in person if necessary.'[211] Erring on the side of caution, then, remained signals policy despite the Army's attempt to 'learn the "lessons" of the First World War' and this attempt's culmination in the Kirke Committee's report in 1932.

The result of the missed development opportunity of the few-day long annual training programmes did not fully come to light until the 1940 retreat to Dunkirk.[212] The reliance on the

[208]Ibid., p. 414.
[209]French, 'Doctrine and Organization,' p. 508; IWM, Sound Archive 27440: Interview with Douglas Wheeler, Reel 1.
[210]French, 'Doctrine and Organization,' p. 498.
[211]Ibid., 511; *FSR (1929)*, pp. 256-266.
[212]IWM, Sound Archive 22136: Interview with Alan Windsor Beecroft, Reel 1.

civilian telephone system during the BEF's station in France in 1939-1940 mirrored the commanders' reliance on the civilian telephone system during training in the 1920s and 1930s. As such, the flawed image of war created during this period re-emerged in signals practice once war broke out. The so-called 'Phoney War' proved, in communications, to be exactly that: a false stationary posting with secured wires, use of a civilian infrastructure, and the ability to use wireless in basic routine communiques. In this case, as will be shown in later chapters, Royal Signals's ability to adapt had little to do with innovation and more to do with its responsiveness in war. It succeeded in falling back on other means of communication precisely because it had not had the chance to implement a wholescale transformation and fundamental shift to relying wholly on the more technologically advanced methods such as wireless telegraphy and telephony during this interwar period.

The Kirke Committee of 1932

In 1932, Lieutenant-General Walter M. St.G. Kirke, General Officer Commanding-in-Chief Western Command, presided over a committee intent on investigating and reporting upon the 'principal lessons to be derived from our experiences in the several theatres of the Great War as disclosed by the official historians and reports,' as well as whether 'these lessons' have been 'correctly and adequately applied in Field Service Regulations and other training manuals, and in our system of training generally.'[213] Comprising five major-generals and two brigadiers, this committee evaluated the current state of the Army to ascertain if the vast experience and impact of the First World War resulted in noticeable lessons, and, arguably more importantly, if the Army had adapted to reconcile these lessons with its training manuals and policies.[214] In short, the Kirke Committee became one of many lessons-learned committees to evaluate effectiveness after the

[213]TNA, WO 33/1305, 'Notes on Certain Lessons of the Great War,' Kirke Committee, 1933, p. 1.
[214]Ibid.

1914-1918 experience. Rather tellingly, the report began 'with the blunt statement that "our organisation and equipment is in a state of flux and obviously unsuited for war against a first class or even a second class enemy."'[215] Furthermore, through the peacetime shift in purpose, the 'Army had no aim or "specific war problem as in 1913."'[216] The effects of the 'financial retrenchment' had become noticeable to the General Staff by 1932: the limited funding and Ten Year Rule hindered the Army's development and caused it to revert 'to an Imperial gendarmerie equipped with obsolete weapons and dependent on animal traction.'[217]

The committee's final report, then, speaks to the results of the postwar period and the implementation of the lessons learned from the war. The findings of the committee, when compared with reports from both 1913 and 1918, show that in some areas, the Army had indeed incorporated its experience into its new policy and, arguably more importantly, practice. In numerous areas, however, the Kirke Committee indicated the Army's failure to assimilate all of the so-called 'lessons of the Great War.' Its findings, which at times read more as dictums, include suggestions on issues such as the importance of 'continuous study of scientific developments,' arguing that the influx of civilians into the Army between 1914-1918 demonstrated that being 'recruited from every class and professions' gave the conscript Army 'an advantage over a purely professional Army such as ours in keeping abreast of modern scientific developments…Close co-operations with civilian experts is therefore very necessary in peace-time.'[218] The Royal Engineers best demonstrated the Army's experience with civilian experts, as noted by Aimée Fox, but Royal

[215]Shelford Bidwell, 'After the wall came tumbling down: A historical perspective,' *The Royal United Services Institute Journal* 135:3 (1990): p. 57.
[216]Ibid.
[217]Nalder, *Royal Corps of Signals*, p. 229; Bidwell, p. 57.
[218]TNA, WO 33/1305, p. 4.

Signals also utilised civilian expertise in its recruitment of highly trained motorcyclists to serve as despatch riders in imperial garrisons.[219]

By examining the training manuals and the emergence of the lessons learned from the First World War, the committee demonstrated an awareness of the need to reconcile the issues faced during the unprecedented war and the peacetime Army, of the need for wartime experiences to transfer into standard practice. Determining, for example, that *FSR* should make more mention of the use of surprise in both offense and defence clearly shows that the highest levels of the general staff sought to integrate more effective tactics and increase the efficiency and capabilities of the Army. The committee's report is quite clear as to the importance of surprise, stating that

> the fact remains that our practice during the war did not, and our training during peace does not, usually pay sufficient attention to surprise in defence. In consequence our methods are apt to be too stereotyped, which again tends to produce the same weakness in our methods of attack…Let there be no uncertainty in the minds of the defence as to what has to be defended to the last round and man, but do not let our dispositions be so stereotyped and immobile as to be obvious to the enemy.[220]

This commentary on surprise and defence, though illuminating as to some of the priorities of the committee and its desire to improve both strategy and practice, leaves out the crucial ubiquity of how to coordinate the logistics of such large scale tactics. Communication, therefore, is again omitted in the directives but yet, in practice, must still be accounted for and resolved. Herein lies the challenge Royal Signals had to overcome in order to innovate for itself – it is very much more difficult to integrate experiences when being responsible for ensuring the progress and innovations in all other corps, branches, and units of the entirety of the Army are not handicapped by Royal Signals communications provision.

[219]Aimée Fox, 'Goats Mingling with Sheep? Professionalisation, Personalities, and Partnerships Between British Civil and Military Engineers, c. 1837-1939,' *War & Society* 38:4 (2019), pp. 268-285; Ernest Sidney Nicholson, *Adventures of a Royal Signals Despatch Rider* (Leicestershire, 2003), p. 133.
[220]TNA, WO 33/1305, p. 5.

The report details three specific 'compartments' of the issue of how to effect a successful attack and achieve a 'break-through': exercise of command, good communications, and available reserves. The element of communications, it notes, 'appears to be the crux of the matter, because if a commander does not know what is happening he cannot make any useful plans. Even if he forms a plan he cannot put it into effect unless he can issue the necessary orders.'[221] Noting the danger of artillery to cable communications, the committee further indicated the risk posed to cable communications by increased tracked vehicles in the contemporary drive for full mechanization of the Army. The suggested solutions, however, do not paint the picture of a technological advanced Army in the 1930s. These recommendations vary from moving headquarters farther forward to giving commanders the ability to go forward quickly themselves. Moreover, the report advocated

> a more extended use of liaison personnel within the battalion, whose sole duties would be to report on the situation as it affects both the enemy and our own troops. The introduction of motor-cycles in the battalion for the speeding up of intercommunication within the battalion is also desirable. At the same time we recommend the development of wireless and the scrapping of cable altogether in front of brigade headquarters, except for artillery. In making this proposal we must sound a note of warning. During the later operations in Palestine W/T seems to have been effective, but at the first battle of Gaza the more powerful Turkish W/T installation is said to have jammed all the field stations on which the British depended. This might happen again unless the experts have devised a remedy.[222]

Importantly, the General Staff effectively argued for an increase in despatch riders, orderlies, and other liaison officers before it discussed the state of wireless communications. The hesitation and need to mention the jamming at Gaza mirrors language and concerns voiced in the Norman Committee's report nineteen years earlier. That both committees voiced concerns over reliability and the paramount need for unadulterated reception elicits the question of how far the Army's

[221]Ibid., p. 11.
[222]Ibid., p. 12.

considerations of communications had advanced and how the experiences of the First World War shaped the General Staff's response to available communications networks and methods.

The ongoing difficulty in developing wireless communication, further hindered by the issues with the training exercises and funding, meant that by the time of the 1939 deployment of the BEF, the highest levels of the Army still actively debated the issues of wireless and maintaining secure lines of communication. The result of this continued deliberation and the fundamental need for communications within the Army in the meantime meant that the strategy began to diverge from the practice. Though the Kirke Committee advocated the expanded use of messengers in 1932, Royal Signals had already been recruiting and training such messengers. Despite the debates over whether to discontinue cable and develop wireless or to keep cables and wireless together, Royal Signals, as well as the TA, maintained its coterie of despatch riders. Ernest Sidney Nicholson, for example, joined Royal Signals in 1935 and became a DR along with many other motorcycle enthusiasts. Furthermore, his training at Catterick demonstrated the severe budgetary constraints: 'For years this country had been making the best motorcycles in the world. But the DRs had ancient belt-driven Triumphs and Douglas bikes. We had the first batch of the Nortons.'[223]

The questions and concerns over wireless remerged at one other major juncture prior to 1939: the Jackson Committee of 1936, the first committee to study 'the Army intercommunication problem' since 1911. Again, the War Office tasked a committee with evaluating methods of communication and 'what a Field Force should require in signal communications, and in broad terms what resources were needed to meet them.'[224] Led by Lieutenant-General Sir Henry C. Jackson, former General Officer Commanding of 50 (Northumbrian) Division in the First World

[223]Nicholson, p. 137
[224]Nalder, *Royal Corps of Signals*, p. 257.

War, this committee greatly hindered the use of wireless at the beginning of the Second World War. Though the experience in the trenches led the staff of 50th Division to argue, in 1918, that in mobile warfare, the trench-system of laying cables 'must be recognised to be impossible…and reliance must be placed on wireless, DRs, and Liaison Officers,' the Jackson Committee did not prioritise wireless, reversing the slow progression towards its universal adoption.[225] Simon Godfrey argues that, given the context of Jackson's 1918 argument in favour of wireless, the paradoxical adoption of lines as the primary means of communication stemmed from economic reasons with the intention to reduce the budget of Royal Signals, an argument supported by Nalder's assertion that

> there was a pressing need for economy in the use of resources available for the Army. With a third fighting Service and the prospect of much heavier war demands on industry than in the past it was inevitable that all establishments and equipment tables should be ruthlessly pruned.'[226]

Unfortunately, the Jackson Report is highly problematic as aside from the report's abstract, a copy of the full text remains elusive, requiring reliance on Nalder's 1958 account.[227]

As will be continued in greater detail in the next chapter, the Jackson Report's suggestions prove quite contrary to the Kirke Committee's report from four years earlier, which had found its way into *FSR* (1935). Whereas the Kirke Committee recommended 'the development of wireless and the scrapping of cable altogether in front of brigade headquarters, except for artillery,' the Jackson Committee asserted that with the exception of armoured formations, 'the normal means of communication at all levels would be line telegraphy and line telephony. At the same time

[225]IWM, Fourth Army Records, Vol. 64 (XIII Corps narrative, October-November 1918), 'Lessons Learnt During Recent Operation,' 14 November 1918, quoted in Godfrey, *British Army Communications in the Second World War*, p. 29.
[226]Nalder, *Royal Corps of Signals*, p. 255.
[227]Godfrey, p. 30; TNA, WO 237/26, Abstract of the Recommendations of the Principal Commissions, Committees and Conferences relating to Army Affairs, 1936; Nalder, *Royal Corps of Signals*, pp. 255-257

wireless should be provided as an emergency method at all levels, with radio-telephony facilities in the forward formations and artillery regiments.'[228] As a reversal of policy rooted in the ongoing financial stringency of the interwar period, Nalder contended that the pressures the Jackson Committee faced meant that it was 'obliged to place emphasis on what could be provided without any appreciable increases in war establishments rather than on what the Field Force would be likely to require.'[229]

The faults of the Jackson report, far more evident after the BEF's experiences of 1939-1940, included the failure to emphasis the complementary possibility of line and wireless, wireless proving insufficient for armoured formations, and ineffective attempts to reduce the overload of the telephone system. Thus, despite attempting to foresee the requirements of Army signals, the committee largely underestimated both the warfare that the Army would face and the resources required. Godfrey argues that '[a]bove all, it had a profound negative impact on the performance of the BEF in 1940.'[230] The convening of the committee and issuance of its report, however, does more than just set the BEF on course for a disastrous experience in 1940; despite disagreeing with the findings, Nalder insists that 'it was a great advantage to have a clear objective in view.'[231] By clearly outlining the new direction of Army intercommunications and repudiating the Kirke Committee's findings, the Jackson committee aptly demonstrated the extent and depth of the debate over the future of communications. Concurrently, theorist Basil Liddell Hart published *The Future of Infantry*, advocating for the reduction of line and, as part of the motorisation and mechanisation of the Army as a whole, included remarks that the 'increased use of motor-cycle

[228]WO 33/1305, p.12; Nalder, *Royal Corps of Signals*, pp. 255-256.
[229]Nalder, *Royal Corps of Signals*, p. 256.
[230]Godfrey, p. 29.
[231]Nalder, *Royal Corps of Signals*, p. 257.

orderlies should enable a reduction in the number of signallers at present employed in a system of communication in while the telephone line figures largely.'[232]

Conclusion

The issue of communications, then, is not as clear cut as the rulings or suggestions of any one committee. The very nature of communications and its intrinsic role within any complex organisation meant that whatever the policy changes may be, communications had to function in the interim. The question remains, then, how and by what means the Army, and Royal Signals in particular, maintained and conducted communications whilst the policy and committees debated the validity of technologies such as telegraphy, telephony, and wireless. When faced with the question of how closely the new policy reflected the practices of Royal Signals, and more importantly, its ability to adapt to changing warfare on an individual level, it is not difficult to see a dichotomy emerge.

In particular, as committees convened to debate the role of wireless and lines, Royal Signals and the TA recruited to the role of despatch rider continuously during the interwar and rearmament periods. As it fit with the push towards mechanisation, motorcycles became 'essential for future combat' and Royal Signals began recruiting motorcycle racing champions to train new DRs and offer their expertise concerning motorcycle usage and handling, test new machinery, and lent their name to recruitment drives.[233] Along with this recruitment strategy, the Army entertained bids from civilian industry to develop the motorcycle best suited to serving in communications. The prototypes produced, varying from three-wheeled motorcycles to attempts to create one that

[232]Basil Liddell Hart, *The Future of Infantry* (Harrisburg, Penn., 1936), p. 77.
[233]Gavin Birch, comp., *Images of War: Motorcycles at War; Rare Photographs from Wartime* Archives (Barnsley, 2006), pp. 7, 15; Sarah Gibbs, "'Nerves of the Army'": British Army Despatch Riders during the First and Second World Wars,' Unpublished MA Thesis, Georgia College & State University (2008), p. 47.

ran silently, demonstrate more the public and industry's failure to recognise how the next conflict would be fought than effective vehicles to be deployed with DRs.

The value of looking at communications and how the field progressed over the years prior to the Second World War stems from the fact that there was, and is, no way to run an Army, or any complex organisation, without communications. Whereas tanks and infantry can be, to an extent, reshuffled or reorganised so long as there is a contingency plan, communications, by their very nature, are different. By looking at the development and opportunities for change by Royal Signals, the more general adaptation of the Army can be viewed in a different light. The push and pull of overall innovation and discussions of policy ended in an increasing difference between what the hierarchy wanted to happen, whether through mechanisation, limiting funding, or even preventing wireless security issues by avoiding wireless altogether, and the realistic practicalities of what Royal Signals had to maintain and undertake in order to follow their remit and keep the changing Army not only afloat but effective.

When these factors are considered, the position of Royal Signals when it went to war as part of the BEF in 1939 becomes much clearer. As an independent corps, Royal Signals had no experience in a major conflict; it relied heavily on the lasting impact of its predecessor the Signal Service and the lessons it had learned from the Great War. The interwar period had proven to be one of complex and frustrating implementation of new methods, ideas, and infrastructure. With the disadvantage of the great cost of instating Army-wide communications changes, the 1920s and 1930s Army inadvertently stymied its own signals corps. Furthermore, the disasters of the opening years of the Second World War, particularly the failures in Norway and the retreat to Dunkirk, when read in this context, can be seen as Royal Signals managing to adapt for itself: by not having been able to implement massive corps- and Army-wide modifications, it had at its disposal reliable

methods such as despatch riders and carrier pigeons that not only proved more mobile than the BEF's setup but also more defensible, in part, because the more advanced forward units of the German Army struggled to intercept or utilise signals intelligence when nothing was broadcast or transmitted.

CHAPTER TWO:
The Jackson Committee of 1936 to the Bartholomew Committee of 1940

Introduction

This chapter examines the period from the Jackson Committee's 1936 Report to the Bartholomew Committee's report in 1940. This periodisation also addresses the Rearmament period of the mid-1930s to the North African build-up in 1940-1941, forming the first major phase of the war examined by this study. Based largely on the impact of the 1936 report of the Jackson Committee, this chapter demonstrates the changes, as well as the stagnation, of communications policy and the ways in which war effected a communications metamorphosis culminating in the Godwin-Austen Report of 1942, which will be examined in the next two chapters. As such, this chapter investigates practicalities of warfare in relation to policy and how this engendered pragmatism within the signal corps when responding to both interwar financial restriction and the opening years' experience of war.

The first section of this chapter addresses how the introduction of rearmament policies caused a paradigm shift within the British Army signals contingent. The reductions and restrictions placed on the post-1918 Army combined with changing doctrine concerning the role of the British Army led to a small, underequipped force with a mishmash identity of a colonial police force that had Continental experience. This section discusses the justification for the post-First World War limitation of the Army's function, determining that the substantive transformation of the Army-level role left little room for discussion of combat support arms such as communication. Limited by this lesser priority status, Royal Signals approached the challenges of rearmament, recruitment, and training by building on the civilianisation precedent set during the First World War and reinforced during the interwar period, such as the relationship with the General Post Office's telegraph divisions. This section challenges the notion that innovation should be defined as the introduction and implementation of new technologies and strategies to the exclusion of making lower level, unsophisticated yet practical

changes that resulted in advantages. In effect, rearmament for Royal Signals illustrates Laura Shousboe's differentiation between *innovation* and *implementation*, as the existence of innovations did not result in widespread implementation at this time due to the Army's fiscal, manpower, and strategic challenges. This study also identifies the development of informal learning networks at this time and the Army's reliance on knowledge transfer from civilian training.

Following the outbreak of war, failure characterised the first phase of the conflict for the British. Within a series of catastrophes spanning from France to Norway, however, a proving ground for communications emerged. This chapter demonstrates that it was partially because of, and not despite, the deficits of the 1939-1940 operations that this period served as transformative experience for the Army's signal policy. In so doing, it realises the potential of considering communications as an asymmetrically adapting entity – one that has both higher and lower-level adaptations at varying intervals but does not align fully with previously discussed established models of innovation. It establishes that knowledge and information sharing processes occurring at this time served as the genesis point of the wartime signals learning process discussed throughout this study. In addition, it demonstrates the environment created by the interwar limited investment and resulting technologically mediocre force proved, in the long run, to create a force primed to be responsive during the retreat in May-June 1940. The juxtaposition of primitive communications methods with the rapid mobility of the retreat, when also shown in the context of the notable failures in Norway, demonstrates the danger in conflating the concepts of *advancement* and *advantage*: that the mere existence of more sophisticated technology does not automatically confer dominance. As the campaigns progressed, the ability to draw on less complex methods that required less infrastructure worked to the advantage of the British. For example, their 'exaggerated respect' for the wireless interception abilities of the Germans led to a complicated security setup and the frequent

institution of wireless silence.[234] What was done in the meantime – how the Army continued to function effectively and made impromptu alterations to its practices – has not been considered in the context of the learning required to respond during war. Understanding the practice of employing lessons-learned committees alongside the ability of both officers and other ranks to utilize initiative extends our understanding of how communications policy and practice changed during the war. Furthermore, integrating the informal learning process into a more holistic understanding of the Army's experience more clearly shows how the individuals involved affected the war's progress on personal, regional, and army-wide levels. Moreover, the hierarchy of rank models, including the top-down and bottom-up models of innovation, do not fully account for how learning and knowledge transfer occur in the chaos of war.

This chapter utilises the accounts of the lower ranks to demonstrate the ability of Royal Signals to make impromptu adaptations and the importance of asymmetric changes in communications whereby minor, lower-level changes on the front lines occurred alongside higher-level changes to strategy. While scrutinising these changes, this chapter investigates the informal and peer learning processes among communications soldiers. Knowledge as simple as which roads to avoid and basic motorcycle maintenance in warzones proved instrumental in the survival of despatch riders and the maintenance of communications lines. Lower-level learning rarely appears in policy but often, as will be shown, resulted in a signal service capable of responding to emerging challenges without referring to command level. These unofficial techniques, interwoven with formal protocols, entered the collective knowledge of the communications troops, greatly characterising their experiences of the war. Accounting for the knowledge gained, and shared, outside the formally documented training manuals, pamphlets, and instructional courses allows not only for a diversification of sources but also gives

[234]Simon Godfrey, *British Army Communications in the Second World War: Lifting the Fog of Battle* (London, 2013), p. 49.

increased legitimisation to the voices of soldiers of lower ranks and socio-economic status. The majority of the sources for these accounts emerged from the oral histories collection housed in the IWM Sound Archive, in many cases reaffirming the longevity of the learning and application of knowledge processes. As learning is not always an instantaneous process, many oral histories include commentary not present when diaries and letters exist from the immediate aftermath. While these 'discrepancies' must be treated with care, when examining learning and knowledge acquisition, time is often needed to reflect on the value of what was learned and by what means. Ralph Bagnold's accounts serve as an example of this—his oral history, conducted in 1987, allowed him to evaluate his experience and identify where he learned important lessons and what use they were to him and the LRDG.[235]

The penultimate section addresses the immediate effects of the war experience on the preparations for the North African campaign. The location of the majority of the Army by this point—that is, its presence in Britain—greatly affected the ways by which it responded to its 'lessons learned.' While part of the Army, under General Sir Archibald Wavell, amassed as the Western Desert Force to attack Italian forces in Libya, the British-based forces remained at home, reorganising and training. Preparations for new theatres proved challenging as Britain offered little by way of desert climate and terrain for training. As North Africa and the Middle East manifested as the next major theatre for the Allied Powers, the distinctive environment and conditions, as well as the vast expanse, led to increased individual, often lower-level adaptations. As will be shown towards the end of this chapter and into the next one, for communications, the divergence of practice led directly to a policy overhaul with the Godwin-Austen Report of 1942. Covered substantially in the next chapter, this report demonstrated the

[235]'Oral History of Ralph Algers Bagnold,' IWM Sound Archive 9862; Ralph A. Bagnold, 'Early Days of the Long Range Desert Group,' *The Geographical Journal* 105:1-2 (Jan.-Feb. 1945), p. 30; Ralph A. Bagnold, *Sand, Wind, and War: Memoirs of a Desert Explorer* (Tucson, 1990).

ability of Royal Signals to reassess its functionality and structure mid-conflict and implement change based on its findings.

The final section of this chapter looks at the deeper spread of the lessons learned of the opening phase of the war. It evaluates the lasting effects the changes had on the women's services, which began the war as volunteer civilian organisations but by 1941 had been reclassed as military units. Co-location at garrisons, War Office sites, and other Army holdings, in addition to interaction between soldiers and the women's services led to an exchange of knowledge and ideas. This meant that the women's services, particularly the despatch riders and signalling units, benefitted from these interactions by incorporating changing techniques and processes. Furthermore, as will be discussed, the presence and then absence of soldiers due to arrival from Dunkirk and subsequent deployment to North Africa left many roles unmanned. The women's services expanded to fill these positions, changing the role of women in the armed forces in the process.

Rearmament

In January 1936, Foreign Secretary Anthony Eden issued a highly confidential Cabinet paper entitled 'The German Danger,' that included a collection of ambassadorial reports from the time of Adolf Hitler's accession to the German Chancellorship in 1933 to the end of 1935. In this report, Eden summarized Hitler's foreign policy as 'the destruction of the peace settlement and re-establishment of Germany as the dominator Power in Europe,' a policy to be achieved through internal militarisation and external economic and territorial expansion.[236] Furthermore, in 1935, Germany reintroduced conscription and created an air force, which violated the Versailles Treaty, and then remilitarised the Rhineland in March 1936, violating the Locarno Treaty of 1925. In response to Germany's remilitarisation and expansion, Britain adopted the dichotomy of appeasement and rearmament policies that dominated its

[236]Anthony Eden, 'The German Danger,' TNA, CAB 24/259/13.

international and domestic responses to Germany, respectively, until 1939. The impetus of this two-pronged approach can be found in an articulation in 1936 that 'risks must be undertaken to avoid the dangers of war…' because 'it is quite impossible to send troops which could prevent, by force, the outbreak of hostilities.'[237] Furthermore, the Chiefs of Staff Sub-Committee (CSSC) on Imperial Defence noted that 'it can be said that if war were to break out, we should not be able…to mobilise any force with which to reinforce France or Belgium on land for a considerable time.'[238] In addition, the Cabinet noted that 'we were not in a position to give effective military support in any such operation.'[239]

With a clear recognition that it could not consider war in its current position, Britain responded by beginning to rearm itself, as well as addressing fundamental questions that had arisen in the interwar period, such as the role of each of the services and how finite resources should be dispersed. Due to the financial and economic stringency of the post-1918 military budget, the role and size of the Army had changed significantly, decreasing in size and reducing in function to an imperial police force. 'Limited liability' decidedly influenced rearmament, and the White Paper of 3 March 1936 addressed this move by noting that 'successive Governments have deliberately taken the course of postponing defence expenditure,' but due to the changing situation in Europe there was 'no alternative…but to review our defences and to provide the necessary means both of safeguarding ourselves against aggression and of playing our part in the enforcement by common action of international obligations.'[240]

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[237]Chiefs of Staff Sub-Committee, Committee on Imperial Defence, 'Possible Despatch of an International Force to the Rhineland,' March 16, 1936, TNA, CAB 24/261/11; TNA, CAB 24/259/13.
[238]Ibid.
[239]CC 21(36), TNA, CAB 23/83/21. The body of literature covering 'Appeasement' in interwar politics is large. See for example, Frank McDonough, *Neville Chamberlain, Appeasement, and the British Road to War* (Manchester, 1998); Richard Overy, *The Origins of the Second World War* (London, 2008); Daniel Hucker, 'The Unending Debate: Appeasement, Chamberlain and the Origins of the Second World War,' *Intelligence and National Security* 23:4 (2008), pp. 536-551; Daniel Hucker, *Public Opinion and the End of Appeasement in Britain and France* (London, 1970); David E. Kaiser, *Economic Diplomacy and the Origins of the Second World War: Germany, Britain, France, and Eastern Europe, 1930-1939* (Princeton, 1981; Reprint, Princeton, 2015).
[240]John Kiszely, *Anatomy of a Campaign: The British Fiasco in Norway, 1940* (Cambridge, 2017), p. 17; Nalder, *Antecedents*, p. 255; Maurice Hankey, 'Defence Requirements: Programmes of the Defence Services; Statement Relating to Defence,' TNA, CAB 24/260/29, p.4.

To this end, Maurice Hankey, Secretary to the Cabinet, reviewed the armed services' roles throughout the Empire; he noted in particular that Germany intended 'air parity,' ostensibly justifying the financial prioritisation of the RAF over the Army, which 'had been directed only to [make] good the worst deficiencies.'[241] This limited investment, particularly for communications, meant that Royal Signals did not receive the most modern equipment or advanced wireless sets. Furthermore, Hankey's White Paper clearly outlined the role of the British Army's 'three main functions:' (1) 'to maintain garrisons overseas in various parts of the Empire,' (2) 'to provide the military share in Home Defence, including anti-aircraft defence, coast defence and internal security,' and, (3) 'in time of emergency or war to provide a properly equipped force ready to proceed overseas.'[242] He also noted that the 'peace-time service strength of the regular military field units in Great Britain' amounted to approximately 115,000 men, which 'constitute[d] the only source from which immediate reinforcements to any part of the Empire can be drawn.'[243]

The White Paper proposed an increase of four new battalions of infantry to reduce the burden of the imperial policing duties but fell short of providing a plan to develop additional units within the Regular Army, arguing that it would be impossible for the Territorial Army to modernise and 'recondition' to augment the Regular Army with comparable units.[244] In its emphasis on modernising the Field Artillery, it omits communications, leaving policy suggestions to the 1936 Jackson Committee 'to recommend the scale of provision of intercommunication facilities of all kinds for an expeditionary force.'[245] The Committee's report reversed the trajectory of the communications developments discussed in the previous chapter—it broke with previous interwar recommendations and returned focus to lined

[241]CAB 24/260/29, pp.5-6; M.M. Postan, *British War Production* (London, 1952), p. 2.
[242]CAB 24/260/29, pp. 9-10.
[243]Ibid.
[244]Ibid., p. 10.
[245]Nalder, *Antecedents*, p. 255.

methods.'[E]ntirely accepted by the Army Council,' the Jackson Committee's Report of 1936 shaped the Army's communications policy until the outbreak of war, reinforcing 'the primacy of line communications for the infantry, even in mobile operations, and thus [the report] went against the doctrine that had been enunciated' during the 1920s and in the Kirke Committee's 1932 report of lessons learned from the First World War.[246]

Furthermore, the report made recommendations only for defensive communications, contradicting the *Field Service Regulations* (*FSR*) of 1935 that had advanced the opinion that 'sooner or later,' offensive action communications would be required.[247] Writing in 1958 before the loss of the Jackson Committee's report, Nalder criticised the Jackson Committee for having several 'errors of judgment' concerning preparations for the war; however, he indicated that the great achievement of the committee was that 'it was a great advantage to have a clear objective in view.'[248] Godfrey's most damning conclusion concerning the Jackson Committee's recommendations, however, remains that it had a 'profound negative impact' on the British Expeditionary Force's ability to perform in 1939-1940, underlined by the Army's failure to publish an updated *FSR* to reconcile its communications policies between 1935 and 1940.[249]

Significant methodological issues exist when utilising the Jackson Committee, however, as the report now exists only as an abstract, in the Army's response to the report, and in Nalder's discussion.[250] Though many of its findings can be inferred from subsequent policy, the issues posed by the fragmented record of the report have largely hindered the incorporation of communications into wider rearmament discussion. Without this report, it is impossible to know exactly what Jackson and his committee recommended; however, the lack of substantial

[246]Ibid., p. 256; Godfrey, *Lifting the Fog of Battle*, p. 29.
[247]Godfrey, *Lifting the Fog of Battle*, pp.29- 30.
[248]Nalder, *Antecedents*, p. 257.
[249]Ibid., pp. 29-31.
[250]See Nalder, *Antecedents*. Nalder wrote in 1958 before the loss of the report and thus comments from the full text.

change after the report and the maintenance of prioritisation of line communication going into the late 1930s demonstrates that either the implementation failed or, more likely, it prioritised stability. Furthermore, it is likely that it limited financial investment in new equipment and underestimated the coming conflict in both size, length, and extent of operations.

Responding to Hankey's White Paper but not addressing the Jackson Committee's Report, Secretary of State for War Duff Cooper issued a memorandum entitled 'The Role of the British Army' in December 1936, indicating that modernising and equipping the TA for war would take three years and that the Cabinet had committed to the Field Army of five Regular and twelve Territorial Divisions. Cooper argued for both urgency and calculated spending on equipment, which greatly affected the ability of Royal Signals to update its wireless machinery:

> We cannot rely on having time, as we had in the last war, to build up and equip an army. Our regular forces are considerably smaller and at present far less adequately equipped, if modern developments are taken into account, than they were in 1914. The programme of equipment must necessarily be spread over a number of years and…we cannot hope to complete more than a small part of it by 1939.[251]

On 2 February 1937, Minister for Coordination of Defence Thomas Inskip responded based on the report of the CSSC, emphasising that the Army's limited expenditure should go towards 'providing modern equipment' rather than increasing the size of either the Regular or Territorial Army forces, the latter of which should be ready to support the Regular Army 'four months after the outbreak of war.'[252] Importantly for the Army's standing, the CSSC considered the 'relative merits of a land force and an air force be provided at an equivalent expenditure' and determined that they 'deprecate…the suggestion that we should prepare for a

[251]Duff Cooper, 'The Role of the British Army: Memorandum by the Secretary of State for War,' TNA CAB 24/265/46.
[252]Thomas Inskip, 'The Role of the British Army: Memorandum by the Minister for Co-ordination of Defence,' TNA CAB 24/267/47.

land campaign in which this country would provide a large national army on the 1914-18 scale.'[253]

Inskip further argued that 'we simply cannot sustain a large army in peace while we maintain a very powerful and modern Navy and an equally powerful and up-to-date Air Force.'[254] Thus, the Army remained under stringent and limited financial conditions, echoing the 1920s. Furthermore, the CSSC believed its peace time size unsustainable and instructed that the TA 'could only be trained…to a "*limited extent*"' that would require four months of 'intensive training' prior to being an effective overseas force. Due to its limited training, it should also, Inskip argued, have a more limited scale of equipment.[255] The argument over the TA's access to modern, mechanized equipment and training, particularly in the technical and mechanical vocations, as will be discussed, greatly affected the readiness of thousands of men who would, within a few years, be called up to reinforce the Regular Army. It took until April 1937 for the Cabinet to agree that the TA should be equipped and trained in the use of the Regular Army's weaponry, bringing their training, arming, and eventual warfighting closer in line.

Highlighting the limited energy expended on communications, the General Post Office (GPO), which had constructed the civilian telegraph network, provided signal communications for 'the War Office, the Home Commands, the anti-aircraft and coast defences, and the various base installations and depots…amplified where necessary by relatively small military units' until 1937.[256] Due to the close relationship with the GPO stemming from the civil-military relationship of the First World War, the TA found many of its officers and other ranks from post office employees, bringing a large expertise in communications to the forces from the civil

[253]Ibid.
[254]Ibid.
[255]Ibid. Duff Cooper, 'The Organization, Armament and Equipment of the Army: Memorandum by the Secretary of State for War,' TNA CAB 24/269/20.
[256]Nalder, *Antecedents*, pp. 255, 259.

organisation. Despite this influx of experienced civil signallers, Nalder, who was the Commanding Officer of 1st Division Signals during 1940, wrote that

> [a] great weakness which was inherent in the signal organization between the two wars was the small amount of practice in handling live traffic…Perhaps the worst result of the lack of live traffic was the almost complete dearth of trained duty signal officers.[257]

Indicating that despite the Government's extensive discussions and changes to policy considering the Army's role, size, and armament capabilities, Nalder continued to believe that the basic training and logistical experience remained inadequate.[258]

The lead-up to the 1939 declaration of war, then, saw little by way of new and transformative policy surrounding communications. With the Government still debating policy regarding the appropriate size of the Army, as well as the role of the Regular and Territorial components, communications and its infrastructure failed to be a priority. The Army of 1939 went to war with a strategy heavily influenced by the Jackson Committee's recommendations, despite its contradiction of the 1935 *FSR* and the Rearmament period's move towards offensive action. Furthermore, as will be shown in the next section, the limitations on equipment and training forced changes to recruitment in order to assemble an adaptable force capable of success in mobile warfare.

The Despatch Rider in the 1930s

In the 1930s the role of despatch rider in the British Army had changed little since the First World War. Equipment advances, which will be discussed later, marked the most significant change in the role. The concept and charge of skilled messengers remained the same: deliver messages to the assigned signals offices without delay, maintaining security. Despatch riders of the Royal Corps of Signals continued with the protocols established by its predecessor, the Signal Service, which included the requirement of 'enhancing his value as a

[257]Ibid., 261.
[258]Ibid.

military asset' by being ready to serve as a scout or signaller, as well as providing any assistance possible to the signal corps.[259] The 1941 'Training of Motor Cyclists' manual provided by the War Office later identified the ideal qualities of a motorcycle despatch rider: 'men who are to be trained as motor-cyclists should be selected carefully. The most prominent qualities required are resourcefulness, self-reliance, and mechanical ability.'[260]

Despatch riders could be found in all units and arms of the Army, both combat and combat-support, as well as in the Royal Marines, Royal Navy, and Royal Air Force. Though officially only the Royal Corps of Signals motorcycle messengers could be called 'despatch riders,' the term 'motorcycle orderly' never found common use. Despatch riders, then, permeated the British military, serving in all theatres and branches, including the women's services. As soldiers, they stood out for their distinctively adapted uniform, which included noticeable variations from the standard army issue. Upon outbreak of war, despatch riders had goggles and standard infantry helmets as displayed in Figure 1 below .

Figure 1: Despatch rider delivers message to the 1st Border Regiment signals office in Orchies, France, 13 October 1939. IWM Photograph Archive O129[261]

[259]Army Signal Service, 'Motor Cycle Despatch Riding,' n.d., Royal Corps of Signals Museum (RCSM) 'Despatch Riders' 375.1.
[260]War Office, 'Training of Motor Cyclists,' 1941, RCSM 'Despatch Riders' 375.1.
[261]All photographs also located in the Appendix for higher resolution and detail.

Royal Signals despatch riders continued to wear the distinctive arm band pictured in Figure 2, and as the war progressed, made increasingly significant changes to the uniform.

Figure 2: Motor Cycle Despatch Rider, Egypt. c. 1931. Royal Signals Museum Uncatalogued Collection.

A surviving photograph of Lance Sergeant R. Bainbridge, used for recruitment purposes, shows the leather jerkin that came to be a distinctive part of the despatch rider uniform, along with the high boots and gloves added to the gear (Figure 3).

Figure 3: Lance Sergeant R. Bainbridge in leather jerkin, DR breeches, and double buckle high boots. IWM Photograph Archive HU 93312.

The changes in the uniform to facilitate increased efficiency and safety mirrored the organisation of despatch riders as well. Though they often worked solo, the NCOs of despatch rider units paired them from their teams of up to approximately twelve when necessary. Pairing

reduced the likelihood of loss from accidents and ambush, as well as giving messages a higher chance of reaching their destination. From a practical approach, it was more difficult to stop two DRs than it was one. Assigned to signal companies that were in turn attached to units, Royal Signals companies integrated with the wider army. For example, the signals company attached to the 56th (London) Division became the 56th (London) Divisional Signals (Figure 4).[262] This arrangement meant that the soldiers of Royal Signals mixed with a vast array of soldiers and officers throughout the Army, as well as interacting with sailors, marines, airmen, civilians, and War Office personnel.

Figure 4: 56th (London) Divisional Signals. Private papers of Kenneth Lee. Private Collection.

Outside of the constant threat of being injured or killed in action, the main risk for despatch riders during 1939-1945 remained capture, particularly in forward areas and areas of extreme distance and exposure.[263] Due to this risk, training manuals, primers, and instruction pamphlets for DRs set forth strict and specific protocols for messages, including guidelines for destruction of written messages and refusals to repeat verbal messages. Contending that

[262]Private Papers of Kenneth Lee, Photograph of 56th (London) Divisional Signals.
[263]Nalder, *History of British Army Signals*, p. 265.

‘leakage of information’ from ‘inadequate signal security measures could be one of the most valuable sources of intelligence to the enemy,’ Nalder argues that

> since all security measures inevitably complicate the whole process of communication in one form or another, it seems worth while reiterating that there comes a time when, even with the best trained and most disciplined army, it has to be decided whether some additional refinement will really produce greater security or whether it will be the last straw and thus defeat its own end. In war armies are rarely as highly trained as commanders would wish, and in these circumstances simplicity is a very important factor.[264]

Questioning the introduction of increasingly complex methods of communication, Nalder’s concerns as a Signals CO demonstrates why despatch riders found widespread use during the war, especially during rapidly mobile phases.

When not engaged in front line communications and targeted despatch carrying, many served in the Despatch Rider Letter Service (DRLS). The DRLS formed to facilitate routine but secure message carrying and differed from the Army Postal Service by conveying documents and messages specific to operations and command. The DRLS reduced the workload of despatch riders by forming a scheduled delivery method for day-to-day communication rather than requiring urgent journeys.[265]

Equipment, Recruitment, and Training

During Rearmament, the extent of the change required amounted to more than just rearming – this was a major transformative period not just for the size of the entire military but for its collective identity and mission. While the Government and General Staff debated the larger questions of the role of the Army, its changing place in the British Empire, and the growing likelihood of war with Germany, Royal Signals, along with the other combat support arms, had to develop with a limited budget and strict financial stringency in place. One of the methods by which Royal Signals circumvented the restrictions placed on both its finances and

[264]Ibid., p. 267.
[265]The last vestiges of the DRLS, the Signals Despatch Service, ended in 1978 with the suspension of the service in Northern Ireland. ‘Report from Ulster,’ RCSM 375.1.

its manpower involved looking outward for innovation, particularly concerning equipment and manpower. Where despatch riders were concerned, looking outward for innovation meant taking advantage of the growth and development of the civil motorcycle industry. Having required new despatch riders to provide their own vehicles at the beginning of the First World War, Royal Signals now provided the machines or offered remittance for personal vehicles for its soldiers.[266] This served as one of the relatively minor changes that resulted in greater socio-economic diversification of the Army's ranks, as did direct recruitment of talented motorcyclists and racers, taking advantage of the growth in motorcycling in the leisure and transport industries.[267]

Equipment

The effect of the growth of the nation's motorcycle industry was twofold in the context of Royal Signals: there existed a noticeable supply of both manufacturers jockeying for government contracts, and a civilian population who did not require additional training and so could be tapped for recruitment. Prior to the 1929 economic downturn, the civil industry in Britain had boomed after the introduction of Alfred Angus Scott's innovations of the modern motorcycle, leading to an estimated 125 independent British motorcycle firms by 1925. By adding such developments as the kick-starter and chain drive, Scott helped secure Britain as an industrial leader for motorcycles, alongside popular imagery that emerged from celebrity promotion with motorcycles from such as the increasingly romanticised T.E. Lawrence and King Albert of Belgium.[268]

[266]A.P. Corcoran *Daredevil of the Army* (New York, 1918); Arthur Featherstone Interview IWM Sound Archive 22586-2; IWM Sound Archive 17360, 'Oral History of Gladstone Keate.'
[267]IWM Sound Archive 21550, 'Oral History of Fred Johnston.' Royal Army Service Corps recruited skilled drivers in the same manner.
[268]Cyril Posthumus, "On the Road (1913-1921)," in *The History of Motor Cycling*, by Cyril Ayton et al. (London 1979; Steven Koerner, "Four Wheels Good; Two Wheels Bad: The Motor Cycle versus the Light Motor Car – 1919-39," in *The Motor Car and Popular Culture in the 20th Century*, edited by David Thoms, Len Holden, and Tim Claydon (Aldershot, 1998), p. 152.

Firstly, the Army invested in motorcycles as equipment, working with manufacturers to design machines to fit its requirements, including a rather far-fetched contest to develop 'an efficient silencing system.'[269] The civil motorcycle industry's commitment to working alongside the Army to develop machines that met its exacting requirements can be seen in the formation of the Mechanical Warfare Experimental Establishment, later renamed the Mechanical Experimentation Establishment, to undertake a rigorous testing process that included a 10,000 mile reliability trial.[270]

Though general commentary of this unit survives, the vestigial photographs of the trials are the most significant record that remains. These photographs (Figures 5-7, below) display ingenuity aimed squarely at crafting machines available only to military buyers—among them machines with three-wheeled motorcycles for cross-country trekking, sturdier frames, hand-change gearboxes, increased reliability, and lightweight frames—with the hope that the British Army would place large orders as they did with Birmingham Small Arms (BSA) in 1938-1939 with an order for 8,000 additional cycles upon the outbreak of war.[271]

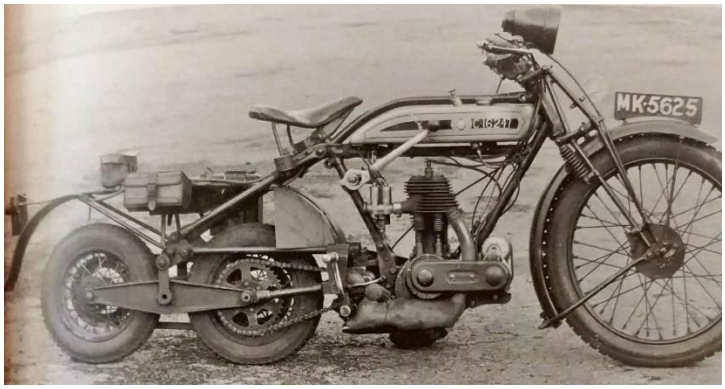

Figure 5 First Experimental Conversion of a Triumph motorcycle to a 3-wheeler. 1926 Triumph 494cc SV Single-Cylinder. IWM PA HU 93252.

[269]Chris Orchard and Steve Madden, *British Forces Motorcycles 1925-45*, rev. ed (Stroud, 2006), pp. 1, 6-7; IWM Photograph Archive HU93247 shows a Norton 16H with an experimental exhaust pipe.
[270]'Mechanical Warfare Experimental Establishment (Subseries),' TNA, WO 194; Birch, *Images of War*, p. 15; Donovan Ward, *The Other Battle: Being a History of the Birmingham Small Arms Co Ltd.* (York, 1946), p. 96.
[271]Birch, *Images of War*, pp. 17-31, in particular IWM Photograph Archive HU93252, HU93258, HU93257, HU93254, HU93255, HU 93256, and H93260.

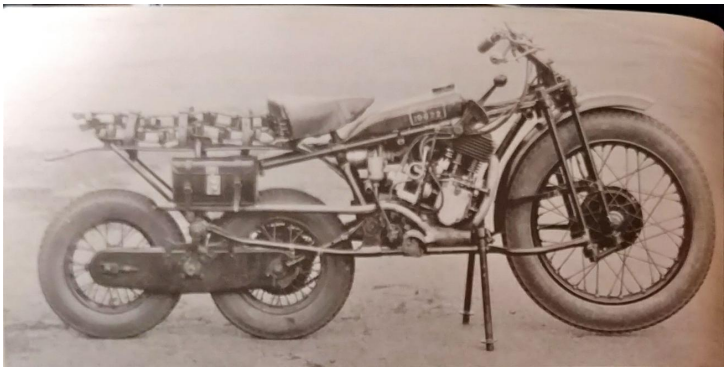

Figure 6: Osborn Engineering Company (OEC) 3-wheeled motorcycle. IWM PA HU 93258.

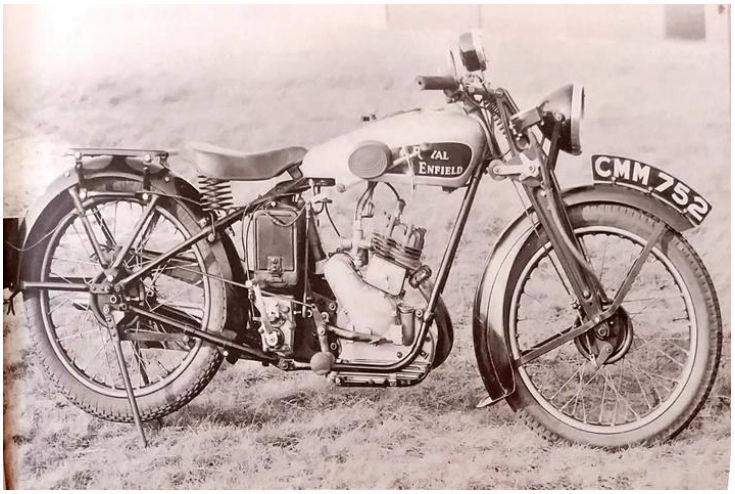

Figure 7: Royal Enfield motorcycle type B, 248cc side valve. 1935. IWM PA HU 93260.

Thus, as these photographs attest, civil industry responded to its circumstances in a manner beneficial to the military; its economic position during and after the economic depression of the late 1920s to early 1930s led the major motorcycle companies to seek out favourable arrangements as military suppliers.[272]

The danger of this, however, remained in the limited budget. In 1946, BSA's historian Donovan Ward wrote that the

> Hampering hand of the Treasury, even then not reconciled to spending money on rearmament, was seen in their first proposal—that B.S.A. should permanently keep in stock large numbers of machines, which the Government would buy if the necessity arose. Despite the fact that it involved locking up considerable capital in goods which could not be sold in the civilian market, the directors [of BSA] took the view that, if this

[272]See David Edgerton, *Warfare State: Britain 1920-1970* (Cambridge, 2005) for an in-depth discussion of the relationship between the private sector and the military.

were the only way in which the needed reserves could be created, the company should agree to it in the national interests.[273]

Despite this initial plan, Ward noted that the Government soon rejected its own proposal 'in favour of direct purchase,' which followed with the compilation of a 'complete list' of all motorcycle stock throughout Britain in order to ascertain the number of vehicles that could be requisitioned.[274]

Attracted by the relatively cheap mode of transport combined with the speed of assembly and ease of storage, the War Office increased its order of motorcycles for the Army at large from 483 in 1935 by over 1900 percent to 9447 in 1939 with an overall pre-war estimate of 22,295 motorcycles necessary for war.[275] Though Royal Signals received only a portion of these vehicles, and, as it would turn out, largely not until months after the war began in 1939, many despatch riders had never used such new equipment as the motorcycles that came from these contracts, especially the larger models such as the Norton 16H (Figure 8).[276]

Figure 8: British Despatch Rider on a Norton 16H. IWM PA ARMY TRAINING 8/7.

[273]Ward, *The Other Battle*, pp. 96-97.
[274]Ibid., p. 97.
[275]TNA AVIA 46/192, 'Historical Narrative: Wheeled Vehicle Motor Transport, 1935-1943,' pp. 20-2, in Steven Koerner, *The Strange Death of the British Motor Cycle Industry* (Lancaster, 2012), p. 289.
[276]IWM Sound Archive 6461, 'Oral History of John Jerome Collins'; IWM Sound Archive 17360, 'Oral History of Gladstone Keate'; IWM Sound Archive 22586, 'IWM Interview of Arthur Featherstone;' IWM Photograph Archive ARMY TRAINING 8/7.

The responsiveness from the civil sector mirrored that of 1914-1918 governmental engagement of industry; furthermore, civilian expertise had played an instrumental role in the development of the Army in the Great War, particularly in technical fields. For example, the armed forces worked directly with inventors to secure purchases of patents on new communications technology such as Marconi's wireless and the Fullerphone, both discussed in the previous chapter.[277] Communications also drew heavily on the precedent of relationships such as that between the First World War Signal Service and the GPO concerning telegraph workers, allowing for direct translation of existing technical skill, work experience, and existing knowledge networks.[278] The substantial difference in motorcycling, however, was that this was a mechanical skill instead of a purely technical one, and it could be self-taught further reducing socio-economic barriers and redefining who could be considered an 'expert.' BSA, for example, provided a team of its own experts to 'both the men who would be riding the machines and also to those who would be responsible for their maintenance,' further expanding the role of the civilian expert to that of factory workers and mechanics. [279] Thus, in Royal Signals, at least, mechanical skill emerged as an expertise alongside both its technical fields and its own changing demographics. The industry methods of learning, such as apprenticeships and on-the-job training also diversified the learning methods within the Army's personnel, and as will be demonstrated in later chapters, existing trade experience greatly helped the combat support arms personnel adapt to their wartime roles.

[277]Aimée Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918* (Cambridge, 2017); For more on the interplay between the Government and civilian inventors during the First World War, see Graeme Gooday, 'Combative Patenting: Military Entrepreneurship in First World War Telecommunications,' *Studies in History and Philosophy of Science* 44 (2013), pp. 247-258. See also Keith Grieves, *The Politics of Manpower, 1914-1918* (New York, 1988).
[278]John Gooch, *Armies in* Europe (London, 1980), p. 141; James Marshall-Cornwall, *Wars and Rumours of Wars: A Memoir* (London, 1984), p. 2.
[279]Ward, *The Other Battle*, p. 99.

The demographic change introduced by roles such as despatch riders, who could be recruited from civil talent, reflected the radical transformation stemming from the Kitchener's Army model: civilian-soldiers of the working class replaced the professional soldier majority. Unlike in the 1914-18, however, despatch riders and orderlies no longer had to provide their own vehicles upon joining the Army; this ostensibly minor change meant that men could join as despatch riders without requiring the financial means to own a vehicle, especially one that could, in all likelihood, suffer great depreciation or become unsalvageable.[280] The change, like many small policy changes borne of necessity of growing the armed forces, had wide-reaching effects as suddenly men who had 'struggled to maintain their own old motorbike' could commit to service in support arms such as Royal Signals.[281]

Recruitment

The focus of Royal Signals recruitment efforts demonstrated that the corps knew it needed to increase not only its numbers of active and reservist signallers, but it also needed to increase an asset that is difficult to measure: its skill set. As Peter Padilla and Mary Riege Laner argued in their work on United States Army recruitment,

> the purpose of the recruitment message is to capture the attention of potential recruits and to persuade them to sign on to a new way of life complete with a new set of symbols (e.g., insignia), rules, and sense of identity…insignia and the units they represent are important components of the recruitment literature. A soldier "wears his resume." That is, only certain soldiers are authorized to wear certain status-relevant insignia.[282]

Due to the limitations of its budget in the 1930s, Royal Signals deliberately augmented its expertise and knowledge base by taking advantage of the wide growth of motorcycling skills in the civilian population during the 1920s and making roles such as despatch rider attractive

[280]A.P. Corcoran, *Daredevil of the Army*; IWM Sound Archive 17360, 'Oral History of Gladstone Keate'; IWM Sound Archive 6461, 'Oral History of John Jerome Collins.'
[281]IWM Sound Archive 6461, 'Oral History of John Jerome Collins.'
[282]Peter A. Padilla and Mary Riege Laner, 'Trends in Military Influences on Army Recruitment: 1915-1953,' *Sociological Inquiry* 71:4 (Fall 2001), p. 422. See also Peter Padilla and Mary Riege Laner, 'Trends in Military Influences on Army Recruitment Themes: 1954-1990,' *Journal of Political and Military Sociology* 30:1 (2002), pp. 113-133.

by touting the uniqueness, skill level required, and number of celebrities involved. In effect, the corps worked to make the status and corps insignia of Royal Signals and the DR its main selling point (See Figure 9).

Figure 9: Headdress Badge of the Royal Corps of Signals. IWM OA INS 16960

As motorcycling for leisure had grown in the interwar period, so had celebrity association with the glamour of motoring. One particular example that raised motorcycling's profile, albeit counterintuitively, was the death of T.E. Lawrence in a motorcycling accident in 1935. Lawrence's accident in which he swerved to avoid a boy on a bicycle leant itself to the romanticisation of the war hero as well as later directly impacting despatch riders by encouraging innovation in the realm of protective helmets due to Lawrence's catastrophic head injuries.[283]

Aside from budgetary and financial implications, as well as civil-military industrial contracting, providing equipment to DRs on this scale affected whom the Army could recruit. The avenues of recruitment also changed: whereas the most noticeable effort of DR recruitment in 1914 aimed at the Oxford and Cambridge Officers Training Corps, in the late 1930s, the

[283]Lawrence James, 'Lawrence, Thomas Edward,' in *Oxford Dictionary of National Biography (*2011) available: https://doi.org/10.1093/ref:odnb/34440; Photograph of T.E. Lawrence on Borough Superior, IWM Photograph Collection, HU 1009907; Ferdinand Kuhn, Jr., 'Lawrence to Have a Simple Funeral: Rites to be Held in Village Church,' *New York Times*, 20 May 1935; Nicholas F. Maartens, Andrew D. Wills, and Christopher B. T. Adams, 'Lawrence of Arabia, Sir Hugh Cairns, and the Origin of Motorcycle Helmets,' *Neurosurgery* 50: 1 (2002): 177; J. Tailor and A. Handa, 'Hugh Cairns and the Origin of British Neurosurgery,' *British Journal of Neurosurgery* 21:2 (2007), p. 195. This development and its adoption will be discussed later in this chapter.

hobbyist magazines *The Motor Cycle* and *Motor Cycling*, the latter edited by Graham Walker, a champion motorcyclist and First World War despatch rider, routinely carried advertisements aimed at motorcycling enthusiasts.[284] Recruitment became so targeted in these periodicals that registration forms appeared alongside wording such as 'gain one of the *limited but coveted* places as a Despatch Rider.'[285] In addition, the Army recruited motor cycle racing champions to its instructional staff at Catterick, as well as the Royal Army Service Corps school in Keswick.[286]

Direct recruitment into the Army as despatch riders drew on its precedent of drawing on civilian expertise, this time in the realm of appealing to skilled motorcyclists. Due to the growth of motorcycling for leisure, motorcycle racing became widely popular. One of the most popular events in the race circuit was the Isle of Man Tourist Trophy (TT), which had been run each year from 1905 onwards, apart from the war years 1914-1918. British motorcycling firms' dominance of the TT meant that Britain's civil motorcycling industry and its following held many skilled and expert racers. The War Office soon took advantage of this by recruiting such luminaries as Freddie Frith and J.H. 'Crasher' White, both of whom became sergeants and instructors for motorcycle units, especially despatch riders, as well as featuring in recruitment and morale propaganda (See Figures 10 and 11).[287]

[284]'Mr. Graham Walker,' *The Times* (31 July 1922).
[285]Gavin Birch, ed., *Images of War: Motorcycles at War; Rare Photographs from Wartimes Archives* (Barnsley, 2006), p. 45. Emphasis in original; IWM Sound Archive 22677 'Oral History of Herbert Geoffrey Rees.'
[286]Corcoran, *Daredevil of the Army*; Featherstone IWM SA 22586-2; Private Papers of D. Bruton, IWM Documents.9808; Private Papers of Dennis Hustler, IWM Documents.14983; Ernest S. Nicholson, *Adventures of a Royal Signals Despatch Rider* (Leicestershire, 2003); IWM Image H 24685, 'Photograph of Sgt. J.H. "Crasher" White and Sgt. Freddie Frith, 1942.'
[287]IWM Image H24685.

Figure 10: Sgt JH 'Crasher' White and Sgt Freddie Frith in October 1942. IWM PA H24685.

Figure 11: Sgt 'Crasher' White and Sgt Freddie Frith give a demo of 'fast cornering' during training at RASC Driving School, October 1942. IWM PA H24689

Furthermore, the Army utilised Malcolm Campbell, another famous racing driver, to appeal for 300,000 drivers to volunteer for army service. One future DR, Albert 'A.W.' Chuter, recalled hearing this appeal in his parents' home on 6 October 1939, joined up as a result, and left the recruitment office on 9 October 1939 for training at Aldershot.[288]

[288]Private Papers of A.W. Chuter, IWM Documents.16194.

The impact of these recruitment efforts survives in the accounts of despatch riders such as Ernest Nicholson, who wrote of his desire to race in the TT and its influence on his decision to join up as a DR in 1935. He had competed against Frith before the latter set multiple records between 1935 and 1937.[289] Thus, the prospect of having well known racers within its ranks served as a recruitment asset and lent credibility to Army training – images survive of both Frith and White, among others, racing during the war.[290] Adapting this pastime, the Army conducted motorcycle trials as an important leisure activity and morale support for wartime motorcyclists, hosting, for example, a large trial in Cyprus in 1942 (See Figure 12).[291]

Figure 12: 'An Indian D.R. making up time on a good stretch of road.' Motor Cycle Trial of D.R.s in Cyprus, taken by Lt. Tanner, 3.3.1942. IWM PA E9008.

Training

The Army's ability to utilise existing expertise demonstrated its capability of adapting to its financially precarious situation as well as recognising the time constraints of training

[289]Nicholson, *Adventures of a Royal Signals Despatch Rider*, pp. 122-125. In addition to Frith's numerous pre-war victories and 1937 senior race victory, JH White won the TT race five times.
[290]For a large collection of images of motorcycle racing during the Second World War, see the photograph collection of the Royal Signals Museum, Blandford Camp.
[291]IWM Image E9008.

instructors to the skill level of champion racers. In addition to engaging experts for the training schools, the programme implemented at the Catterick Garrison at this time became increasingly extensive; however, those who entered the Army with motorcycling experience and licences received waivers and accelerated training programmes.[292] Quite often, this experience added to the informal and peer learning of such skills as driving and manoeuvring that took place within the training schools and across the forces, both Regular and Territorial.[293] Not only did this reduce the time required to produce a trained despatch rider, but it also allowed for informal and peer learning—putting enthusiasts together resulted in the transfer of knowledge and development of skills, which then, in turn, could be incorporated into the curriculum. Nicholson, for example, recalled his time training a young despatch rider named 'Chippy' Wood before Wood's death in India.[294]

Nicholson further exemplifies a unique route through which Royal Signals recruited experienced motorcyclists to become as despatch riders: the corps established a Motorcycle Display Team to tour the participating in community events, the 'White Helmets,' who were heavily utilised by the Royal Signals during the 1930s. They comprised highly skilled motorcyclists—and until 1937, horsemen—with the mission 'to get new recruits' into the Army. After 1937 the only remaining equine element was two skewbald ponies named Patch and Tintack who 'were used to jumping through fire and having motorbikes jump over them.'[295] Thus Royal Signals built on the Army's practice of recruiting skilled motorcyclists, mechanics, and drivers: by attracting the most highly skilled motorcyclists possible, it managed to recruit despatch riders who also served in recruitment and publicity capacities. Once war

[292]Nicholson, *Adventures of a Royal Signals Dispatch Rider*; Featherstone Interview IWM SA 22586-2; Catterick served as the Royal Signals School of Signals until it moved to Blandford Camp in 1967; War Office, 'Stand Orders for Drivers of Mechanical Vehicles (Wheeled) and Motor Cycles,' RCSM 375.1.
[293]IWM Sound Archive 10601, 'Oral History of Frederick Edwin Cottier.'
[294]Nicholson, *Adventures of a Royal Signals Despatch Rider*, pp. 132, 171, 189. Nicholson noted that he did not know Wood's given name, only that he was known as 'Chippy.'
[295]Ibid., pp. 138, 146.

began, in addition to their assignment to signal sections across the Army, these individuals also served in morale boosting roles of entertainment through displays of tricks and racing competitions (See Figures 13-15).

Figure 13: Royal Corps of Signals Motor Cycle Display Riders, c. 1935. RCSM.

Figure 14: Royal Corps of Signals Display Riders, c. 1935. RCSM.

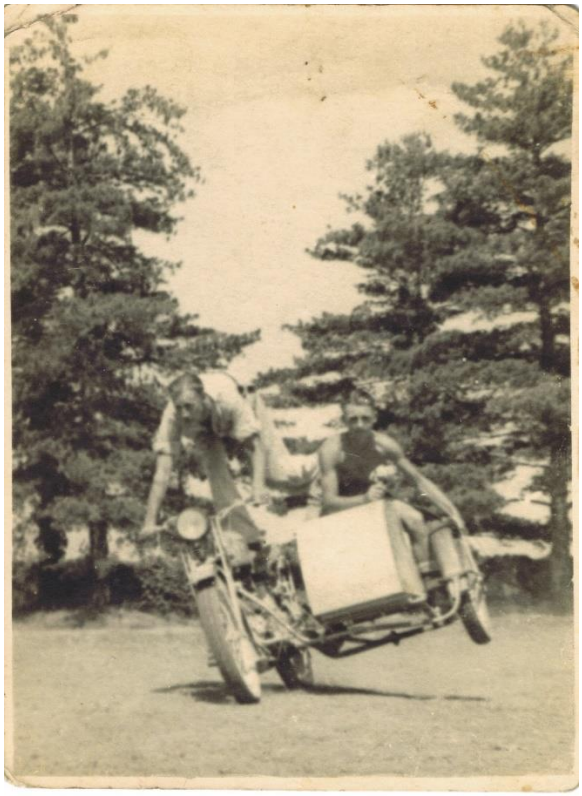

Figure 15: 56th (London) Division Despatch Riders Kenneth Lee and 'Jimmy,' c. 1942. Private Papers of Kenneth Lee.

The potential for such diverse use of despatch riders most likely played a role in the longevity of the role and its popularity among commanders when selecting communications personnel. Furthermore, as will be shown in Chapter Four, the ability of DRs to travel among different units, whether for messages or entertainment, aided in their ability to convey news and, as will be discussed in reference to the 1942-1944 Italian Campaign, both encourage and correct rumours. By serving in both a straightforward communications role as well as having a role within morale maintenance, DRs found themselves uniquely placed regarding information and knowledge spreading. In this regard, the mobility of the coming war resulted in despatch riders serving more varied functions than during the First World War.

Outbreak in France 1939

Rearmament continued throughout the 1930s alongside the Government's continued efforts to avoid war. Germany, however, proceeded to expand its claim to territory in Europe, reaching a crescendo in the invasion of Czechoslovakia in September 1938 to reclaim the

Sudetenland. The resulting 'unprecedented "summit" diplomacy' of a face-to-face meeting between the leaders of Britain and Germany, in conjunction with France, Italy, and the Czechoslovak Governments, produced the Munich Agreement, which ceded the Sudeten territory to Hitler and left little doubt that war was imminent.[296] Breaking the agreement, Hitler moved to occupy the remainder of Czechoslovakia in March 1939. The tensions in Europe finally erupted when Germany invaded Poland on 1 September 1939, and Britain and France declared war on 3 September 1939, bringing the Rearmament period to a dramatic halt.[297] For the armed forces, this meant the National Service (Armed Forces) Act 1939 superseded the previously passed Military Training Act (1939), which had provided for limited peacetime conscription, and established full conscription for males aged 18-41.[298] Despite the Army's efforts during the rearmament period to increase its recruitment of skilled soldiers, the influx of conscripted, untrained civilians into an army that had been underfunded and deficient in manpower over the previous years meant that the existing, trained Regular Army members comprised almost the entirety of the immediately deployable force, the British Expeditionary Force (BEF).

At this time, Royal Signals continued to offer a mixed methods approach, utilising lined communications in the form of telephone, telegraph, and teleprinter; both wireless telephony and telegraphy; and despatch rider. It remained an echo of the corps founded in 1919 – the main differences being its equipment, diversified personnel, and skill development, all of which had been greatly increased by developments in the civil sector rather than innovation from within the Army. Despite this approach, Royal Signals, the BEF, and the wider British Army soon proved it was underprepared for the coming mobile war.[299] The interwar focus on

[296]James L. Stokesbury, *A Short History of World War II* (New York, 1980), p.59; 'The Munich Agreement,' TNA, CAB 24/279/12.
[297]HC Deb 03 September 1939 vol 351 cc291-302.
[298]HC Deb 02 September 1939 vol 351 cc221-41.
[299]IWM SA 21550, 'Oral History of Fred Johnston.'

preparing and planning for a defensive air war, as well as the financial prioritisation of the RAF and the Royal Navy, meant that the BEF deployed to France in September 1939 was a small field force far surpassed in size by the French Army. Furthermore, it had limited large-scale experience, and was, according to Field Marshal Bernard Law Montgomery, writing in 1970, 'unfit to take part in a realistic exercise' with 'an inadequate signal system.'[300] Among his recollections, Colonel John Jerome Collins, who served as subaltern to a despatch rider section, remembered that the equipment upon first arriving in France appeared outdated – 'Nothing…very sophisticated…the radio sets were all sort of vintage 1930, but I'm not sure that we didn't even have one or two [from the] 1914-18 war…'[301]

The first phase of the war, with the BEF's deployment and subsequent reinforcement, in France and Belgium lasted from September 1939 until May 1940.[302] The lack of campaigns, battles, and general interaction between the Allied armies and the German forces led this period to be dubbed the 'Phoney War.' Despite the official declaration of war, there seemed to be limited activity and a relative stillness to the conflict during this period.[303] Royal Signals, however, finally had the opportunity to run limited manoeuvres and training that it had desperately needed during the interwar period. Meanwhile, for the soldiers still stationed in Britain, training continued for despatch riders across the regiments, with many adopting the designation 'despatch rider' rather than the archaic 'motorcycle orderly' for non-Royal Signals DRs. The experience of Lance Corporal Arthur Featherstone highlighted the presence of DRs force-wide and as a recruitment device:

> Well I always did like motorcycles. And uh there was a vacancy for despatch riders and I joined a team of despatch riders for the [1st Derbyshire] Yeomanry. And eventually after I got my first stripe as a[n] honoured Lance Corporal, I took over the training of despatch riders and motorcycle mechanics…And you can imagine the dashing despatch

[300]Bernard Law Montgomery, 'Ready, Aye, Ready,' in *The War on Land: The British Army in World War II*, edited by Ronald Lewin (New York, 1970), p. 6.
[301]IWM SA 6461, 'IWM Interview of John Jerome Collins.'
[302]IWM Sound Archive, 'IWM Oral History of Alex (Jim) Russon.'
[303]For discussion on the use of the term 'Phoney War,' see Nick Smart, *British Strategy and Politics During the Phony War: Before the Balloon Went Up* (Westport, 2003), pp. 1-5.

> riders were up and down the village [of Feltham]. Everybody was cheering and whatnot and those – those were the days without crash helmets.[304]

Once in France in 1939, however, the operationally slow opening months of war resulted in an overall torpidity that influenced the descriptors and interpretations of September 1939 to May 1940. Command and operation-level studies, including those by Simon Godfrey and Edward Smalley, have focused on interactions between the BEF and the German Army, adopting language that emphasises the slowness of the 'Phoney War' of stagnation, dormancy, and inactivity. By including the daily interactions among the BEF soldiers, this phase of the war can be understood to also include soldiers, who had recently been civilians or stationed in colonial garrisons, learning and testing their new roles, developing a sense of self—that is, developing the *ethos* Fox highlights is essential for intra-army learning, and, in the case of signals, orchestrating the field experience denied during the interwar period.[305]

With such little movement and lack of progress during this stage, the danger of considering only command level communications becomes apparent: it not only omits the forays into enemy territory by the BEF's despatch riders and their experience with such aspects of war as Stuka bombers and wireless security but also negates their importance on overall corps knowledge and learning. By including this knowledge in the understanding of this phase of the war, the picture of the BEF that emerges is less inefficient and stagnated than is often accepted. Instead, an image of an underprepared but learning force emerges. It is precisely during moments like the BEF's stagnation that soldiers exhibited peer learning and spread ideas; the BEF's stasis meant that the despatch riders especially the DRLS, moved continuously within its ranks, allowing for experience in intracommunication as well as intercommunication between units and commanders. Wireless often became the main source of communication as

[304]IWM SA 22586-2, 'IWM Interview of Arthur Featherstone.'
[305]For further context, see Peter Merriman and Kimberley Peters, 'Military Mobilities in an Age of Global War, 1870-1945,' *Journal of Historical Geography* 58 (October 2017), pp. 53-60; Fox, *Learning to Fight*; Aimée Fox, '"Putting Knowledge into Power": Learning and Innovation in the British Army of the First World War,' PhD Thesis, University of Birmingham, 2015.

the continued presence in one place allowed for the setup and reliance on radio trucks and large radio sets, but overall, telephone lines, especially existing French and Belgian civilian telephone services, dominated the communications structure. This reliance, however, as will be discussed later, resulted in a calamitous failure of the communication system; despite this, the presence and abundance of despatch riders and the DRLS led to a force that could adapt.

Smalley criticises the use of despatch riders, faulting them with a 'reckless enthusiasm for speed,' particularly those from 48th Division Signals who he describes as being 'recognised as highly skilled motorcycle fanatics and a "law unto themselves"' whose '[n]ever-ending accidents depleted an already scarce resource.'[306] Seeing the despatch riders and their 'customary enthusiasm for speed' as a sign of complacency and lack of efficiency, Smalley indicates that their ongoing presence in France into 1940 served as one of the myriad of reasons for the coming defeat at Dunkirk, going so far as to argue 'the initial BEF collapse in communications was self-inflicted and occurred before the German breakthrough at Sedan.'[307] Smalley's analysis, however, misses the mark on several important points of the developing role of despatch rider and mobile messengers. For example, his dismissal of the proclivity towards speed and adventure –which the Army had used to its benefit in recruitment—does not take into account the additional role of volunteer patrols, often into German-held territory. By including these accounts, as well as the willingness of individuals to undertake these missions, the culture of adding more information to shared knowledge becomes apparent. This initiative reappeared during the desert war discussed in Chapter Three and the European campaigns discussed in Chapter Four. DR Stanley Rayner, for example, recalled his service in the BEF from April 1940 onwards:

> It was from [Battalion Headquarters at Bois Robert] where we started to send out patrols to probe out as to where the Germans were. A patrol consisted of one light 15 cwt. Truck with a driver and officer in the cab, whilst on the back (which was open) was

[306]Smalley, *The British Expeditionary Force* (London, 2015), p. 101.
[307]Ibid., pp. 95-105, 113.

> mounted a Bren Gun…Six motorcycle Despatch Riders completed these patrols, riding in pairs, four in front, the remaining two behind. I would guess we were spaced about forty to fifty feet behind each pair on either side of the road, the track also so spaced. We were all volunteers for this work.[308]

By the time these patrols became regular, despatch riders had been ordered to ride in pairs so that 'obviously one should be able to get through,' as German forces had machine gunned and sniped patrols, hitting despatch riders on several occasions. Rayner also noted another threat that manifested as April wore on:

> I remember well, one fine sunny day when out with despatches, all of a sudden feeling cold, as if someone had walked on my grave. Then when looking up I saw the reason. One of the *Storch* German spotter planes had come in between the sun and myself. I drove straight into the high hedge.[309]

Smalley's analysis of the communications infrastructure of the BEF prior to Dunkirk largely relies on the assumption that wireless operators could withstand high levels of mobility. When the interpretation includes the full, diverse array of communications methods available during this phase, as well as accounting for their simultaneous employment, the beginning of the wartime learning culture of the Army can be seen. On this occasion, far from a self-inflicted catastrophe, reliance on flexibility allowed Royal Signals to have some means – any means – to communicate during the retreat that was coming. Part of this ability to be flexible derived from the diversity of uses of the simple human messenger – and allowing that messenger to adapt to his role as necessary. The additional presence of despatch riders in Norway, the other main theatre during early 1940, further demonstrates the extent to which the Army deployed its messengers, particularly given the challenges posed by a very different European theatre.

Norway

[308]Papers of Stanley Rayner, pp. 22-23.
[309]Ibid., pp. 25-27.

In addition to the Franco-Belgian Front and its presence in Poland, Germany turned northward in April 1940 and invaded both Denmark and Norway. After Norway's refusal to accept the German ultimatum that would give 'the occupying power total control over all public services in Norway and all facilities that would be needed for the use of Norwegian territory in German warfare,' the Allied Powers agreed to send aid to Norway.[310] This aid comprised naval action to recapture Narvik, the port through which Germany shipped its Swedish iron ore, and Trondheim, the 'only feasible base' for further operations due to having both a port and airfield as well as being strategically necessary to control the railway east to Sweden.[311] Thus, in what Chief of the Imperial General Staff (CIGS) Edmund Ironside first posited as a positive 'diversion,' the British planned to conduct three amphibious expeditions: Narvik, Namsos, and Åndalsnes.[312] The failure of the navy, army, and air command to coordinate, combined with 'very adverse weather' led to several unsuccessful assaults – the eventual recapture of Narvik on 27 May quickly reversed when the withdrawal and retreat of allied armies in France forced the Allies to evacuate Narvik on 8 June 1940.

The other two expeditions – to Namsos and Åndalsnes – were intended to surround Trondheim from two directions but ultimately failed to do either. The campaign proved, within two months, an 'ignominious failure.'[313] By 19 April, the Chiefs of Staff had advised a 'complete alteration' from the original course in order to focus on the northern and southern pincers instead of central Norway; furthermore, they noted that it would be necessary to 'invest Trondhjem [*sic*] by land and blockade it by sea and although its capture will take longer than originally contemplated, it may be possible to put our main forces ashore at a slightly earlier

[310]Knut Haukelid, 'The Paperclip Spirit,' British Broadcasting Company, IWM Sound Archive 8316.
[311]Nalder, *Royal Corps of Signals*, p. 274; E.E. Bridges, 'Operations in Norway. Military Coordination Committee,' 20 April 1940, TNA CAB 66/7/13. For a full account of the Norwegian Campaign of 1940, see John Kiszely, *Anatomy of a Campaign: The British Fiasco in Norway, 1940* (Cambridge, 2017).
[312]Edmund Ironside, *Time Unguarded: The Ironside Diaries, 1937-1940,* ed. by R. Macleod and Denis Kelly (London, 1963), p. 126; Robert Citino, *Blitzekrieg to Desert Storm: The Evolution of Operational Warfare* (Kansas City, KS, 2004), pp. 38-41.
[313]CAB 66/7/13; Kiszely, *Anatomy of a Campaign*, p. vii.

date.'[314] However, by 25 April, Ironside had noted that '[i]t looks more and more likely that we will have to contemplate some evacuation of our troops. It may well mean the loss of a lot of equipment.'[315] The German air superiority, in combination with ongoing supply issues for the British, stemming from reliance on locally requisitioned vehicles, resulted in the evacuation of all forces in central Norway on 28 April 1940.[316]

Writing after the war, Nalder noted that the failure in Norway stemmed from both German superiority and 'defects in the higher direction of war,' writing that the existing command structure in the War Office was

> not geared for the co-ordination of inter-allied amphibious operations and their difficulties were much increased by a succession of conflicting directives from above. It is not surprising therefore that there were mistakes in the organization of the relief expeditions nor that troops and equipment were not always landed at the required time and place. The comprehensive organization for the study of amphibious warfare…did not then exist. Signal planning had to be entirely extemporized...[317]

In noting challenges to the British plan of attack in Norway, the Military Co-ordination Committee outlined that not only could snow prove a challenge, but the 'mountainous character' of the terrain 'restricts movement on any considerable scale to well-defined lines of advance. Demolition of communications is fairly easy.'[318] The warnings of the dangers of communications, the mountains, and snow proved accurate for the signallers sent to Norway, particularly those who were part of the Namsos and Åndalsnes contingents who 'worked under exceptionally adverse conditions.'[319]

These conditions were not limited to climate, however. The Namsos signal contingent, according to Nalder, 'suffered several misadventures' on its deployment before leaving port, which resulted in the loss of part of its signal equipment and 'all of its transport' other than

[314] CAB 66/7/13.
[315]Ironside, *Time Unguarded*, p. 282.
[316]Nalder, *Royal Corps of Signals*, pp. 274-275; Ironside, *Time Unguarded*, pp. 284-287.
[317]Ibid., pp. 275-276.
[318]CAB 66/7/13.
[319]Nalder, *Royal Corps of Signals*, p. 277.

motorcycles. Furthermore, on arrival in Norway, one of the 25-watt radio sets was unusable. This inauspicious beginning foreshadowed greater problems that the contingent, which comprised half a brigade section of 49th Div Signals, experienced shortly after arrival in Norway. In its first move forward from Namsos, wireless silence was enforced within the brigade, and though wireless communication with the UK was eventually established, one generator was destroyed and the other broke down, leaving the headquarters communication to rely on power generated from Swedish mains that crossed the occupied territory.[320] By 3 May, the British had evacuated from Namsos.[321]

Thus, it is unsurprising that Nalder points to the importance of local telephone lines and despatch riders to the brigade and the Norwegians. Wireless, aside from materiel and logistics obstacles, was 'eschewed for security reasons in the absence of any ciphers or codes appropriate to battalion use.'[322] The contingent at Åndalsnes faced similar issues: the use of local drivers and supply lines left units short on fuel and 'many of the drivers decamped when enemy bombing became serious,' resulting in the loss of much of the British signal equipment, including the rear link set. RASC Private Alfred 'Annie' Wright recalled that during his time in Norway unloading Allied ships, British combat arms soldiers lost their equipment and reallocated the RASC members' equipment as they were 'working soldiers' not engaged in combat with the Germans.[323] As the increasingly desperate forces relied on Norwegian telephone lines and equipment that suffered both bombing and disrepair, despatch riders became 'a premium,' partially because they could divert 'from their normal tasks to carry liaison officers as pillion passengers.' [324] Furthermore, as Ironside noted when discussing the

[320]Ibid., p. 277.
[321]Ironside, *Time Unguarded*, p. 292.
[322]Nalder, *Royal Corps of Signals*, pp. 277-278.
[323]IWM Sound Archive 26780, 'Oral History of Annie Wright.'
[324]Nalder, *Royal Corps of Signals* p. 278.

evacuations, the presence of the German bombing provided an additional challenge to any retreat:

> the maintenance of large parties under heavy air attack is impossible. Small ones are different…It needs these parties to be mobile with motor bicycles and sidecars perhaps. Just small enough to need no large maintenance.[325]

By the final stage of the campaign, 'the despatch riders were the sole remaining means of communication.'[326]

Thus, the Norwegian campaign served as one of the first theatres of the war as well as the first major failure for the British forces. Concerning communications, however, it served as a proving ground by forcing the Army to adapt in-theatre with limited options, exposing soldiers to extreme conditions and forcing them to facilitate solutions to their immediate challenges. Though their wireless, telegraph, and telephone lines of communication failed, the signals units maintained communications by switching to despatch riders. The multi-use aspect of the despatch rider proved additionally important as they could carry passengers as well as messages. Smalley's argument, in addition to the broad judgement of John Kiszely, that the communications framework in Norway proved a total disaster is misleading.[327] While the campaign was clearly not a success, the Army's ability to find a method that could work with the terrain, security, and enemy bombing showed impetus in adapting to what was becoming an increasingly distinctive war. As will be shown, rapid mobility characterised the remaining portion of the opening stage of the war; Norway served as the first experience of rapidly mobile retreat whilst under fire from overwhelming German air superiority. The lessons of adaptability and need to change tactics on the front lines permeated the informal learning network of

[325]Ironside, *Time Unguarded*, p. 288.
[326]Nalder, *Royal Corps of Signals*, p. 278.
[327]Smalley, *British Expeditionary Force*; Kiszely, *Anatomy of a Campaign*; David French also refers to Norway as a disaster, David French, 'British Military Strategy,' in *The Cambridge History of the Second World War* edited by John Ferris (Cambridge, 2015), pp. 28-50.

signals; as will be shown, it influenced the approach to pragmatism for the duration of the war.

Operation Dynamo – Retreat to Dunkirk

During 10-12 May 1940, after its successful expansion into Poland and thrust through Norway and Denmark, Germany invaded the Netherlands, Belgium, and northern France, ending the so-called 'Phoney War' with the BEF when German General Paul Ludwig von Kleist's advanced through the Ardennes, bypassing the French Maginot Line, the ostensibly impervious defence system constructed along the French border with Germany. Armed with Germany's armoured motorised divisions, its well-studied Panzer divisions, the ensuing *blitzkrieg* through to France created a paradigm shift in the western European theatre of the war and began the phase of the war that ended with Operation Dynamo, the evacuation of British and French soldiers from the northern French beaches across the English Channel, most notably from Dunkirk. A defining moment of the conflict and the memory and perception of the war, the German breakthrough converted the steady, relatively uneventful theatre of war into a major and expeditious retreat that altered the course and pace of the conflict, resulting in changes of theatres as well as tactics. For Royal Signals in particular, the experiences of the ensuing melees and sudden change to rapid movement after a long period of stagnancy, or as Smalley has charged, complacency, fed into the Army's organisational knowledge that would eventually influence major strategy change in 1942. This period, as will be discussed, formed the basis of the 1940 Bartholomew Report, the fourth lessons-learned committee considered by this study.

Prior to the German campaign into French territory, the BEF Order of Battle on 27 April 1940 listed its strength as 394,165.[328] It had grown during the eight months spent on the Continent; yet, as it would soon discover, it did not possess the ability to respond sufficiently

[328] 'British Expeditionary Force [BEF]: strengths and wastage,' TNA WO 365/91.

to the forceful German offensives. Signallers and despatch riders had regularly arrived in France via both the Southampton to Cherbourg and Dover to Calais routes, indicating a continued demand for communications as the BEF spread out among the growing Allied forces in France.[329] At this point, the communications framework remained *status quo*; that is, it resembled the same structure established in September 1939 when the BEF initially convened in France. The first order for all signal units, Colonel John Collins recalled, remained laying 'a tremendous lot of telephone lines,' linking rear corps to armies and allowing for teleprinters.[330] Despite the routine nature of the signal units, the links between communications companies routinely went down, creating difficulties in maintaining constant contact; this included despatch riders, who, for example, had to be sent to assist broken down despatch riders between signal corps.[331]

With continued reliance on lined communication and wireless when possible, the communications structure largely resembled a static military configuration by May 1940. Despatch riders, though utilised alongside other methods, became the core of the Despatch Rider Letter Service, responsible for delivery of important documents, messages, and essentially 'a regular surface mail so to speak, running around between all the formations in the corps.'[332] When the brutal winter of 1939-1940 affected the roads, covering them with 'a film of ice,' despatch riders converted to two-man teams in Austin 8 cars 'because if they slid off the road there were two of them there and they could probably push it back on again.'[333] It is unsurprising, therefore, that the movement of wireless trucks and materials on the existing

[329]See, for example, IWM SA 17360, 'Oral History of Gladstone Keate,' IWM SA 06461, 'Interview with John Jerome Collins,' IWM SA 21550, 'Oral History of Fred Johnston,' IWM SA 344914, 'Oral History of Alex (Jim) Russon,' and IWM SA 27440, 'Interview with Douglas Wheeler.'
[330]IWM SA 06491 Collins; I Corps Signals (Sigs) War Diaries, TNA WO 167/133; Headquarters Lines of Communication: 1 Signals War Diaries, TNA WO 167/63.
[331]TNA WO 167/133.
[332]IWM SA 06491 Collins.
[333]Ibid.

roads during this period proved difficult, which when combined with the concern over wireless security, lowered the likelihood of deploying widespread mobile wireless stations.

At the time of the German breakthrough on 10 May, then, the communications infrastructure had proven adequate for the BEF's experience thus far by maintaining the lines of communication with few incidents. The BEF had established sufficient lines and wireless stations and utilised the local networks to their maximum potential. Royal Signals survived the harsh winter conditions by making lower level, tactical changes in its mission and equipment, such as issuing cars and two-person teams instead of relying on solo motorcyclists. Another local solution to a frontline problem was the introduction of uniform modifications such as the leather jerkin in response to the inadequacies of the issued tunics. Furthermore, it responded to the continued growth of the BEF by growing as a subordinate part of the force, utilising the breadth of the methods that it could sustain, including both lined and wireless telegraphy and telephony, teleprinters, and despatch riders.[334] Smalley charges that the BEF 'lacked the ability or desire to rigorously test communications during the Phoney Way, preventing the force ever moving beyond peacetime functionality' and 'was still fundamentally the same as that which they had employed in 1918.'[335] While the former claim can be explained by the remit of Royal Signals: to provide communications to the force within which it is assigned – it is also notable that Royal Signals adapted its various methods to the challenge at hand. Though it did not introduce widespread and deepening reliance on wireless, which Smalley argues would have helped save the BEF from its ultimate defeat in 1940, it did utilise latitude in local solutions to the challenges to communications in France and Belgium during this period. Furthermore, by charging that the communications system remained fundamentally the same as it had been in

[334]Ibid.; IWM Photograph HU 93312; See, for example, IWM Object UNI 13203 and IWM Object 12044; Nalder notes that pigeons had not been used since the end of the First World War but were reconsidered after Dunkirk. Nalder, *History of British Army Signals*, p. 39; for background on pigeons as messengers, see Gervase Phillips, 'Pigeons in the Trenches: animals, communications technologies and the British Expeditionary Force, 1914-1918,' *British Journal for Military History* 4:3 (July 2018), pp. 60-80.
[335]Smalley, *British Expeditionary Force*, pp. 95-97.

1918 and failing to recognise that the less sophisticated methods of communication served a purpose, Smalley constructs the image of a communications network that assumes predetermined failure.

Chaos was the immediate aftermath of the German breakthrough in France and Belgium. The speed with which the German forces swept across the borders left little time for responsive plans to be drawn up and executed by the Allies. Nalder, the CO of 1st Div Sigs at the time, noted that the

> unaccustomed loads… caused intolerable delays for which there was no immediate remedy, except to relieve the congestion by sending out special despatch riders. As the signal despatch service was already overloaded this course did not bring much respite to the situation.[336]

Thus, the change in direction and end of stagnation affected all aspects of the armies, and communications were not immune. Recalling his experience of May-June 1940, Gladstone Keate noted that he encountered many German despatch riders who always had sidecars with machine guns in contrast to the DRs of the BEF being armed with either a revolver or a rifle.[337]

In addition, Keate discussed the wariness towards the French civilians and incoming German soldiers, as well as his lingering emotions of this period:

> I was a despatch rider; I was always alone. Always alone. Apart from when I rode back to HQ, see. I was always keeping in touch with different parts of the regiment…being alone, you're not strong by any means in any way. The best thing is to make yourself invisible. That's the only thing I thought about. Wherever I went, I kept my eyes open for the German despatch riders. I saw one or two of course but they didn't see me. If they did, they didn't let me know.[338]

For this period of the war, one of the underreported aspects of many soldiers' experiences, particularly those in solitary occupations such as despatch riders, remained a profound loneliness juxtaposed against the chaotic environment of *blitzkrieg*. Jonathan Fennell's study of combat and morale indicates that morale

[336]Personal Papers of Reginald Francis Heaton Nalder, IWM Documents.2393; Nalder, *The History of British Army Signals in the Second World War*, p. 33.
[337]IWM SA 17360 Keate.
[338]Ibid.

> can be defined as the willingness of an individual or group to prepare for and engage in an action required by an authority or institution; this willingness may be engendered by a positive desire for action and/or by the discipline to accept orders to take such action. The degree of morale of an individual or army relates to the extent of their desire or discipline to act, or their determination to see an action through.[339]

The morale of despatch rider units, then, tended to be localised, relying on a small scale of interpersonal camaraderie than necessarily mirroring the morale of the larger unit to which they were attached. Later chapters further examine the links between despatch riders' emotions and learning experiences by drawing on oral histories. When examining this part of the despatch rider experience, this study uses the time in between the event and the recording of oral histories as an advantage, allowing for the processing of emotions and integration with the lived experience. In the process, this study has found that recalled emotions and feelings tend to be specific, linked to specific events and experiences, and used to understand both the individual experience in war as well as the individual's role in the wider conflict.

The individual nature of the despatch rider also allowed for uncommon movement during this period – both in regard to independent travel and unorthodox orders from signals commanders. Collins, for example, returned from leave on 11 May 1940 only to be ordered to find his own way to his unit from Lille, France. After making repairs on discarded vehicles, he and several others made their way to Brussels over five to six days to rejoin the unit, only to be ordered back:

> I was given a special instruction with my DRs to go back to the original headquarters near Carvin. Uh, I can't remember what the exact orders were, but I do remember that blowing up civilian exchanges was one of them…normally I would not have been carrying any explosives and I must have been issued some…I got a feeling the explosives were issued with a man who was [experienced with explosives]. Because I wasn't particularly. I later became more experienced with them but at that stage I don't think I would have been very good at it.[340]

[339]Jonathan Fennell, *Combat and Morale in the North African Campaign: The Eighth Army and the Path to El Alamein* (Cambridge, 2011), p. 9.
[340]IWM SA 06461 Collins.

By 24 May, the Germans had not only succeeded in thrusting through the Ardennes by coordinating their armoured divisions and air force, but they had also reached Boulogne, cutting the Allied armies in two.[341] The 'unexpected strain' of the fast-moving campaign led to a cascade collapse of communications as the Belgian and French telephone systems failed, and the use of wireless silence for security purposes made a significant portion of the radio sets and infrastructure redundant.[342] The 'sharp scythe' of the German attack led to intense fighting in Boulogne and Calais. Prime Minister Winston Churchill informed Parliament on 4 June that 'four days of intense street fighting passed before silence reigned over Calais,' but that the encounter, which resulted in high losses for the BEF, enabled the larger force to reach Dunkirk.[343] Keate took part in similar diversionary action outside St. Valery in order to allow other soldiers to evacuate: 'Some of our boys got away, but I didn't. I got split up.' After joining up with the Seaforth Highlanders 4th Bn, Keate was captured and transported to Stalag VIIIB, where he remained until 1945.[344]

Collins, however, spoke of a different experience than Keate. He and his DRs arrived at the De Panne beachfront on 26-27 May. A main challenge in soldiers and equipment arriving in Dunkirk and the other evacuation beaches proved to be the refugees fleeing Belgium and the imminent arrival of the German Army.[345] Indeed, the westward roads 'became choked with a slowly moving mass of traffic which seemed to grow more dense every hour,' making the roads nothing short of impassable for much of the BEF's equipment, lorries, and heavy vehicles.[346] Fred Johnston recalled the main two challenges of the roads to Dunkirk: dead horses and

[341]Nalder, *Royal Corps of Signals: A History of Its Antecedents and Developments*, p. 280.
[342]Brian Bond, 'The British Field Force in France and Belgium, 1939-40,' in *Time to Kills: The Soldier's Experience of War in the West 1939-1945*, ed. by Paul Addison and Angus Calder (London, 1977), p. 44.
[343]*HC Deb 04 June 1940 vol 361 cc787-98.*
[344]IWM SA 17360 Keate.
[345]IWM SA 06461 Collins; IWM SA 21550 Johnston; Oral History of Charles Henry 'Taffy' Bonner, IWM Sound Archive 20504; Oral History of William Oliver Millard, IWM Sound Archive 20737; Private Papers of Albert Chuter, IWM Documents.16194; Private Papers of Clarence Parker, IWM Document Archive PP/MCR/286.
[346]Roger Evans in *The War on Land: The British Army in World War II*, ed. by Ronald Lewin (New York, 1970), p. 36.

downed carts in the road making them extremely difficult to pass, in addition to the machine gunning from *Messerschmitts*, which caused him to break his rib diving into a trench for protection.[347] RASC DR Corporal Les Barter noted in his diary a similar experience, but notably commented on the refugees as impeding his route:

> The roads were packed, I had to practically force a way through with my front-wheel, then they'd try to hold onto my rear mudguard. Some of them got quite threatening until I was forced to draw my revolver, then they cleared away for me. Whether I would have been forced to use it, not as I would have, unless it became serious, I was never put to the test. We had strict orders that if we were ever molested or interfered with while we were on Despatch duty, to use our arms without any compunction whatsoever.[348]

The significance of the refugees' presence is in what they meant for the logistics of a retreating force: the BEF had to manoeuvre the same roads as the refugee parties, which meant difficulties for vehicles as large as the radio lorries. The encumbrance of heavy equipment coupled with the order for continued wireless silence made the continued retention of wireless equipment difficult to sustain. In addition to the refugees, abandoned equipment obstructed roads, eventually amounting to most of the Allied materiel. Collins noted that in contrast to four-wheeled vehicles, the motorcyclists had relatively little trouble getting through to the beaches. When they arrived, they found that 'the CSO had been made beach embarkation officer and he was trying to run this thing without any communications. There were no signals there, and my little band of DRs was a most useful asset to him.' For Collins, his unit of DRs transformed from message carriers to managing the evacuation by calling up soldiers as they were to be evacuated.[349]

Operation DYNAMO and the 'Dunkirk Miracle' saw the evacuation of 224,585 British and 112,546 French soldiers, including 68,980 BEF casualties, 1,395 from Royal Signals.[350]

[347]IWM SA 21550 Johnston.
[348]Private Papers of L.F. Barter, IWM Document Archive, Documents.8118.
[349]IWM SA 06461 Collins.
[350]TNA, WO 106/1618, 'War Office: Directorate of Military Operations and Military Intelligence: Correspondence and Papers: Evacuation of B.E.F. France; plan "Dynamo,"' 3 May 1941; TNA, WO 222/1532.

Many other members of the BEF, such as Keate and Hustler, became POWs instead of evacuees, often remaining in camps until 1945.[351] This episode in war, therefore, exposed multiple 'basic weaknesses' in the communications structure, particularly inadequate range of wireless sets, 'low standard of training' due to lack of investment during the interwar period, unclear structure of signals security, and inflexibility of wireless and lined systems when faced with rapid movement.[352] These challenges clearly demonstrated that the next phase of the conflict would require transformation from the BEF's approach. No longer could the Army fully rely on its interwar policies and expectations – the paradigm shift in speed, as well as German aggression westward, meant that the pre-war planning had proven insufficient. Nalder, however, recalled that despite the strained resources and heavy signal load, 'stringent manpower limitations' meant that '[i]t was not easy' to determine where the investments should be made after Dunkirk.[353] Summing up his reflection on the performance of Royal Signals, in a passage that combines both his role as historian and his reflections as a Royal Signals CO in the BEF, he further noted that

> The great value of line communications at all levels, whenever they could be provided, had been amply demonstrated, even though the static phase had tended to exaggerate their importance. Experience had shown that there was no possibility of making any savings in this direction: rather the reverse. On the other hand, the more rapid tempo of modern mobile warfare and its more extended duration had clearly indicated that the wireless organization as it stood was quite inadequate to bridge the hiatus when lines could not be guaranteed. …Owing to the brief phase of mobile operations it was most difficult to formulate precisely what was required.[354]

The return of the BEF to Britain before the Army's engagements in the Middle East and North Africa allowed the Army to begin tackling the issues and problems that had arisen in its attempts to maintain communications during the period of September 1939- May 1940 in France and Belgium, as well as the unsuccessful campaign in Norway. Furthermore, the

[351]IWM SA 17360 Keate; Papers of Dennis Hustler, p.2.
[352]Nalder, *The History of British Army Signals in the Second World War*, pp. 32-35.
[353]Ibid.
[354]Ibid, pp. 32-35.

growing threat of the air war with Germany that erupted into the Battle of Britain meant the Home Guard and women's services also contributed to the development of communications systems and practices during the war. The remaining sections of this chapter explore developments that occurred simultaneously with the Army's experiences in Europe and some of the effects of 1939-1940 on the forces that remained in Britain, non-combat related innovation, and a case study of the effects of the war on the women's services. Though this thesis focuses mainly on the case study of the Royal Signals despatch riders in active combat, looking at the related, but separate case studies of British-based DRs and the women's services demonstrates parallel changes in socio-economic changes in recruitment in addition to changes in accepted roles for women. For example, many of the manpower needs of the Regular Army helped drive the need for female DRs to take over much of the despatch riding within Britain, especially London.

Britain-based Army and Women's Services – 1940-1941

The Army's experience of war from 1940 to 1941 was largely characterised by two theatres, which will be discussed in turn: the British-based armies in this chapter and the North African and Middle Eastern theatre that opened in June 1940 in the following chapter. The phase of war in which the majority of the British forces remained in-country offered several opportunities to develop new approaches, as well as continue to replenish numbers from the estimated 68,980 casualties of the Dunkirk evacuation, roughly 46,312, or two-thirds, of these deemed missing.[355] While the Royal Air Force and Royal Navy engaged in the Battle of Britain, the Army attempted to recover from its disastrous experience on the Continent while also contending with the new front in North Africa and the Middle East. In addition to adapting its operations, tactics, and training, it encouraged civilian expertise and ongoing research and experimentation from which it could benefit. This spilled over into the women's services

[355]TNA, WO 222/1532.

during this period, highlighting more extensive civil-military cooperation than had previously been seen, partially due to the realisation after the BEF's retreat that the war would be both lengthy and hard-fought.

British-based Army

After its return to Britain, the BEF did not immediately transfer to new training grounds, reequip, or redeploy to a new theatre. By 18 June 1940, Anthony Eden, Secretary of State for War, faced questions in Parliament concerning the return of the BEF and the issuance of both leave and vouchers to travel. Alexander Sloan, MP for South Ayrshire, began the questioning by asking whether Eden

> is aware that men of the British Expeditionary Force who arrived in England from Dunkirk were not supplied with railway vouchers to visit their homes; that many of them had to walk and to borrow money and beg food on the way; that parents had to sacrifice by sending some of their fares, while thousands of them have been unable to visit their homes.[356]

Thus, the arrival of the BEF back on British shores did not equate to a transformed or even efficient military unit; additionally, the soldiers came from various units, many of which had become severely undermanned during the retreat and evacuation, and found themselves in southeast Britain, quite far from their regimental homes. The disorder and uneven distribution of returned soldiers led to transfers to new companies, battalions, and corps. After its casualties from the evacuation, the BEF amounted to approximately 275,000 Field Army Troops. This number meant that when compared with the Field Army Troops still based in Britain, which numbered 320,000, soldiers who had not yet left Britain outnumbered those with battlefield experience.[357] This mirrored what would happen in 1944, discussed in chapter four.

[356]HC Deb 18 June 1940 vol 362 cc13-5.
[357]'Man-Power in the Army,' 18 June 1940, TNA, CAB 66/8/40; for detailed analysis of British training and 'Full Sail' exercises during this period, see Timothy Harrison Place, *Military Training in the British Army, 1940-1944: From Dunkirk to D-Day* (London, 2000), especially pp. 18-40.

Sloan's questioning of the condition and leave of the post-evacuation BEF coincided with the War Cabinet's report on 'Man-Power in the Army,' also issued 18 June 1940. This report, which outlined the current manpower of the Army as well as the recruitment forecast for the next two months, illuminates the state of the Army as it faced the next phase of the war.[358] Understanding the makeup of the Army as its focus pivoted from its initial conflict in Continental Europe is important to contextualise endeavours such as the maintaining targeted recruitment as well as elucidating how the practicalities of equipment and training affected the Army's ability to fight the developing war. Though not realised at the time, this period marked the beginning of a significant shift in the Army, as well as in the ongoing transformation of warfare, moving closer to the mobile operations that came to define the conflict.

First, however, the Army had to recoup its lost numbers and integrate the approximately 50,000 men conscripted through the National Service Act and estimated 27,000 volunteers enlisted each month. As outlined by Eden, author of the 'Man-Power in the Army' report of 18 June, the Army's estimated strength equated to 1,313,000 men, including Dominion troops.[359] He noted that the ready Field Force Troops, including the 'ex' BEF, equalled 595,000 and

> From the point of view of immediate use it must be realised that apart from the 90,000 about to be called up, Air Defence of Great Britain and coast defence amount to 164,000, while some 150,000 of the grand total have less than two months service. The total figure includes 45,000 R.A.M.C., 45,000 R.A.O.C., and 30,000 R.A.S.C., who are not trained to fight…In order to increase the number of men for Home Defence and to replace casualties it has been arranged that an extra 90,000 men shall be called up in the next fortnight, which with volunteers and those already called up in June will make a total of about 165,000 for the month.[360]

Furthermore, Eden planned for the July expansion to be 180,000, including enough men to create sixty new Home Defence battalions, which in turn, would require 'an exceptional increase in officers,' largely taken from the Officers Emergency Reserve as well as a separate

[358]Ibid.
[359]Ibid., p. 1.
[360]Ibid.

scheme for recruiting from potential university students.[361] The equipment for these additional soldiers, he noted, would come largely from American-supplied rifles, and existing adequate supplies of essential clothing and personal equipment. One major supply issue, aside from noting shortages in tables and cutlery, came in a shortage of respirators as a result of 'damage and losses in the B.E.F.' The final note in the report, which sits as an outlier but holds great consequence is a simple sentence noting that 'A high standard of instruction cannot be expected in the new battalions.'[362] In June 1940, then, the Army had great plans to increase its numbers to overcome the shortage caused by the disastrous campaigns in Europe, but it then clearly stated that proper instruction could not be expected, essentially adapting to its required numbers but not being able to transform its training capabilities to match the great influx it planned. In fact, the training program did not change until the General Service Scheme of July 1942 increased training time from 3-4 months to 22-36 weeks, depending on assigned service.[363] The ramifications of this led to the increased importance of informal learning within the training regimen, as will be discussed throughout this study.

As a result, the Royal Signals practices of recruiting already trained motorcyclists for despatch rider duties came to be a great benefit. As the Army could not train the thousands of new recruits it called up, the targeted recruitment of volunteers with skills became a great advantage and the previously developed efforts, such as the use of hobbyist magazines and demonstrations of the White Helmets Display Team became all the more influential and important in reducing the training burden. As conscripts could indicate a preferred service, the recruiting efforts' reach went further than just volunteers. Herbert Rees, for example, joined the Army during 1941 in response to recruitment efforts still appearing in *Motor Cycle*, where

[361]Ibid.; War Office, 'Army Expansion – Use of Public Schools and Universities,' 24 July 1940, TNA CAB 67/7/48.
[362]Ibid.
[363]Emma Newlands, *Civilians into Soldiers: War, the body and British Army Recruits, 1935-45* (Manchester, 2014), p. 53; David French, *Raising Churchill's Army: The British Army and the War against Germany 1919-1945* (Oxford, 2000), pp. 68, 127. Newlands notes that signallers received the longest training after 1942.

Royal Signals advertised direct enlistment for men who held motorcycle licences. Rees joined the Signal Section of 4th Division along with five others who, as he recalled, only required training in 'soldiering.' Despite Eden's assurances that adequate clothing would be available, Rees noted that by March 1941, he and his fellow new DRs lacked uniforms for two weeks.[364]

In addition to the forecast for necessary soldiers and the growth of the Army to recover from Dunkirk, Eden outlined the development of Home Defence, which along with Air Defence and Coast Defence, numbered 206,600 in June 1940.[365] The role of Home Defence shifted the role of the Army yet again – it again became a tertiary service, with the RAF and Royal Navy engaged in the Battle of Britain and the Blitz, as well as submarine warfare. The preparations for the main role of Home Defence had been laid earlier, as on 30 May 1940 in his memorandum entitled 'Man-Power for Home Defence,' Eden laid out his plan for increasing the strength of Home Defence by bringing the eighteen divisions in Britain up to full strength with infantry, altering the training path where necessary to accelerate training and manpower increases. Additionally, he noted particular difficulties in recruitment for the RASC and RAOC due to 'competition with the needs of industry,' and the unique situation for Royal Signals in that it presented 'certain training difficulties.'[366] That is, restructuring the training pathways and accelerating technical education proved a challenge for the Army.[367] The War Office reiterated this point in July 1940 when it noted that its 'supply of officer material with the necessary technical and educational qualifications for training in the Officer Cadet Training Units of Royal Engineers, Royal Corps of Signals, and, to a certain extent, Royal Artillery, is drying up and the shortage is rapidly becoming acute.'[368] In more basic terms, there simply were not enough officer recruits with technical expertise. The losses at Dunkirk coupled with

[364]IWM Sound Archive 22677, 'IWM Interview of Herbert Geoffrey Rees;' For the physical requirements of training, see Newlands, *Civilians into Soldiers.*
[365]TNA, CAB 66/8/40.
[366]'Man-Power for Home Defence,' 30 May 1940, TNA, CAB 66/8/12.
[367]Ibid.
[368]CAB 67/7/48.

civil industry demands and reserved occupations meant that too few skilled officer recruits existed. Reserved occupation status of engineers, telegraphists, telephonists, linesmen, wireless operators, and wireless engineers and mechanics made recruitment to communications positions increasingly difficult.[369]

While Eden outlined and adapted the Home Defence strength, the Army and War Office convened a committee with following terms of reference:

1.) To consider lessons of the recent operations in Flanders which can be applied usefully to our present organization and training.
2.) To suggest the modifications in our organization, training and equipment which should be made to meet the problem with which the British Army will be faced in the event of an attempted enemy invasion of this country.[370]

Chaired by General Sir William H. Bartholomew and including Major-General C. C. Malden, the Director of Military Training, this committee conducted interviews and gathered evidence from officers present during the Dunkirk retreat, including Major-General R. Chenevix Trench, Lieutenant-Colonel David Stirling, Major-General Bernard Montgomery, Major-General N.M.S. Irwin, Brigadier D.G. Watson, and Brigadier W.C. Holden. The report opened with not only its remit to consider lessons learned, but also the importance of the report's basis on an operation that consisted

> almost entirely of a series of withdrawals which the B.E.F. was compelled to undertake to conform to the movements of Allied forces on our flanks. In spite of the enemy's superiority in materials, on no occasion were we forced to relinquish the main position by a frontal attack against the B.E.F. and, without question, the British solider is at least as good as the German.[371]

After considering its evidence, the committee argued that 'given a reasonable fighting chance the British Army may fight with confidence of success.'[372] This positive view of the Army's potential capability demonstrated significant self-reflection on the experiences of France in

[369]Ernest Brown, *Schedule of Reserved Occupations (Provisional)* (London, 1939).
[370]'Bartholomew Committee: Lessons of Flanders Operations 1940 FINAL REPORT,' TNA WO 106/1775. The Bartholomew Committee Report pagination is inconsistent due to drafts, notes, and additional material.
[371]Ibid
[372]Ibid.

1940, and the swift convening of committee, which met for the first time on 19 June 1940, showed responsiveness to its challenges. In an interim report, Bartholomew noted specifically that

> we are not here to upset the whole organisation of the army, but to go as far as we can having regard to the weapons available and the time factor, and possibly dividing our report into two or three parts, what we can do at once, what we can do a little later and what we can do a long time later…[373]

Though the Bartholomew report will be discussed in more detail in the next chapter, the importance of the immediate reflection on the Army's performance and how best to implement this knowledge demonstrates a keen desire to adapt to the developing conflict. In the conclusion of the report, the committee articulated that the recommendations 'amount in general to a readjustment of the present organization as a result of practical experience in the field.'[374]

Thus, the two main challenges that emerged from the Army's immediate post-Dunkirk experience were (1) resupplying equipment and men and (2) repositioning its focus to a new role and trajectory. Both of these tasks, it became clear, had to be carried out in the shadows of the RAF and Royal Navy as they responded to the challenges of the Luftwaffe and Battle of the Atlantic. The relative simplicity of the Army's role in this context, to defend the islands from a possible land invasion, overshadowed the development that occurred during this period, stemming in part from the proximity of the Army to civilian population and industry. As Eden noted, some of the technical corps within the Army competed with industry for technical specialists while industry continued to cater to the demand created by the armed forces. With a large portion of the Army contained within Britain during this period, many civil-military developments occurred that had great effects on the war at both higher and lower levels of learning and knowledge transfer.

[373]Ibid.
[374]Ibid.

These varied developments emerged as civil-military research such as the development of the motorcycle helmet and infrared goggles. On their own, neither of these innovations confers an obvious and direct advantage in war; however, the implementation of both dramatically affected the individual soldiers assigned the equipment and their ability to perform their roles more safely. The helmet, for example, developed from research inspired in the mid-1930s and emerged as a tangible example of wartime technology transferring directly to the Army's soldiers. As will be shown, this demonstrates a small innovation, a seemingly simple helmet, transferring into a major change by the Army's forward-thinking requirement of motorcycle helmets from 1941 onwards.

At the beginning of the war, required equipment for despatch riders remained similar to the leisure wear used by casual motorcyclists – namely boots, long coats, and goggles. As Featherstone discussed, the development of a standardised crash helmet required additional equipment, which proved no small feat given Eden's concern for items such as respirators. However, the introduction of helmets reduced mortality rates of despatch riders and motorcyclists. Though not published until 1943 after analysis of 106 motorcycling accidents mostly admitted to 'a Military Hospital for Head Injuries,' research on methods of reducing the high casualty rate of wartime motorcyclists began immediately in 1939 and lasted throughout this Home Defence phase of the war.[375]

A fatal motorcycle accident in the centre of Alexandria, Egypt, in February 1936 had demonstrated the extent of cranial damage suffered by despatch riders: a Royal Marines despatch rider suffered his 'right mastoid bone having been completely smashed and the ear almost torn off.'[376] Prior to the coroner's inquest of this accident, noted neurosurgeon Sir Hugh Cairns had attended to the fatal crash of T.E. Lawrence in 1935. Cairns later became the first

[375]Hugh Cairns, 'Head Injuries in Motor-Cyclists: The Importance of the Crash Helmet,' *British Medical Journal* (Oct. 1941).
[376]'Alexandria: Consular Court Cases; Inquest on the body of Despatch Rider Walter Sibley,' TNA, FO 847/137.

consultant neurosurgeon for the Army and established the Combined Services Hospital for Head Injuries at the beginning of the war. Here, he researched head injuries of despatch riders and sought a solution to the injuries sustained by motorcyclists during wartime. His work studying of despatch rider injury reports and the patients themselves led the Army to make crash helmets compulsory in 1941, and its responsiveness in deploying over 100,000 helmets by the end of the year decreased the mortality rate for motorcyclists, the bulk of whom were despatch riders, by nearly fifty percent.[377]

The design and construction of the helmets, however, remained inconsistent as Cairns further researched the differences in effectiveness between those of vulcanised rubber and wood pulp. The Ministry of Supply ordered 6,000 rubber and leather helmets from Jabez Cliff & Co. Leatherworks in Walsall in November 1942 only for Cairns to recommend wood pulp helmets in 1943 as they had proven more 'effective in diminishing local damage to the brain and its coverings at the site of impact, and it tends to lower the incidence of cases of prolonged amnesia.'[378] Cairns and his team's research in this area was not isolated: the Department of Scientific and Industrial Research tested the penetration of 'a lead ball of ½-in. diameter striking at 275 ft./sec' in an effort to adopt a helmet that could withstand projectiles such as shrapnel and bullets.[379] Following the Army's example, the RAF required helmets from 1942, and, thirty-two years later the research translated directly into civilian motoring, when the Government made crash helmets compulsory for civil motorcyclists. [380]

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[377]Cairns, 'Head Injuries in Motor-Cyclists,' p. 465; Hugh Cairns, 'Crash Helmets,' British Medical Journal (Sep 1946), p. 322

[378]Cairns, 'Head Injuries in Motor-Cyclists,' p. 465; Cairns, 'Crash Helmets,' p. 322; 'Equipment and Stores: Crash helmets for despatch riders,' TNA HO 186/2014; Hugh Cairns and H. Holbourn, 'Head Injuries in Motor-cyclists with Special Reference to Crash Helmets,' *British Medical Journal* (May 1943), p. 598.

[379]'Penetration Tests on a Leather Protective Helmet and Three Despatch Riders' Emergency Crash Helmets,' TNA DSIR 27/28.

[380]Cairns, 'Crash Helmets,' p. 322; Shahsivadhanan Sundaravadhanan, 'Sir Hugh Cairns: The Neurosurgeon who Introduced Crash Helmets,' *Journal of Neuroscience in Rural Practice* (2017), p. 647; Christine E. Kasper, 'Traumatic Brain Injury Research in Military Populations,' in *Annual Review of Nursing Research Vol. 33 (2015)*, ed. By Christine E. Kasper (New York, 2015), p. 17; *HC Deb (05 April 1973), vol 854, cols 745-7*5. For the relationship between science, technology, and war, see David Edgerton, 'Rethinking the Relations of Science, Technology, Industry and War,' in *Warfare State: Britain, 1920-1970* (Cambridge, 2006), pp. 305-338.

Thus, not all innovations that affected communications stemmed directly from technical methods of communication. Another peripheral innovation, infrared goggles, developed from Army motorcyclists' participation in trials. After demonstrating an improvised trailer for General Frederick Browning, Colonel David Stirling, and Prime Minister Winston Churchill, DR Arthur Foreman also engaged in testing for infrared goggles to enable soldiers to see at night, which would prove especially useful during blackouts. Foreman recalled the testing involved driving a jeep through woods in Farnborough at night with the headlights off and a civilian 'boffin, I suppose,' as his passenger. The goggles allowed him to 'see enough to drive with,' and he returned several weeks later for additional experiments such as walking through the woods and avoiding infantry stationed in dugouts. After these tests, Foreman recalled, infrared 'nightglasses' went into circulation, increasing the safety and possibility of night travel, as well as the ability to conduct manoeuvres during blackouts.[381] Thus, not only did motorcyclists and despatch riders benefit from civilian-military research and informal peer learning, but they, in many cases, participated in research and equipment trials during this period. This contributed to a cultural approach with despatch riders' ranks to trial new ideas and adapt equipment as needed, a trait that, as this study demonstrates, characterised these soldiers throughout the war.

Women's Services

This chapter has thus far addressed civil impact on military institutions; however, the civil-military relationship and its spheres of influence overlapped significantly with knowledge and change flowing both ways. These changes manifested in such developments as the Norton Motorcycle Company adopting assembly lines throughout its factories in order to keep up with the War Office's orders, as well as ongoing competition between industry and the Army for

[381] 'Oral History of Arthur Walter Frederick Foreman,' IWM Sound Archive 19923.

skilled technicians. A highly visible paradigm shift and case study in military influence on civil institutions became evident in the women's services, including the Auxiliary Territorial Service (ATS) of the Army, the Women's Royal Naval Service (WRNS), and the Women's Royal Air Force (WAAF). Though these services impacted the entirety of the war and beyond, this section addresses the significant shift that occurred as a direct result of the first phase of the war.

Writing in 1942, Deputy Prime Minister Clement Attlee noted how far the women's services had developed from the 'citadel of Victorian convention' and built upon the 'significant measure of changes both in status and public opinion' spurred firstly by the 1914-1918 war and secondly by women's contributions to the current conflict.[382] Women's wartime work and its challenges to 1930s and 1940s societal norms have been well documented; however, many of the factors that caused these challenges have been less explored.[383] The Army's wartime experience significantly influenced the women's services through direct means such as the establishment of despatch riding routes to maintain War Office communications to indirect influences that included adjustment of acceptable shifts and clothing for uniformed women.

Founded in September 1938, May 1939, and July 1939, respectively, the ATS, WRNS, and WAAF held a strictly civilian status, and the tasks and roles within them began as non-operational support duties – mostly 'clerks, cooks, storewomen, drivers and orderlies, all of which, except perhaps drivers, fit[ted] easily within the accepted definition of a female sphere of activity.'[384] As the war progressed, however, necessity led to a diversification of positions of the women in service, especially after inclusion in the armed forces. Previously under the

[382]Clement Attlee, 'Report of the Committee on Amenities and Welfare Conditions,' August 1942, TNA CAB 66/27/41.
[383]See, for example, Violet A. Kochendoerfer, *One Woman's World War II* (Lexington, KY, 1994); Lucy Noakes, *Women in the British Army: War and the Gentle Sex, 1907-1948* (London, 2006); Eileen Bigland, *The Story of the W.R.N.S.* (London, 1946); M.H. Fletcher, *The WRNS: A History of the Women's Royal Naval Service* (Annapolis, MD, 1989); Shelford Bidwell, *The Women's Royal Army Corps* (London, 1977); Roy Terry, *Women in Khaki: The Story of the British Woman Soldier* (London, 1988).
[384]Noakes, *Women in the British Army*, p. 107. Noakes clarifies that 'orderlies' in this context refers to a cleaning or maid role.

auspices of the GPO and civil transport companies, duties such as postal workers, telephone orderlies, drivers, despatch riders, and similar logistical roles expanded to the remit of women. By 1940, the ATS, for example, had mirrored Royal Signals recruitment efforts by featuring a young woman on its posters with the message 'The motor cyclist messenger, roaring across country from Headquarters to scattered units is now an ATS girl.'[385] WRNS DR Pamela Pope recalled similar recruitment methods: as an experienced motorcyclist, she entered the WRNS as a despatch rider after hearing direct recruitment messages and wanting to make use of her skills.[386] The use of this style of recruitment becomes increasingly significant when contextualised with the difficulties the ATS in particular had with increasing the numbers of its volunteers: Lucy Noakes notes that the ATS intake between September 1939 and December 1940 amounted to 31,690 members with an outflow of 13,212, which translates to forty percent of the organisation leaving on their own accord, in part due to the civilian status of the ATS.[387]

Though established prior to the war, the women's services retained a 'camp follower' status until the Defence (Women's Forces) Regulations Act of 1941 recognised the organisations as units of the armed forces, a change that allowed for the passage of the National Service Act of 1941.[388] As Penny Summerfield and Corinna Peniston-Bird noted 'the Second World War was one of the most contradictory periods in British history for the boundary between male and female roles. Wartime pressures led to the questioning of taken-for-granted gender distinctions.'[389] The 1941 National Service (No. 2) Act further complicated gender roles by extending conscription to women, particularly unmarried and childless women thus further integrating the women's services into the infrastructure of the military while simultaneously maintaining a strict division between the men's and women's services.

[385]'ATS Carry the Messages, 1940' National Army Museum 1993-11-1-123.
[386]IWM Sound Archive 17327, 'Oral History of Pamela Mary Pope.'
[387]Noakes, *Women in the British Army*, p. 106.
[388]HL Deb 16 December 1941 vol 121 cc286-304; CAB 66/27/41; HL Deb 26 February 1948 vol 154 cc174-99.
[389]Penny Summerfield and Corinna Peniston-Bird, 'Women in the firing line: the home guard and the defence of gender boundaries in Britain in the second world war,' *Women's History Review* 9:2 (2000), p. 232.

This complex interrelationship did not just exist in the formal administration and governance of the services. The roles of the ATS, WAAF, and WRNS servicewomen increasingly mirrored many of the roles of the Army and expanded after their 1941 militarisation. The 'permissible' roles no longer limited servicewomen to 'feminine work' but allowed for expansion into a critical area: anti-aircraft batteries, which freed male soldiers to undertake other tasks.[390] The same held true for domestic communication with ATC and WRNS despatch riders increasingly taking over DR duties in Britain. This transference of remits also coincided with the Army's increasing presence in North Africa, allowing for increased deployment of male despatch riders now that the British-based communications had women filling those roles.

Despite the increasing presence of female despatch riders in Britain from 1940 to 1941, Pope later recalled that 'We were sometimes mistaken for men because we were doing a man's job really…We did look like men.'[391] She continued this comparison in her memoir:

> We were often mistaken for men, dressed in our riding gear. We wore boots and gaiters, breeches, service jacket and mackintosh; and in the cold weather a thick leather jerkin and as many jerseys as we could. Another trick was to put newspapers down our fronts – against the freezing wind.[392]

Fellow WRNS DR M. Winter also commented on the clothing required for despatch rider duties:

> Besides the uniform coat and skirt, white shirts, etc., we had also been kitted out with navy blue shirts, polo-necked jersey, riding jacket, long woollen scarf, breeches, boots, gaiters, and leather gauntlet gloves. For wet weather –thick knee-length woollen socks, wellingtons, sturdy khaki waterproof, to pull on over breeches, and a similar khaki waterproof, with large pockets and a belt, to wear over our riding jackets… During training we had worn our peaked caps, and we continued to do so for a short time, now with 'C-in-C' on the band, until crash helmets were made compulsory when riding.[393]

[390]Noakes, *Women in the British Army*, pp. 115-120.
[391]IWM SA 17327 Pope.
[392]Pam Pope, *W.R.N.S. Despatch Riders at Fort Southwick During the War*, IWM Document Archive LBY K.97/508.
[393]Private Papers of M. Winter, IWM Document Archive Documents.1155.

The attire of despatch riders (Figures 16 and 17) separated the women's services from the regular uniform. In addition to being visibly distinct, despatch riders enjoyed a wide range of autonomy to carry out their role, similar to their male counterparts.

Figure 16: ATS Motorcycle Despatch Rider in Northern Ireland, 26 September 1941. IWM PA H14291.

Figure 17: An ATS FANY Motorcycle Messenger sits on her motorbike as she receives her instructions from a FANY Corporal at the ATS MTC training centre, Camberley. IWM PA D5721

Furthermore, Pope, like Winter, commented on the introduction of crash helmets, which coincides with the aforementioned military-wide introduction of helmets after 1941, demonstrating the increasingly complementary nature of traditional military and women's

services regulations.[394] Male despatch riders, for example, had begun uniform customisation as soon as war began, adding such elements as leather jerkins, and maintained a degree of distinctiveness from other units by the unique requirements for their role.

Aside from uniforms and clothing for the women's services becoming increasingly like those of their male counterparts, the structure of shifts and necessities of roles such as that of mounted messenger moved the women's services into new territory. The confluence of circumstances such as limited Army despatch riders, blackout requirements, the effects of the Blitz, and the need for secrecy between governmental departments meant that the role of despatch rider that emerged for the women's services to fill did not fit in the acceptable hours and supervision for young women working. Only when it became untenable to spare men from the Army did women begin covering the nightshift, as Winter indicated happened to her team of ten despatch riders in Portsmouth.[395] Pope also recalled the change in shifts but held that the use of the female despatch riders at night and in blackouts simply made sense – she further argued that she never felt apprehensive at night on her own. When prompted about whether the female despatch riders were armed, she responded, 'No! Armed against whom? I mean this was England!'[396] Despite the rhetoric of propaganda touting spies and invasions, the despatch riders of the women's services, on the whole, felt safe conducting their business during blackouts, isolated and in the dark. Pope's acceptance of women working alone during the night corresponded with the overall shift within the women's services to their new military status, as well as their democratisation from the earlier core of 'titled women' who had originally organised women's wartime efforts.[397]

Instead, like the previously discussed socio-economic shift in their male counterparts, female despatch riders increasingly came from diversified backgrounds, bringing a mix of

[394] IWM SA 17327.
[395]IWM DA Documents.1155.
[396]IWM SA 17327 Pope.
[397]Noakes, *Women in the British Army,* p. 106.

skills and approaches to training. As this case study has shown, the shift to using technical skills developed in civilian industry and recreation was broader than the recruitment to Royal Signals. Along with the willingness to adapt the women's services to the needed roles, the wider context of the British military succeeded in effecting change as the war progressed, responding to challenges and incorporating the lessons it learned along the way.

Conclusion

By mid-June 1940, the British Army entered its next phase of the war. The Army diverged into two very different experiences: the British-based force discussed in this chapter, and the increasingly North Africa and Middle East-based force discussed in the next chapter. This divergence foreshadowed additional challenges that emerged in 1944 and will be addressed in chapter four. The split of British-based forces and those deployed to active theatres characterised the Army from this point forward. The experience of this period reflects the immediate response to the rapidity of defeat in France and the need to reconfigure the Army, reconstruct its personnel levels, and gear itself for the next phase of war. The unresolved issue of the role of the Army in context of the other services, however, continued to characterise this period of rebuilding in Britain.

The War Office and the Government had debated the role of the Army throughout the rearmament period and into the opening stages of the war. This debate, over whether the Army was to be a small, professional force that policed the empire and isolated itself from Continental issues or become a large European-based force not seen since the First World War climaxed once the BEF deployed to France in September 1939. The slow trajectory of the war's beginnings prevented these questions from being definitively answered, and after the successive defeats in Norway and France, the Army faced further questions and accountability concerning its role. As it addressed its experience, however, it built on the lessons of the war

so far and began developing more extensive links with civil industry to take further advantage of innovations that had emerged since the war's outbreak.

This proved particularly true in communications, where innovations such as crash helmets and infrared goggles, coupled with the development of women's services to conduct domestic communication routes, allowed focus on the developing theatre in North Africa and eventually the planning for the re-invasion of Europe. The chaos of the post-Dunkirk Army, however, left the Army with a somewhat disjointed organisation, one that developed unevenly in both manpower, experience, and equipment. One of the focal points of its response to the European campaigns of 1939-1940 was the Bartholomew Committee's Report of 1940. This report, discussed in detail in the next chapter, demonstrated the Army's efforts in quick, informed responses to its challenges. As will be shown, the concurrent theatre change diminished the impact of this important lessons-learned benchmark. As with subsequent strategy analyses, the periodic theatre changes, alongside their unique challenges, continued to characterise the Royal Signals wartime experience. Furthermore, as shown throughout this study, the learning process of despatch riders, in its infancy in during the current chapter, matured to reflect the broader process of learning throughout both communications and the wider combat support arms.

CHAPTER THREE:
Bartholomew Report of 1940 to the Godwin-Austen Report of 1942

Introduction

The next major phase of conflict considered by this study shifted to the North African theatre. From June 1940, British forces engaged the Axis powers in the deserts of the Mediterranean littoral, creating a new form of warfare that characterised the period of 1940-1943. This new desert warfare dominated the theatre, necessitating adapting to conditions the British Army had never before encountered. Its success in responding to the environment eventually allowed the Army to overcome firstly the Italian and then the German forces, claiming victory in North Africa. This success, however, did not occur before substantial change had taken place as a result of innovations and the learning processes of the war. The desert forced innovations as complex and varied as changes to individuals' water rations, introduction of new navigation equipment, and the development of modern covert warfare. For communications, this phase of the war saw immense adaptation to the environment, culminating in the substantive strategy change of the Godwin-Austen Report of 1942.

June 1940 saw two major events for the British Army: the evacuation of the BEF at Dunkirk and the first encounters with Italian forces in the Libyan desert. The concurrent, simultaneous action resulted in a disconnect between the Army's response to Dunkirk and its ability to implement change in North Africa. Edward Smalley has argued that the BEF caused its own failure in Europe during 1939-1940, but his argument also considers the BEF in isolation rather than in context with the emerging North African theatre. The word 'failure' is often used to characterise the British Army to this point in the war, noting both its poor performance and retreat in Europe. When considered in the broader picture of responsiveness and adaptability, this study shows that the British Army did attempt to respond to the challenges it faced and conflict at hand. However, the Army found itself with a very difficult task: the challenges emerging in the increasingly varied theatres included terrain, climate, roads,

medical challenges, and the size of the theatre itself. Evaluating the Army's response solely through strategy changes oversimplifies the developing process of adaptation and learning during this period. One strength of the British Army was its capability to undertake proactive informal, ad hoc adaptations to overcome challenges as they arose. From the retreat from Europe through to success in North Africa, a distinct dualism emerged in the British Army, especially in communications: strategy changed in response to the war, but the war routinely outpaced doctrinal change. The primary example of this relationship during this phase of the war was the Bartholomew Report of September 1940.

This chapter examines the war from June 1940, which saw both the beginning of the campaigns in North Africa and the convening of the Bartholomew Committee, to 1943, which marked the end of the campaign in North Africa and the implementation of the Godwin-Austen Report, continuing this thesis's periodisation of the war predicated upon the publication of lessons-learned reports that influenced the communications structures and efforts. Both the Bartholomew and Godwin-Austen Reports demonstrate the Army's reactive strategy, but both reports also reveal the growing dualism between strategy and practice in frontline warfighting, particularly in combat support arms such as communications. As will be discussed, the ongoing germination point of this dualism proved to be the changing theatres of the Second World War: by the time the Army had sufficient information and knowledge to release an effective response, the conflict moved to a different environment, leaving the recent report less effective, or, in some cases, completely irrelevant. In the meantime, as will be shown, the ground forces responded to their environments effectively, gaining advantages by overcoming each theatre's unique challenges and demands.

Victory in this phase of the war, then, came from being the force most able and willing to adapt, creating advantages along the way in relatively specialised areas often overlooked by historians. By making sufficient lower level, micro-adaptations in its day-to-day operations as

well as its heaviest combat, the British Army's experience of desert warfare became a web of small changes that resulted in larger, higher-level transformations such as the introduction of new methods of warfare and the development of special operations. Adaptability to the environment, therefore, became the single most important and defining feature of desert warfare, characterising this phase of the war and laying the groundwork for all future conflict in desert arenas.

The first section of this chapter addresses the Bartholomew Report and its implications for signals and the wider Army. The timing of the report, which the committee released in less than four months, demonstrated an overt attempt to respond to the experience in Europe in general and the disaster of the retreat from Dunkirk specifically. The final recommendation of the committee clearly indicated its desire not to make revolutionary changes within the Army; instead, it hoped to make modest adjustments that could be conducted immediately. Significantly, the Bartholomew Report intended its 'lessons learnt' to be substantive enough to improve performance and training yet not so extensive as to not be feasible in the context of still being actively engaged in war. This consideration by the Bartholomew Committee more than any other denotes its understanding and desire to respond to the ongoing and evolving war taking place during its investigation.

The subsequent sections analyse the desert warfare that began contemporaneously to the convening of the Bartholomew Committee and its evolution from isolated incidents with the Italian forces in Libya to full-scale battles with the German Afrika Korps along the Mediterranean littoral. In the process, this chapter examines the environmental and geographic effects on communications and determines the effectiveness of the British response. The many variables in desert warfare, from the harsh environment to the misleadingly varied terrain, as well as the distances and water supply, led to highly decentralised responses. In turn, the expansion of ad hoc changes among units resulted in the Army convening the Godwin-Austen

Committee to overhaul and centralise communications, enforcing uniform strategy and tactics in the region. Finally, both this chapter and the following chapter will then show that like the Jackson Report, the Kirke Report, and the Bartholomew Report, the Godwin-Austen Report quickly became outpaced by the global nature of this war.

The Bartholomew Report

In June 1940, General Sir William Henry Bartholomew, Colonel Commandant, Royal Artillery, Aide-de-Camp General to the King, General Officer Commanding-in-Chief, Northern Command, convened a committee of five officers—the Director of Military Training Major-General C.C. Malden, Major-General N.M.S. Irwin, Brigadier D. G. Watson, and Brigadier W.C. Holden—to investigate the retreat from Europe and distil the lessons the Army needed to learn from its most recent operation.[398] Irwin, Watson, and Holden participated in the France and Flanders campaigns, lending a further degree of authority to the committee. The Bartholomew Committee's terms of reference identified its remit as:

1) To consider the lessons of the recent operations in Flanders which can be applied usefully to our present organization and training.
2) To suggest the modifications in our organization, training and equipment which should be made to meet the problem with which the British Army will be faced in the event of an attempted enemy invasion of this country.[399]

Beginning on 12 June 1940, a week after the conclusion of the Dunkirk evacuation, the Bartholomew Committee conducted its research and investigation with palpable urgency, issuing its final report on 16 September 1940, 105 days after the evacuation. The committee's ability to produce actionable recommendations in a short time period despite the scale of the interviews it conducted demonstrated its dedication to responding to the lessons learnt within

[398]See Chapter Two for discussion of the Dunkirk Evacuation; Bartholomew Report, TNA WO 106/1775, pagination for the Bartholomew Report is complex due to drafts and additional files; 'Central Chancery of the Orders of Knighthood,' *Supplement to the London Gazette*, 8 June 1939, p. 3854.
[399]Bartholomew Report, TNA WO 106/1775.

a timeframe that the Army could actually use its findings to prepare for a possible German invasion of Britain.

The Bartholomew committee derived its findings from an expansive interview process that included testimony and written statements from over forty officers, thirty-nine of whom the committee questioned in person. The witnesses whose testimonies informed the Report included Major-General R. Chenevix-Trench, Lieutenant-Colonel David Stirling, and Major-General Bernard Law Montgomery, then Commander of 3rd Division.[400] The committee questioned the officers on issues surrounding their experiences during the retreat from France and the evacuation process. Importantly for the evidence available with this report, many of the officers had yet to compile and review unit war diaries, largely due to the expediency of the questioning in relation to the return to Britain. One of the officers, Brigadier Sir Oliver W. H. Leese noted that in his case,

> May I make it clear first of all we have practically no war diaries at the moment from which we can annotate the information. I think that situation possibly may improve, but at the present time as far as we can make out the majority were either lost at Dunkirk or destroued [*sic*] in the sea coming back.[401]

With a few exceptions, therefore, the testimonies upon which the committee based its report came from oral recollections recorded by the secretariat, which comprised three officers: Colonel R. Gurney, Major G.W.S. Burton, and Captain R.W.M de Winton. Other officers submitted letters and returned questionnaires noting the organisational and training limitations faced during the retreat.

The final recommendations largely applied to armour, tanks, and brigade organisation, which David French argues was a missed opportunity for transformation by retaining 'tank-heavy divisions and forfeit[ing] another opportunity to transform their armoured divisions into

[400]See Chapter One for discussion of Chenevix-Trench's 1926 Royal United Services Institution lecture on 'Signals Communications in War,' R. Chenevix-Trench, 'Signal Communications in War.' *Journal of the Royal United Services Institute* 72 (Feb. 1927), p. 295; Bartholomew Report, TNA WO 106/1775.
[401]Testimony of Brigadier Sir Oliver W. H. Leese, Bartholomew Report, TNA WO 106/1775.

more balanced all-arms formations.'[402] French's criticism, however, does not account for the goal of the report: rather than 'upset the whole organisation of the army' the committee sought to find lessons that 'can be applied usefully.'[403] Bartholomew noted throughout the interviews that the committee's goal and approach to the report was a process with practical considerations:

> may I just say what we are doing. Our terms of reference are to find out the lessons of the recent operations in Flanders and see how they can be applied usefully to our present organisation and training. I may say with certain limitations we are not here to upset the whole organisation of the army, but to go as far as we can having regard to the weapons available and the time factor, and possibly dividing our report into two or three parts, what we can do at once, what we can do a little later and what we can do a long time later…[404]

The Bartholomew Report, then, signifies an important internal benchmark and reflection during the war to find ways to improve and influence future training and organisation based on the practical experience of those whom it interviewed. By collecting these accounts and making recommendations that it felt were feasible and realistic, the committee made an effort to respond to the war while it was in progress. Significantly, it did address many of the communications issues during the retreat and probed the witnesses on the success of the existing communications structure.

Its main finding regarding communications largely stemmed from its review of the wireless policy. It noted that 'the B.E.F. did not make the best use of wireless,' and posited three reasons for this:

1.) lack of training and practice in view of restrictions during the static period
2.) The ingrained habit of wireless silence during this period;
3.) The fear of D.F. [Direction Finding][405]

The report also indicated that cables should continue to be used but with tracked line laying vehicles, and wireless sets should be simplified. In one of the appendices, the committee

[402]David French, *Raising Churchill's Army*, 192.
[403]Bartholomew Report, TNA WO 106/1775.
[404]Ibid.
[405]Ibid.

recommended the increase in motorcycles to all units after multiple testimonies indicated their usefulness, and two of the five divisions questioned 'wanted more DRs.'[406] In particular, Montgomery wrote of the importance of despatch riders in his division, noting that quite often a motorcycle proved to be the only vehicle that could be used, especially considering their fuel efficiency. His written testimony included notes that the infantry largely depended on the telephone for communication, but this had become difficult to maintain, both due to movement and a lack of cable supplies. Other methods of communication, including flags and signal lamps, were 'never possible to use' and 'wireless when allowed to be used, was seldom if ever of any use.'[407] He elaborated on the use of wireless in additional notes:

> Failure to use wireless resulted in lack of information. Sometimes when it was used the impression was created that it was unreliable. Lack of training was probably the cause of this owing to our previous policy of discouraging its uses for reasons of secrecy.[408]

Thus, it is not surprising that Montgomery's recommendations to the committee included the use of multiple despatch riders in the event of telephone failure. He went further and included specifics of his recommendations for DRs: 'Norton motor cycles are very noisy. Any chance of getting some Triumphs which are more silent?'[409]

The final report first noted that 'It must be appreciated that the operation on which this report is based consisted almost entirely of a series of withdrawals which the B.E.F. was compelled to undertake to conform to the movements of Allied forces on our flanks.'[410] Regarding Royal Signals, the committee 'agreed that on the whole in front of Corps the teaching of the Training Manuals was sound, and the equipment satisfactory for both mobile and static warfare. Behind Corps it was not so satisfactory,' and recommended use of light armoured cable and ultra low frequency wireless alongside 'reconsideration' of the GHQ

[406]Ibid.
[407]Notes from Bernard Law Montgomery, Bartholomew Report, TNA WO 106/1775.
[408]Ibid.
[409]Ibid. Emphasis in original.
[410]Ibid.

signals 'with a view to increasing its mobility.'[411] Thus, the committee suggested what it considered manageable changes to the operating structure of signals, including using tracked vehicles for line-laying and simplification of wireless sets. Echoing Montgomery's suggestion, it also increased motorcycles across the Army, most notably in the combat support arms of Royal Signals, RASC, and Royal Engineers. With the repeated request for an increase in despatch riders and 'motor contact officers,' who performed similar duties to the DRs, this recommendation demonstrates the link between adapting a force and adapting its equipment.

In situating the report and acknowledging its findings stemmed from a specific experience – that of a retreat in Europe – the report itself outlined precisely why later considerations of the Bartholomew Report would label it as a missed opportunity to infuse significant change and transformation into the British Army.[412] French noted that not all of the committee agreed with all of its findings at the time: Irwin, for example agreed with Lieutenant-General Sir W. G. Lindsell's dissent that a major lesson should be to 'train commanders to act on their own much more,' criticising what they saw as a rigid command system.[413] To change the command system, however, again lay outside the goal of the Bartholomew Report: to apply useful lessons within the time constraint of ongoing war. Instead, the report limited the suggestion to making the brigade the 'lowest self-contained fighting formation…With this decentralization, it will be necessary for both brigade and battalion commanders to work more on their own initiative than in the past, though the principles' of *FSR* still applied.[414] As will be shown, the degree of autonomy re-emerged as a discussion point in the Godwin-Austen Committee's recommendations in 1942.

The judgment of the Bartholomew Report as a missed opportunity also fails to take into account the timing of its release. Though released quickly relative to the evacuations from

[411]Ibid.
[412]See, for example French, *Raising Churchill's Army*, and Smalley, *British Expeditionary Force*.
[413]Bartholomew Report, TNA WO 106/1775. See Interim Reports and Notes.
[414]Ibid., see Final Report.

Dunkirk upon which it was based, the September 1940 release date coincided with the Italian invasion of Egypt and the intensification of the North African campaign, which had begun two days before the Bartholomew Committee first convened. The Bartholomew Report's main recommendations, then, did not apply usefully to the next phase of the war. The June beginning of the North African campaign meant that a September report about an army that could fight in Europe simply came too late and did not immediately translate to the new environment and challenges that desert warfare presented. It also demonstrated that the Bartholomew Committee's decision not to recommend extensive reorganisation of the Army was well placed: practically speaking, revolutionising the Army's organisation while it was actively engaged in a theatre thousands of miles away and a completely different landscape from its last major theatre would not have been possible.

The Desert War: The Western Desert Force, 1940-1941

The war moved to the North African and Mediterranean theatres in June 1940 after Italy declared war as an Axis Power. Due to its colonial interests in Libya, Ethiopia, Eritrea, Cyrenaica, and Tripolitania, Italy maintained colonial garrisons in the region alongside the British colonial presence in Egypt, the Sudan, Cyprus, Palestine, East Africa, Aden, and British Somaliland. As such, Italy's entry into the war threatened the security of Britain's imperial supply chain through the Mediterranean. Maintaining this 'artery' through the Suez Canal suddenly became a pressing concern for Britain as Italy and its colonies now posed a threat on multiple sides of the Mediterranean Sea. Protecting this sea route and colonial interests in the region culminated in the next distinct development in the conflict: desert warfare. The campaign that followed mostly stayed within the confines of the fifty-mile wide Mediterranean littoral, largely using the 1,300 mile colonial Italian highway. Known as the *Balbia* and constructed by the Italian Marshal and Governor-General of Libya, Commander-in-Chief of

Italian North Africa, Italo Balbo in 1937, the road provided access to the ports of Bardia and Tobruk as well as railway and telephone infrastructure.[415] The most significant reason for both the British and the Italians to stay within the range of the *Balbia* and the littoral, however, remained logistics and supplies, particularly access to potable water, which greatly shaped the theatre. As a result of these geographic limitations, the British successfully advanced covert warfare to overcome the challenges of the terrain and environment: the result was the establishment of the Long Range Desert Group (LRDG) and Special Air Service (SAS), who were able to pass deep into the desert.[416] The LRDG along with its role in Army innovation will be discussed later in this chapter.

Desert warfare, therefore, mainly occurred on the coast, not in the interior deserts of North Africa. Because of this, Simon Ball disagrees with the nomenclature of 'Desert War' for this phase by arguing that 'There was never a "Desert War." The British, Italians and Germans fought for a coast road, a series of port settlements and aerodromes in North Africa.'[417] Despite this, even Ball cannot disagree that regardless of whether historians characterise this as a 'desert war', *desert warfare* became the defining feature of this phase of the war, and was, in turn, characterised by local and lower-level adaptability due to the alien geography and the lack of experience in desert conditions. The development of new methods and strategies to undertake combat in these conditions led to great changes in the Army's organisation, equipment, and its communications methods. The responses to the theatre's challenges proved so significant that

[415]Simon Ball, 'The Mediterranean and North Africa, 1940-1944,' in *The Cambridge History of the Second World War: Volume I, Fighting the War*, ed. By John Ferris and Evan Mawdsley (Cambridge, 2015), p. 364.
[416]Lucas notes that the water supply was restricted to half a gallon 'per man per day for all purposes.' Lucas, 'Transfusions in the Ambulance,' p. 503; Barr, *Pendulum of War*, p. 6; Ralph A. Bagnold, *Sand, Wind, and War: Memoirs of a Desert Explorer* (Tucson, Az, 1990). For the dangers of non-potable water, see Gilewitch, 'Military Operations in the Hot Desert Environment,' p. 44; Gilewitch, 'Military Geography,' p. 79; See also Morris Kerstein, Roger Hubbard, Milton Mager, and John Connelly, 'Heat-Related Problems in the Desert: The Environment Can Be An Enemy,' *Military Medicine* 149:2 (Dec 1984), pp. 650-656; Roger Hubbard, Milton Mager, and Morris Kerstein, *Water as a Tactical Weapon: A Doctrine for Preventing Heat Casualties*. Unpublished Report, U.S. Army Medical Research and Development Command, 1982.
[417]Ball, 'The Mediterranean and North Africa, 1940-1944,' p. 364.

new styles of warfare emerged, including modern covert operations, which has since become a dominant form of warfare.[418]

The Middle East Command (MEC) formed in August 1939 under the command of General Archibald Wavell with General Henry Maitland Wilson as General Officer Commanding-in-Chief British Troops in Egypt (BTE). Contending with threats as diverse as the Vichy French in Syria, German activity and influence in Turkey and Iraq, and ongoing Axis operations in Greece and Cyprus, MEC quickly became a complex organisation reinforced by Commonwealth troops from India, Australia, New Zealand, and South Africa.[419] The multinational, multi-ethnic, and polyglot composition of the MEC meant equipment and systems such as communications varied, and no standardised communications strategy existed in the North African theatre. The presence of these differences at the beginning of the war ensured further divergence, as well as demonstrating why the Bartholomew Report would have been unsuccessful in reorganising the British Army: not only was the Army now in a different theatre with a different environment, but it also now increased its colonial contingent, using troops trained elsewhere. Combined with the widespread ad hoc adaptations that emerged, these fundamentally different approaches to strategy and tactics alike only grew with the United States entering the war with yet another approach to communications. This intra-Allied cooperation is discussed more thoroughly in the next chapter due to its effects on the European theatre from 1943-1945.

In June 1940, the Italian forces outnumbered the British 500,000 to 50,000. Moreover, the British and Commonwealth troops stationed in Egypt had very little combat experience, primarily serving as interior security for the Suez Canal and its shipping routes, as well as

[418]Thomas X. Hammes, 'Insurgency: Modern Warfare Evolves into a Fourth Generation,' *Strategic Forum: Institute for National Strategic Studies* No 214 (January 2005), pp. 1-8.
[419]Ashley Jackson, 'Supplying the War: The High Commission Territories' Military-Logistical Contribution in the Second World War,' *The Journal of Military History* 66:3 (July 2002), pp. 720, 723-724. Jackson estimates 500,000 Africans served the British armed forces by 1945.

assisting in internal stability. Known as the British Troops in Egypt (BTE), the peacetime force was unprepared materially, tactically, and strategically to participate in a desert conflict. Major Ralph Bagnold, who transferred to the BTE as signal officer and later established the LRDG, found the BTE highly insular, noting it had no maps or information concerning the surrounding desert regions. The decentralised organisation of the British forces in the region resulted in a lack of shared knowledge with Bagnold noting that the BTE

> was an independent command subordinate only to the War Office. The troops in Palestine were similarly independent. Such tiny forces as existed in the Sudan, in Somaliland, in East Africa, and elsewhere were private armies run by different government departments in London. The C.-in.C. in Egypt, General Sir Henry Maitland Wilson, had no concern with them at all. So next to no knowledge existed in Cairo about any of the surrounding countries.[420]

Considering this assessment of the BTE, how the Allied forces succeeded in defeating not just the Italians but also the combined Axis force proves to be a story of ongoing adaptability, collection of desert knowledge and experience, and application of these to both the battlefield and combat support. The most important characteristic of desert warfare, therefore, was not the romanticised personalities of the commanders General Bernard Montgomery and General Erwin Rommel, about whom numerous accounts have been written; instead, the geography of the desert and the Army's response to its challenges shaped this theatre of war more than any strategy or doctrine. In fact, as will be showed in this chapter, strategies and doctrine, particularly those in communications, emerged as a result of the geography rather than despite. Evaluating this phase of the war without considering the practical influence and effect of this geography leaves an incomplete picture that heavily emphasises and favours top-down decisions and results in a commander-driven understanding of victory in North Africa, as well as attributing success to the officer class instead of the highly diverse and heterogenous

[420]Bagnold, IWM Sound Archive 9862; Bagnold, 'Early Days of the Long Range Desert Group,' *The Geographical Journal* 105:1-2 (Jan.-Feb. 1945), p. 30; Bagnold, *Sand, Wind, and War: Memoirs of a Desert Explorer*; 'Oral History of David Lanyon Lloyd Owen,' IWM Sound Archive 9909.

individuals of the British Imperial Forces. [421] Furthermore, this study demonstrates that during this phase of the war, an identifiable learning process continued to develop, building on the institutionalisation of lessons-learned benchmarking.

Desert Warfare and Geography

In order to understand the scope and significance of the British Army's, and specifically Royal Signals's, adaptation to, and embrace of, desert warfare, the unique challenges posed by conducting war in a desert environment must be understood.[422] With Europe's temperate climates and forested terrain considered 'normal fighting conditions' by the British, the deserts of North Africa offered an alien environment with unfamiliar terrain and vast open spaces.[423] The landscape, however, limited the war's reach: the Saharan Ergs and Qattara Depression restricted the North African campaign to the coastal region.[424] Though at first appearing as a flat, unending and homogenous landscape to inexperienced soldiers, the desert proved to be a highly diverse region, which challenged communications, manoeuvrability, supply lines, and medical treatment, all of which affected the likelihood of victory. The size of the theatre also

[421]The literature addressing both Generals Montgomery and Rommel is extensive. See for example, Corelli Barnett, *The Desert Generals* (Edison, NJ, 1983); John Buckley, *Monty's Men: The British Army and the Liberation of Europe, 1944-45* (New Haven, 2013); Peter Caddick-Adams, *Monty and Rommel: Parallel Lives* (New York, 2012); Brian Montgomery, *A Field-Marshal in the Family: A Personal Biography of Montgomery of Alamein* (New York, 1974); Alan Moorehead, *Montgomery: A Biography* (London, 1946); Desmond Young, *Rommel, the Desert Fox* (New York, 1950); Martin Kitchen, *Rommel's Desert War: Waging World War II in North Africa, 1941-1943* (Cambridge, 2009); and Dennis Showalter, *Patton and Rommel: Men of War in the Twentieth Century* (New York, 2005). Montgomery and Rommel also released memoirs and autobiographies.

[422]For in depth discussion of military geography, see Rachel Woodard, 'From Military Geography to Militarism's Geographies: Disciplinary Engagements with the Geographies of Militarism and Military Activities,' *Progress in Human Geography* 29:6 (2005), p. 722. See also, Isla Forsyth, 'Designs on the Desert: Camouflage, Deception, and the Militarization of Space,' *Cultural Geographies* 21:2 (2014), pp. 247-265; Pip Thornton, 'The Meaning of Light: Seeing and Being on the Battlefield,' *Cultural Geographies* 22:4 (2015), pp. 567-583; Daniel Gilewitch, 'Military Geography: The Interaction of Desert Geomorphology and Military Operations,' Unpublished PhD Thesis, Arizona State University, 2003; Daniel Gilewitch, 'Military Operations in the Hot Desert Environment,' in *Military Geosciences in the Twenty-First Century*, ed. by Russell S. Harmon, Sophie E. Baker, and Eric V. MacDonald (Boulder, Co., 2014), pp. 39-47; Alfred Toppe, *Desert Warfare: German Experiences in World War II* (Fort Leavenworth, Kans., 1952); Douglas W. Craft, *Operational Art in the Western Desert Theater of Operations, 1940-1943* (Fort Leavenworth, Kans., 1987)

[423]War Office, *Field Service Regulations* (London, 1929). P??

[424]Gilewitch, 'Military Operations in the Hot Desert Environment,' p. 41; Toppe, *Desert Warfare*. The exception to this limit was the LRDG.

impacted the campaign: spanning approximately 800km long and 250km wide, it became one of the most expansive fronts the British had ever fought.[425]

Aware of the size and the challenges of surviving with limited experience in the desert, Wavell authorised a request from Bagnold to form a small, mobile scouting force that could penetrate the desert west of Egypt to gain intelligence on the Italian positions and the size of the threat. Significantly, Bagnold and his closest colleagues had spent the interwar period exploring the Libyan desert, travelling further inland than any previous explorers by making use of adapted Model T Ford cars. Writing in 1945, Bagnold referred to the formation of the LRDG as 'the strange sequel to our rather useless hobby' of interior desert exploration.[426] As one of the first modern special operations units, the LRDG embodied adaptability in the desert, extensively adapting its equipment to the distances, climate, and terrain, as well as the covert nature of its missions. The lengths to which it went to respond to the new environment demonstrated that the Army not only should be implementing local knowledge and solutions but served as an example of success. By its debut in 1940, the LRDG had modified its vehicles, clothing, headwear, footwear, navigation techniques, rations, and operating orders. It became known for its adoption of the 'Arab headdress' or *keffiyeh* to better endure the threat of desert dust and illustrated the BTE's unsuitability for war by highlighting the many different adaptations that had to be made to its standard equipment to navigate the desert successfully. By overcoming these challenges, the LRDG became one of the only forces able to travel through the interior desert, taking advantage of the conventional forces' use of the coastal road to interrupt Italian, and later German, supply lines.[427]

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[425]Glen Wahlert, *The Western Desert Campaign, 1940-1941*, 2nd ed. (Canberra, 2006; Reprint, 2011).
[426]Bagnold IWM SA 9862; Lloyd Owen IWM SA 9909; Bagnold, 'Early Days of the Long Range Desert Group,' p. 30.
[427]Bagnold, IWM SA 9862. For additional descriptions of the LRDG's mission and role in adapting desert warfare, see W.B Kennedy Shaw, 'Desert Navigation: Some Experience of the Long Range Desert Group,' *The Geographical Journal* 102: 5/6 (Nov. – Dec. 1943), pp. 253-258; D. C. M Mather,.'A Journey Through the Qattara Depression,' *The Geographical Journal* 103:4 (Apr 1944), pp. 152-160; Nicholas P. O'Dawe, 'Long Range Surveillance Units (LRSU): The Past, Present, and Future.' Unpublished Individual Study Project, US Army War College, 1990; D.N. Hall, 'Further Notes on Navigating in Deserts.' *The Geographical Journal* 133:

The LRDG's innovations and localised solutions did not remain solely with the LRDG. As happened repeatedly, 'bleeding' occurred. In her study of the geography of battlefields, Isla Forsyth argued that

> Battlefields bleed, not just through the violence that is inflicted upon those operating or caught up within them; but also through technologies, knowledges and strategies that are developed and shaped to adapt to their particularities.[428]

Using this model, few theatres bled technologies and knowledge as the desert did. The LRDG's innovations crossed into wider use by the Army, greatly impacting communications along the way. The introduction of Bagnold's sun compass, which allowed for dead reckoning and navigation anywhere in the desert, and the LRDG's mapping of the North African desert proved to be the two most significant of these developments.[429] The innovations allowed passage through the previously unmapped territories and altered the standard process of navigating, forgoing magnetic compasses and outdated maps.

The British also gained an important advantage in desert warfare by overcoming the challenges of surviving in the desert climate, particularly in avoiding heat illness and communicable diseases. Mark Harrison has argued that this advantage stemmed from the British experience in hot climates gained through its colonies, particularly the garrisons in

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4 (Dec. 1967), pp. 508-511; Royal Geographic Society, 'Fifty Years Ago.' *The Geographical Journal* 157:3 (Nov. 1991), p. 330; Edward P.F. Rose and C. Paul Nathanail. *Geology and Warfare: Examples of the Influence of Terrain and Geologists on Military Operations* (London, 2000); , J. W. Wright, 'War-Time Exploration with the Sudan Defence Force in the Libyan Desert, 1941-1943,' *The Geographical Journal* 105:3/4 (Mar-Apr 1945), pp. 100-111; K.S Sandford, 'Western Frontiers of Libya,' *The Geographical Journal* 99:1 (Jan. 1942), pp. 29-40; Jorge Marco, 'Transnational Soldiers and Guerrilla Warfare from the Spanish Civil War to the Second World War,' *War in History* OnlineFirst: https://doi.org/10.1177/0968344518761212 (2018); W.B. Kennedy Shaw, 'The Flora of the Libyan Desert,' *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)* 1934:7 (1934), pp. 281-289; T.B.L. Churchill, 'The Value of Commandos.' *Royal United Services Institution Journal* 95:577 (1950), pp. 85-90; J.W. Hackett, 'The Employment of Special Forces.' *RUSI Journal* 97:585 (1950), pp. 26-41; James Kiras, *Special Operations and Strategy from World War II to the War on Terror* (New York, 2006); IWM Photograph HU 24964; IWM Photograph HU 69650; IWM Photograph 16666; NAM Photograph 1988-09-39-3; NAM Photograph 1988-09-39-04.

[428]Forsyth, 'Desert Journeys,' p. 234.

[429]For an image and in-depth description of Bagnold's sun compass, see Bagnold and Harding King, 'Journeys in the Libyan Desert,' p. 525; Also see 'Bagnold's Sun Compass,' IWM Object Archive FEQ 415 and 'Card Correction Tables for local solar time and tables of the sun's azimuth in various latitudes, 1942c. NAM 1973-08-57-1; Bill Shaw later published *Long Range Desert Group: The Story of its Work in Libya, 1940-1943* (London, 1943) as W.B. Kennedy-Shaw. The book was subjected to War Office censoring and approval before publication.

India. By developing sanitation protocols and conducting research into heat illness, the Royal Army Medical Corps (RAMC) played a considerable role in improving the overall health of the British Army which, in turn, positively impacted both morale and fighting effectiveness. The dissemination of this hygiene and preventative knowledge proved pivotal in the desert, particularly for troops such as despatch riders who often found themselves separated from RAMC personnel. Desert sand, according to geomorphologist Daniel Gilewitch, commonly exceeds 73°C, well above the 'human threshold of pain.'[430] This high temperature meant simply touching equipment and vehicles could burn skin, and the added danger of desert dust also challenged the use of standard equipment. Corrosive to metals, desert dust expands upon contact with liquids, making it especially dangerous for mechanical lubricants required to run engines. The challenges soldiers faced from the environment were physically demanding; the constant wind, dust, and sand caused nosebleeds, coughing, chapped skin, and, if not treated properly, infections. All of these reduce effectiveness and dexterity, which remained of particular importance for those in signalling occupations.[431] These environmental threats proved acute for despatch riders, whose role exposed them to the elements and required physical endurance for long journeys in the desert. For broader communications, the threat of the sand, dust, and heat in the desert greatly affected communications equipment; wireless trucks, wireless sets, radio masts, cable, telegraph machines, telephones, and teleprinters, for

[430]Gilewitch defines the human threshold of pain as 49°C and the point at which first-degree burns can be caused as 60°C. Gilewitch, 'Military Operations in the Hot Desert Environment,' p. 45. For more on the role of the Royal Army Medical Corps in the North African campaign, see F.A.E. Crew, *The Army Medical Service: Campaigns*, Vol 2. (London, 1957); Mark Harrison, *Medicine and Victory: British Military Medicine in the Second World War* (Oxford, 2004); Ernest Bulmer, 'Military Medicine in the Middle East: An Experience of 13,542 Cases,' *British Medical Journal* (27 Mar 1943), pp. 374-377; J.S.K. Boyd, 'Enteric Group Fevers in Prisoners of War from the Western Desert with Special Reference to Prophylactic Inoculation, Jan. 1942, to Feb. 1943,' *British Medical Journal* (12 Jun 1943), pp. 719-721; H.S. Gear, 'Hygiene Aspects of the El Alamein Victory, 1942,' *British Medical Journal* (18 Mar 1944), pp. 383-387; G.A.G. Mitchell, N.J Logie, and R.S. Handley, 'Observations on Casualties from the Western Desert and Libya Arriving at a Base Hospital,' *Journal of the Royal Army Medical Corps* 77:2 (Aug 1941), pp. 61-71.

[431]Gilewitch, 'Military Operations in the Hot Desert Environment,' p. 42.

example, had to be kept dust-free, as well as shielded from direct sunlight and maintained despite large variations in ambient temperature.[432]

Adapting to the presence of desert dust when a soldier depended on a motorcycle, for example, required the informal exchange of knowledge amongst the other ranks, most often as peer-to-peer advice for new arrivals such as placing a bar of Sunlight soap in the petrol tank in order to capture dust particles and fill any gaps to prevent dust mixing with fuel. The presence and risks of dust appear in films such as the Army Film and Photographic Unit's (AFPU) capture of a 3-ton truck being freed from sand by a team of military police: while soldiers dig around the wheels, the dust gathers around their faces as they inhale. Escaping the effects of sand and dust proved impossible, so the Army pulled from Bagnold's advocacy and the LRDG's uniform adaptations, resulting in an expansion of the use of the regional headdress *keffiyeh*.[433]

For despatch riders in particular, the environment of the desert created challenges unique to their role. These included the issues of uniforms, motorcycles on uneven terrain, and risks to health on long solo runs. The uniforms changed alongside those of the wider desert force to resemble that pictured in Figure 15, 18, and 19, introducing a more relaxed, cooler uniform in khaki.

[432]Deserts vary greatly between day and night temperatures.
[433]'Vehicle Recovery in the Western Desert,' IWM Film Archive AYY 252/1; for examples of the desert uniform, see IWM Photography Archive E 16501, E 7972, HU 249645, HU 69650, and HU 16666.

Figure 18: 56th (London) Div Signals DR Kenneth Lee, 1942. Private Papers of Kenneth Lee.

Figure 19: 'Len in 1942.' Private Papers of Kenneth Lee.

Despatch riders also responded to the challenges of the desert by altering their vehicles, often exchanging motorcycles for four-wheeled drive light trucks or jeeps. Working in pairs to include both a driver and a navigator making use of the Bagnold sun compass, which required a dashboard for mounting, further demonstrating the importance of using a jeep or truck. As the lack of landmarks and accurate maps made navigation particularly challenging, so too did the risk of visual impairment and decreased visibility from the heat and solar radiation. Specific dangers lay in visual disturbance such as 'optical path bending and shimmering,' resulting in

mirages and greatly reducing effective visibility.[434] The advantages of the jeep for despatch riders during this stage of the war would, as will be discussed later, inform the equipment recommendations of later reforms.

For the Army, the desert repeated the predicament it had faced earlier in 1940 in the Norwegian campaign discussed in the previous chapter: how to adapt to a theatre with terrain and climate unlike any it had experienced. The parallels of two very different environments are stark. Both theatres at first appeared distant from the BEF's campaign in France, but both became influential campaigns in adaptability and responsiveness of the Army to its surroundings. Communications proved difficult in both environments, with long distances, challenging supply routes, and climate threats bogging down, delaying, and otherwise forcing signal units to use every method of communicating at their disposal. The experience of Norway, however, did not translate directly to the soldiers in North Africa due to in part to time, with only a month in between the end of the Norwegian campaign and the beginning of the WDF.[435]

This issue of time lag also meant that the Norwegian campaign could not be fully incorporated into the Bartholomew Report, resulting in important adaptability experience and lessons disappearing from the chain of reports and strategy decisions. Despite the parallels of these theatres, the solutions had to be vastly different and could not necessarily rely on the evolving strategy and tactics to capture effective and innovative approaches to the challenges. The overarching lesson that came from the Army's first encounters with both arctic and desert

[434]Gilewitch, 'Military Geography,' p. 92; See also Forsyth, 'Designs on the Desert' and Alistair Fraser and William Mach, 'Mirages,' *Scientific American* 234:1 (Jan. 1976), pp. 102-111. For more on the dangers to individuals in the desert, such as a lack of sun-blocking agent other than 'red vet pet' (which would later be refined and sold as Coppertone), see William N. MacEachern and Otis F. Jillson, 'A Practical Sunscreen – "Red Vet Pet,"' *Arch Dermatol.* 89:1 (1964), pp. 147-150; E. Dupont, J. Gomez, and D. Bioldeau, 'Beyond UV Radiation: A Skin Under Challenge,' *International Journal of Cosmetic Science* 35 (2013), pp. 224-232.
[435]T.K. Derry, *The Campaign in Norway* (London, 1952), pp. 1-3.

warfares characterised its approach to the ever-changing conflict for the rest of the war: the Army needed to adapt, but it could not prescribe the exact adaptations needed.

Civilian Communications Infrastructure

Infrastructure in the desert proved severely limited, both in settlements and the space in between inhabited areas. Whereas the BEF had made use of civilian telephone lines in France and Belgium, the North African desert posed a radically different challenge for communications: for the North African campaign, the Army had to bring all its supplies into the desert, including cable, wireless equipment, radio crystals and batteries, fuel, ciphering equipment, teleprinters, and the materiel needed for communications infrastructure. Desert warfare demanded an extensive, elaborate supply line, placing a mammoth burden on the Army's administrative and supply arms. The harsh terrain of the desert compounded the supply issues, as did the lack of human settlement, with only small villages and bands of nomads, mostly Senussi and Bedouin, meaning local trade and supplies proved non-existent.[436]

The MEC's 'basic signal plan,' according to Nalder, included a gradual, long-term build-up of the civil landline systems, particularly Cairo's existing connections to ports. These systems, however, proved both inadequately developed and unable to handle the volume of military traffic likely to be required. Furthermore, the systems were largely 'deficient in long distance facilities,' and rarely linked together.[437] Trying to avoid highly localised trunk systems forced the British to invest 'an immense amount of labour' to expand the capabilities of the lines, requiring further cooperation between civil and military labour and supply. The growing British presence in North Africa and the Middle East as bases, camps, training areas, and airfields developed further strained the system and required even more construction and an

[436]Anthony Eden, 'The Senussi and Cyrenaica: Memorandum by the Secretary of State for Foreign Affairs,' 4 October 1941, TNA CAB 66/19/5; Featherstone IWM SA 22586.
[437]Nalder, *British Army Signals in the Second World War*, p. 44.

ever-expanding net of telephone lines. Though Nalder noted that value of the relative early start in increasing the signals infrastructure, he maintained that it was a very slow process 'handicapped by severe shortages of signal personnel and equipment.'[438]

The relatively early action of the British in developing, reinforcing, and expanding the local landline network mean that by the height of the North African Campaign, the infrastructure had reached an expansive and relatively advanced level; however, the mobility of the campaign challenged the system greatly. Though linked together in an advanced network like the one encountered in France and Belgium, the civilian landline system remained stationary and subject to artillery, armour, and bombing attacks. The infrastructure of the North African communications, then, proved a significant challenge for the Army, resulting in the need for a useable, efficient, and reliable system and the maintenance of that system over a substantial distance. The stage of North Africa had been set by 1940: unfamiliar terrain and climate, as well as underdeveloped local systems and sparse populations, worked together to create a theatre riddled with challenges for communications. Overcoming these challenges became the definition of adaptability in desert warfare; its unique 'otherness' compared to the traditional European warfare faced by the British created both the necessity and an opportunity to change alongside the tools, methods, and equipment.

Despatch Riders: Challenges, Threats, and Fear in North Africa

Much like the loneliness described in the previous chapter, fear occurs as a pervading memory in recollections by despatch riders of this phase of the war. Though there are several meanings of 'fear,' this thesis refers to what neuroscientist Joseph LeDoux explains as 'the common meaning of fear,' that is, 'the feeling of being afraid.'[439] While all soldiers felt fear at

[438]Ibid., p. 45.
[439]Joseph E. LeDoux, 'Coming to terms with fear,' *Proceedings of the National Academy of Sciences of the United States of America* 1111: 8 (Feb 2014), p. 2871. For discussion of fear in the cultural history of the English-speaking world, see Joanna Bourke, *Fear: a Cultural History* (Oxford, 2005).

different times, the despatch riders' memories largely link the fear not to the Axis enemy but rather to the solitude of the role combined with the geography of the area. Private Thomas Parkinson, a despatch rider for 21 Ammunition Depot, for example, spoke in depth of his fears whilst serving in North Africa. He had suffered the loss of his mentor, Les Marshall, an experienced civilian motorcyclist appointed as despatch rider in 21 Ammunition Depot's group of twenty-eight men. As an inexperienced motorcyclist – he later recalled a single afternoon of training before leaving for Algiers – Parkinson had relied on Marshall to take him 'under his wing' until Marshall went missing on a night run at Souss. After three days, Parkinson and his major found Marshall recently deceased at a French field hospital after 'he'd been hit by a Free French lorry and they left him there, smashed right into him and left him there,' Parkinson recalled. 'That was very frightening. All of a sudden you realise this is dangerous work, especially when you've got to go out at night.'[440] Two weeks later, Marshall's replacement crashed into a local civilian car on a night run and was found the next day in a field hospital having lost three fingers from his clutch hand during the accident. His recollection continued, 'I was beginning to think this despatch work was not an [*sic*] healthy job,' and he began to alter how he approached his work, trying to avoid being out at night. By this point, he noted, he was 'now scared of the dark after two blokes, you think "don't like this night driving.'"[441]

One of the contributing factors to the fear of the dark for despatch riders came from the inability to utilise headlights for security purposes. Parkinson attributed both of the aforementioned 21st Ammunition Depot's despatch rider casualties to this security measure as neither suffered enemy action. Further dangers came in the landscape and terrain of the region. The sheer drops in the Atlas Mountain passages, for example, scared even the most seasoned drivers, not least because trucks lay in the valleys where they had fallen.[442] Not restricted to

[440]Oral History of Thomas Walter Parkinson, IWM Sound Archive 21556.
[441]Ibid.
[442]Ibid.

North Africa, this danger also appeared in the Middle Eastern theatre in Qum, Persia, for D.O. Helm of the Royal Scots Fusiliers:

> I had an unpleasant experience in this very area. I was sent off with a despatch in the evening. It turns dark early there and it was very easy to run off the road. This is what I did and suddenly I found that I was hurtling down a steep bank and I ended up in a whadi, a dried-up river bed. I did not fall off the motor bike but in the darkness I found it difficult to get myself out of this predicament. I rode with difficulty amongst boulders until I arrived at a place where the sides were less steep and eventually I managed to get out.[443]

Being alone and in the dark, then, formed a common theme amongst despatch rider recollections for this phase of the war. The expanses of the deserts and mountain ranges meant that very little light existed as it had in the previous theatre in European towns and countryside. Further exacerbating this fear of the dark and being alone was the risk of the local and nomadic populations, many of whom had proven hostile to both the Allied and Axis forces and the colonialism they represented.

Due to the nature of their role, despatch riders interacted with the local and nomadic populations of North Africa in a different fashion than most British soldiers. Though they did not necessarily deal directly with them, they could not avoid interactions from time to time. The most significant part of this interaction in the memories of despatch riders came not from the people themselves; instead, the prevailing recollection comes in the form of fear of what might happen if they were caught by 'the Arabs.'[444] Fed by imperial stereotypes, this population grew to such a menacing threat in the eyes of despatch riders that Parkinson noted that

> All you carried as a despatch rider was a .38 revolver. It's all you had, with six rounds. It's all you had. Another thing you get scared of, it was rumoured round that if the Arabs

[443]Private Papers of D.O. Helm, IWM Documents.543 88/48/1.

[444]'The Arabs' is the wording that appears in oral histories of despatch riders during this time period. It does not differentiate among the various ethnicities and peoples of the region, whether they be residents of localities or nomadic tribes. Instead, the wording used creates a false homogenisation of peoples in the region. This thesis uses this terminology only because the significance of this perception of one people plays directly into the pervasiveness of the fear of the 'other.' For the complexities concerning Arab identity and ethnic groups, see Eugene Rogan, *The Arabs: A History* (New York, 2009) and Ramzi Rouighi, 'The Berbers of the Arabs,' *Studia Islamica* 106:1 (2011), pp. 49-76.

> caught you on your own you'd practically had it. They'd have your boots and everything. So you've got another thought on your mind. You're not worried about Germans here, you're worried about Arabs and dark and things like that.[445]

Helm also wrote of the threat of 'the Arabs,' noting to his relief that when a group caught him alone in the desert, one of them had spent forty years in Philadelphia so spoke English and released him.[446] This pervasive fear came not just from the alien environment and the vast expanses of unknown and unseen terrain but also from the stories told amongst the despatch riders after arrival in North Africa. Herbert Rees of the Royal Signals 1st Division HQ recalled that one of the threats from 'the Arabs' came from German soldiers hiding with them due to the promise of independence from the French after an Axis victory. He was clearly affected by the warnings of his fellow despatch riders: 'The Arabs were okay; they were graverobbers, but okay…if you saw an Arab around, you shot him. That was the story anyway…I never saw it.'[447] Australian DR Roy Heron also recalled 'the Arabs,' but indicated the main threat was begging and overcharging for goods.[448]

Arthur Featherstone, NCO of 1st Derbyshire Yeomanry's DR section, also recalled that the population at Algiers 'didn't welcome us as such…And I remember clearly that [if] one of the soldiers had ever come into contact with an Arab girl that was the end of his life. He was found dead in the tent the next morning with his throat cut…Oh yes, yes it happened several times, quite near me…it was mostly the Arabs that showed the hostility.'[449] Here, his impression of 'the Arabs' links a specific, violent threat to soldiers; the truthfulness of that threat when out alone, in the dark, rarely mattered. For despatch riders, 'the Arab' population, with its different languages, cultures, and lifestyles posed a threat that was further complicated by the complexities of alliances, loyalties, and collaboration with the various colonial forces

[445]Parkinson, IWM SA 21556.
[446]Helm, IWM DA Documents.543
[447]Oral History of Herbert Geoffrey Rees, IWM SA 22677.
[448]Oral History of Roy Douglas Heron, IWM SA 22392.
[449]Oral History of Arthur Featherstone, IWM SA 22586

present during the campaign. The Allied forces did not hold the entirety of the North African population's allegiance; the Nazi-Arab propaganda in the region deepened this layer of the unknown and fed the fear of 'the Arabs' – whether they would attack or be friendly remained a gamble.[450]

Whilst considering the risks of the North African theatre, Featherstone also gives one of the most detailed articulations of German traps for despatch riders, noting that

> we were warned before we went on the mission delivering our despatch of what to look out for. And uh the Germans tried every trick in the book to stop despatches getting through. And uh the favourite, the favourite thing was to put a wire across the road so that any despatch riders who came in contact was decapitated immediately. We got to know these tricks and where there was likely to be these wires and things and we avoided them as much as possible.[451]

Luckily, he noted, none of his men suffered injuries from these wires due to the warnings from previous despatch riders. Other dangers came in the form of boobytraps laid by both the Germans and the fleeing French. Despite being warned never to touch anything in abandoned houses, Featherstone led his men into an abandoned house that

> was just as the French had left it. Beds were still warm, and the first thing on my mind was to make sure the lads got a cup of tea. So I found [the] pit in the garage for the cars...took the Primus stove…down into the pit, filled it with petrol, pumped it up, lit a match…I don't remember any more until I woke up in hospital…it had blown up. Soon as [I] struck a match, it lit fumes and it blew the place up.[452]

Featherstone suffered his first injury of the war, burns on his face, arms, and legs, demonstrating the effectiveness of the traps that threatened even the simplest of movements for despatch riders in abandoned villages.

Much like Parkinson stated, the threats and dangers for despatch riders did not always come in the form of direct enemy fire, particularly in the North African theatre. Instead, they

[450]See, for example, Thomas J. Kehoe and Elizabeth M. Greenhalgh, 'Living Propaganda and Self-Service Recruitment: The Nazi Rationale for the German-Arab Training Unit, May 1941 to May 1943,' *War in History* 24:4 (Nov 2017), pp. 520-543; René Wildangel, 'The Invention of "Islamofascism" Nazi Propaganda to the Arab World and Perceptions from Palestine,' *Die Welt des Islams* 52:3/4 (2012), pp. 526-543.
[451]Oral History of Arthur Featherstone, IWM SA 22586
[452]Ibid.

felt threatened by their environment and what was hidden within it. Fear proved to be one of the overwhelming emotions of despatch riders, one that heightened their awareness and security, particularly when on solo runs at night. Focusing on strategy to determine how the war was fought omits this fierce motivator from the determination of why these men made the choices and adaptations to their work that they did: these were largely scared young men far away from home, asked to deliver messages often in the dark and in through hostile territory. Piecing together why a despatch rider took a certain route or how they learned from one another to improve their efficiency and success rate cannot be completed without considering this primal fear felt by the despatch riders in this theatre. It also goes a long way in explaining the importance of informal learning knowledge network; that is, why despatch riders learned so much from each other and shared so much information among themselves.

The Desert War: The Eighth Army, 1941-1943

In 1941, the British Army again mutated in response to the North African campaign. Just as the Army had experienced different styles of fighting in France and Norway, the opening months of the desert campaign proved a distinct phase characterised by the marked speed of the British-Italian chase back and forth across the coastal roads. By February 1941, however, the British had retaken the Italian-held territories and effectively stopped Italy's imperial ambitions and military expansion in North Africa. After the surrender of the Italian Tenth Army on 7 February 1941, the theatre transitioned from a campaign against Italy to one against a combined Axis force spearheaded by the newly arrived Afrika Korps.[453] The change of opponent, as well as the eventual entry of the United States into the conflict in late 1941, saw a paradigm shift in the campaign and theatre: it moved from a fast-paced pendulum to a slower, more strategic conflict that pitted British General Bernard Law Montgomery against German

[453]Jackson, 'Supplying War,' pp. 722-723; Ball, 'The Mediterranean and North Africa,' pp. 364, 370.

General Erwin Rommel. However, despite the tendency in both scholarship and popular memory of the war to focus on the commanders and their personalities, the deciding and defining characteristic of this conflict remained not who commanded but how well each army adapted to the conditions it faced in the North African theatre.[454] As an essential support arm, how well Royal Signals, as well as the regimental signals network, adapted became increasingly important in measuring the responsiveness of the Army as a whole.

When Rommel and the Afrika Korps arrived in North Africa to engage the British, it faced XIII Corps, which had grown from the WDF and incorporated the 7th Royal Tank Regiment as well as the 4th New Zealander and 6th Australian Divisions.[455] This reorganisation succeeded in defeating the last of the Italian threat but immediately struggled in the face of Rommel and his Panzer divisions, who had been ordered to mitigate Germany's vulnerability in the wake of the Italian force's capitulation. Rommel's victory would ensure the British Mediterranean 'would be choked to death,' and Germany could focus on conquering the Soviet Union.[456]

The introduction of Panzer divisions to North Africa challenged the British Army to respond to a threat they had not yet encountered in an environment to which they were still adjusting. The difference in the command structure, strategy, and equipment meant that XIII Corps could not necessarily rely on its experience thus far in the desert as the appropriate response – it had to adapt again to the new opponent and its approach to waging desert warfare. For signals, this meant building a system around the new response whilst also coordinating with the increasingly diverse units that made up the British force in North Africa. By November 1941, the Eighth Army comprised British, Indian, Australian, Canadian, Free French, Greek, New Zealand, Polish, Rhodesian, and South African forces, all of whom had to communicate

[454]See note 421 in this chapter for literature regarding Rommel and Montgomery.
[455]Thompson, *Forgotten Voices*, p. 4.
[456]Ball, 'The Mediterranean and North Africa,' p. 370.

with each other as well as within their own units. The integration of the various colonial forces into the Eighth Army occurred in a fashion that the imperial forces retained their autonomy and identities; that is, despite being polyglot and multinational, the Eighth Army retained separate divisions where the only significant "mixing" of the forces occurred when British officers commanded imperial units. Coming from as far as Australia and New Zealand, as well as India and Canada, the colonial contingent of the Army worked alongside the British forces.[457]

Roy Heron, an Australian Imperial Force (AIF) despatch rider in North Africa, recalled his time in North Africa and the Middle East as one of limited equipment and interaction with the Tommies, noting that his main interaction with the British came when he lost his battalion in Greece in a later campaign.[458] His recollection of the AIF's struggles in equipping its troops despite twelve months of training in Palestine demonstrates the importance of commandeering surrendered equipment in the desert, particularly from the mass surrender of the Italian forces. Here, Heron noted, he claimed a Moto Guzzi Alce after the Italian defeat at Bardia. The Alce, made for the Italian forces in North Africa, was well suited for the desert, though as he noted, 'All the young signal boys, they laughed at me for taking an old bike, and they took fancy ones Moto Guzzi and Bredas and those sort. And mine was the only bike that went through to Greece.'[459]

Following the experience at Bardia, Heron continued to lead convoys to Tobruk, often being targeted by bombing: 'Shells would go bouncing in front of me…and I'd finish up down a shellhole, and they [other troops] had to come back and look for me because we were leading the convoy.'[460] While South African DR David Brokensha wrote that of DR duties, convoys

[457]Douglas E. Delaney, *The Imperial Army Project: Britain and the Land Forces of the Dominions and India, 1902-1945* (Oxford, 2017), pp. 231-233.
[458]Oral History of Roy Douglas Heron, IWM Sound Archive 22392.
[459]Ibid.; The Moto Guzzi model discussed by Heron can be found in 'Photograph of Italian Bersagliari riding Moto Guzzi,' IWM Photograph Archive RML 801.
[460]Heron, IWM SA 22392.

were 'the part that we loved best,'[461] British DR John Hillier commented the opposite, noting the following conditions for DRs in desert convoy work:

> When we were on the move the roads were of poor quality, and riding convoy work was an arduous task, in the suffocating heat with the dust that burnt. When we had to go up mountains the passes were freezing cold; you got froze to the saddle of the bike. It was constantly up and down the convoy, at the front directing the way, until the last vehicle; reporting breakdowns, helping to get vehicles going, shovelling them out of sand drifts, watch out for soft sand patches. It was a great achievement to get to destinations with all intact… On the inside of a truck, in the desert, there was a suffocating heat from the engines and it was terrible for D.Rs. It was just sit and ride and sweat. One had great difficulty to stay awake and it was only sheer willpower that kept us going. At stops D.Rs would be stuck to the saddles and have great difficulty to walk; we would snatch some sleep laying on the bike up against a tree or pole. One would think of the men and vehicles who fell by the wayside; not many did, but those who did ended up in the Red Cross truck.[462]

Leading convoys also played on George W.F. Bowen's mind as he wrote to his parents concerning his posting in Egypt:

> I now know what my job will be when we are in Egypt –for Egypt it is—I shall be leading convoys or patrols into the desert on my motor-cycle. Sounds a bit risky, I know, but I don't think it will be. I am now undergoing an intensive course of map-reading, and find it quite interesting. I've been given a revolver—a real Army pistol, not a pocket edition like yours—so I shall be able to protect myself. Owing to map-reading and dispatch-riding duties, I have very little time for myself.[463]

Unfortunately for Bowen, he went missing on 2 June 1941 and was transferred to Stalag XII within two weeks. Thus, despatch riders remained at risk for capture, as they had in France. When asked about defending himself from Axis soldiers, Heron reiterated the juxtaposition of despatch rider loneliness and separation during active campaigns discussed in the previous chapter: 'I was apart from all the others, leading the convoys. I was apart from the battalion more or less.'[464]

So, as the war in North Africa progressed, several of the circumstances and situations of individual despatch riders mirrored the ones discussed in the previous chapter concerning

[461]Papers of David Brokensha, IWM Document Archive Documents.5728.
[462]J. Hillier, *The long long road to victory: diary of an Infantry Despatch rider 1940 to 1946*. IWM Document Archive LBY 97 / 1400.
[463]Private Papers of George William Frederick Bowen, IWM Document Archive Documents.8093.
[464]Heron, IWM SA 22392.

the retreat to Dunkirk. They functioned as messengers and convoy leads whilst maintaining a degree of separation from their own units that stemmed from the inherent autonomy of their role. They adapted to the new environment by largely exchanging? their vehicles from motorcycles to jeeps where necessary to combat the strains of desert mobility, but they maintained the image of the motorcycle despatch rider through events such as the motorcycle trials competitions held by the Army.[465]

As the *With the Despatch Riders in North Africa* photography collection held by the Imperial War Museum demonstrates, and Heron confirms, as the North African campaign expanded westward, mountainous terrain saw the combination of desert and mountain warfare. This additional terrain skillset required employing knowledge developed in theatre and the ability to adapt without specific strategy directed at how despatch riding was to be completed. This knowledge sharing process took the form of communal, informal learning spaces among active despatch riders in part because the Eighth Army represented the most diverse and expansive force yet raised in the war. With their own training and approaches, as well as differing experience and learning cultures, the constituent parts of the Eighth Army brought both advantages in their great diversity of approaches and challenges in their wide-ranging differences.

The growing heterogeneity of the Eighth Army also diversified the pathways to innovation – the structure of the dominion and imperial forces further complicated the doctrinal unity of the army. Whilst the dominions' divisions, those from Australia, New Zealand, and South Africa, retained autonomy and their independence as cohesive units, Kaushik Roy argues that the Indian divisions had no such political pressure due to India's position within the imperial structure. As a 'political orphan…the brigades of the Indian divisions could be broken

[465]'Photograph of Indian Despatch Rider competing in Motor Cycle Trials for D.R.s in Cyprus, 2 March 1942,' IWM Photograph Archive E 9008.

up.'[466] Thus, it was not just the identities of the constituent divisions that made the Eighth Army complex; the power structure and political implications of unifying an imperial force into a single army led to differences in standing and command. These issues demonstrate why understanding the North African theatre solely through the lens of operational and strategic level discussions and documents skews the interpretation towards the experience of the British commanding officers. Not only did the officers not form a homogenous group, but they also often struggled to connect with their subordinates across the Army.[467]

The practical ramifications of such a diverse force required additional training in many circumstances, such as requiring all Indian signallers to learn the Roman alphabet in order to send Morse messages, regardless of whether the soldiers, who came from wide ranging backgrounds, spoke or understood English.[468] Roy noted the cohesiveness of the German Afrika Korps largely originated in its limited national identities whereas Wavell's Eighth Army contended with 'difference [sic?] social backgrounds, had different religions and varied dietary habits, spoke different languages and had different combat motivations,' both across the Army and within the highly diverse Indian divisions. Less helpfully, Roy, who links innovation with the officer class, notes that the Indian 'jawans were illiterate and semi-literate small peasants from the countryside, the "Tommies" to a great extent were from urban slums. This was a serious structural flaw in the constitution of the British imperial land force.'[469] As previous chapters have shown, the British Army continued to undergo social changes during the Second

[466]Kaushik Roy, *Fighting Rommel: The British Imperial Army in North Africa during the Second World War, 1941-1943* (London, 2020), p. 163. For the role of the Indian Army in the North African and Middle Eastern theatres, see W.G. Hingston and G. R. Stevens, *The Tiger Kills: The Story of the Indian Divisions in the North African Campaign* (London, 1944); Kaushik Roy, ed., *The Indian Army in the Two World Wars* (Boston, 2012); Charles Townshend, *Desert Hell: The British Invasion of Mesopotamia* (Cambridge, Mass., 2011); and Alan Jeffreys and Patrick Rose, eds., *The Indian Army, 1939-47: Experience and Development* (London, 2017).
[467]Ibid.; Douglas E. Delaney, *The Imperial Army Project: Britain and the Land Forces of the Dominions and India, 1902-1945* (Oxford, 2017), pp. 231, 234; Tim Moreman, 'From the Desert Sands to the Burmese Jungle: The Indian Army and the Lessons of North Africa, September 1939- November 1942,' in Roy, ed., *The Indian Army in the Two World Wars*, p. 223; Raymond Callahan, *Churchill and His Generals* (Lawrence, Kans., 2007).
[468]Simon Godfrey, *Fog of War*, p. 97; Roy, *Fighting Rommel*, p. 2.
[469]Roy, *Fighting Rommel*, p. 15; See also, Robert M. Citinio, *The Wehrmacht Retreats: Fighting a Lost War, 1943* (Lawrence, Kans., 2012).

World War, primarily where the definition of ‘expert’ and abundance of technical and mechanical skills intersected. Roy’s assertion that innovation largely occurs at the doctrinal, strategic, and operational levels fails to account for the adaptability and resourcefulness brought to the Eighth Army by the jawans and Tommies, who played significant roles in the eventual victory in North Africa. It also fails to account for the Army’s targeted recruitment of civilians with technical skills, increasingly challenging the concept of who ‘experts’ were.

The Eighth Army, then, represented an increasingly complex army, one that did not have a specific overarching nationality or identity. Led by the British, it remained an imperial army, one with heterogenous components that influenced its learning culture and ability to adapt to the multitude of geographical, strategic, operational, and tactical challenges posed by the ongoing, fluid campaign. The broad learning culture of the Eighth Army, as Roy has argued, fundamentally embraced a ‘critical analysis of one’s own capability;’ however, Roy limits this to an institutional level learning culture. This thesis contends that learning culture is not necessarily institutional; though organisations certainly have learning cultures and institutions certainly learn, there is a secondary learning culture that permeates the individuals comprising the institution. Overlooking this learning culture, as well as the establishment of a broader culture that encourages learning, oversimplifies where and how innovation occurs during campaigns. By only indicating where the Eighth Army or its subordinate divisions innovated, the exclusion of the lower-level learning culture excludes the front line and often most improvised. Defining learning culture as only institutional, therefore, defines adaptations as only higher-level–that is, only strategic and operational. Technical level, below that of tactical, also experienced innovation and adaptation during the North African campaigns, and many of these changes found their way up the chain into substantial changes due to the developing culture of learning, as well as the crossroads of the divisional diversity. The increased diversity

of? perspectives encouraged the learning process and brought increased ideas to the Army's knowledge bank, allowing more expansive lessons-learned processes afterwards.

The Eighth Army's heterogeneity, combined with the geographic differences and need for hyperlocal adaptations, however, led to a growing lack of uniformity concerning strategy and practice, particularly in the technical areas of the Eighth Army. For signals, this meant various divisions had differing equipment with differing ranges, differing transport, and differing policies concerning wireless silence and cipher use. Furthermore, as the campaign progressed and the various divisions altered their offences in response to the Axis forces, more divergence occurred. The patchwork character of the Eighth Army, particularly as increased reinforcements joined, led to a patchwork of doctrinal interpretation. Glyn Harper has noted that the Eighth Army had a significant obstacle to surmount in its existence as 'a polyglot force' that 'lacked a sense of shared purpose…This lack of cohesion, this understanding of a shared purpose in working together as part of a larger team, contributed significantly to the many disasters ahead for Eighth Army.'[470]

Furthermore, the evolution of the Eighth Army's practices echoed similar divergence occurring in the First Army. By 1942, this disparate aggregation of techniques and attitudes culminated in the War Office responding with a full review of communications methods to better unify the British forces. The War Office required this homogenisation of signalling, which will be discussed later in this chapter, as well as the next chapter, not just because the British formations had different methods but also because the Allied Forces grew increasingly diverse with the U.S. entry into the war and introduction to the North African theatre.

Regimentalism in the Desert War

[470]Glyn Harper, *The Battle for North Africa: El Alamein and the Turning Point for World War II* (Bloomington, IN, 2017), p. 16. For more on morale in the Eighth Army, see John Ellis, *The Sharp Edge: The Fighting Man in World War II* (London 1993), p. 315; Jonathan Fennell, *Combat and Morale in the North African Campaign: The Eighth Army and the Path to El Alamein* (Cambridge, 2001), p. 246.

Hew Strachan has argued that front-line units responding pragmatically and initialising change can be seen as both a symptom and cause of regimental autonomy, noting that though regiments fostered change, their autonomy prevented the spread of change throughout the army, making 'institutional memory of the army,' especially regarding tactics, 'very fragile.'[471] At this point in the war, the threat of regimentalism—the autonomy of individual units, and despite the terminology, not necessarily limited to regiments—grew quite strong, largely as a result of the many adaptations the Army had undergone. These changes resulted in pockets of localised knowledge that often did not spread far beyond the immediate vicinity. This occurred for many reasons, most notably the relevance of the information to the immediate area. For example, local knowledge of roads, peoples, and potable water supplies quickly faded in its usefulness the farther from the region a unit travelled, as did any modifications made to the specific region and geography surrounding the area. The overarching issue that emerged regarding communications in North Africa was not necessarily the use of local solutions for local problems; rather, it was the overabundance of local solutions to local problems. By allowing formations the autonomy to adapt local solutions, often in the form of local, civilian customs, the Army created an environment whereby any formation could make and retain changes from the official standard.

As the Eighth Army developed its identity, it also gained a reputation for its individuality and regimentalised practices. In 1943, in his notes on his report entitled 'Lessons from Tunisian Campaign,' CSO 5 Corps Colonel A.C. Willway detailed the differences that had started to emerge in the North African campaign:

> the formation of 18 Army Group and the mingling of Formations from the Middle East with those from the United Kingdom has brought to light and emphasised differences in signal organization, equipment and technique which if perpetuated can result in a general weakening of the whole signal machine.[472]

[471]Hew Strachan, ed., *Big Wars and Small Wars: The British Army and the Lessons of War in the Twentieth Century* (London, 2006), p. 8.
[472]'Lessons from Tunisian Campaign.' TNA WO 244/115, 'Intercommunication,' p. 1. The report in this file has many different parts, all of which have their own pagination.

He also asserted that 'great care must be taken not to carry the control too far and turn Corps Signals into a pure machine without initiative' when combating the growth of differences among the forces.[473] How to balance the autonomy of individuals and units with the need to maintain a cohesive infrastructure remained an issue across North Africa and the Middle East and indeed challenged communications for the duration of the war. Willway continued his response aimed directly at the Eighth Army's regimentalism: 'I do admit that Eighth Army are "intolerant" and inclined to look on themselves and their methods as the one and only!'[474]

In addition to the growing discord within the British Army communications practices, the imperial forces that formed the Eighth Army, such as the South African, New Zealand, Australian, and Indian Army divisions, brought with them their own methods and practices of soldiering, which included communications. Uniformity, then, faced a plethora of challenges, particularly in a theatre in which soldiers relied heavily on experience for adaptability. Furthermore, the 1941 entrance of the United States into the conflict saw another fundamentally different military training and methodology enter the conflict. By 1942 when the US joined the North African campaign, issues between the British and American communications methods became apparent. The London and Washington Communications Committees approved a combined wireless telegraphy procedure for the joint British and United States armed services in May 1942; however, issues of compatibility and compromise plagued the acceptance of such a venture in wireless:

> The British Army has the special problem of training a number of non-English-speaking operators. Their agreement to 'L.C.C. Procedure' for combined use, involved considerable alterations to their internal procedure. The more drastic changes entailed in adopting 'compromise procedure' would be likely to have an adverse effect on military communications.'[475]

[473]'Notes on Report by CSO 5 Corps (12 June 1943) HQ Force 141 by Col A.C. Willway,' Ibid.
[474]Ibid., 'Wireless' Section, p. 3.
[475]'Wireless Cable and Signals Communications: 6 Feb 1940 to 24 Mar 1945,' TNA WO 193/211.

Agreeing even the basic W/T procedure between the two militaries, however, proved more difficult than planned, with a 1 November 1942 telegraph to the Chiefs of Staff in London noting:

> Complete impasse between British and U.S. members of Combined Communications Board on combined wireless procedure is being referred to Combined Chiefs of Staff for decision. Our signal representatives here have been instructed by service departments in London not to give way. U.S. Navy equally adamant…If we maintain this positions, we may have to accept impossibility of producing agreed procedure. Issue therefore appears to be whether inconvenience to us of not having combined wireless procedure would be greater than that of changing our existing basic procedure.[476]

Thus, the notion of a combined procedure for Allied forces in 1942 took months to negotiate; meanwhile, the Allied forces saw ongoing combat in North Africa utilising the existing systems of communication. With the most basic W/T procedures creating impasses in Washington and London, the soldiers in the desert of North Africa had to make do with the equipment, processes, and experiences within reach.

Training, like policy agreement, had yet to catch up with the desert environment and its unique demands. John Ferris noted that by 1943, the British signal structure lacked the necessary, experienced technical training required to make signals effective and efficient. Furthermore, he noted American General Walter Bedell Smith's 1943 opinion that 'signals personnel are either good or useless. There is no half-way. To be good, they must have long periods of combined training, and they must specialize in the particular job for which they are to be employed.'[477] Due to the absence of cohesive and updated training, informal, peer learning—the manner by which local knowledge pass around formations—filled the void for the soldiers new to the theatre, reinforcing the growing irregularities.

The report of 1943 revealed the state of communications in the North African campaign and found that as the campaign developed, the increasing amount of divergence from signal

[476]Telegraph from J.S.M. Washington to Chiefs of Staff, London. Ibid.
[477]WO 204/6595 in John Ferris, 'The British Army, Signals and Security in the Desert Campaign, 1940-42,' *Intelligence and National Security* 5:2 (2008), p. 260.

processes and procedures had reached an unacceptable level. The local adaptations that characterised the Army's approach to communications changes had, taken to the extremes of the North African campaign, resulted in a disjointed and highly individualised army group. Rather than accept this as its method, the Army responded by calling for standardisation, creating a single, unified signals policy that could account for all the changes, mitigate any negative impact, and unify the various armies and divisional methods. The crescendo of local level solutions, then, laid the groundwork for one of the major changes for signals during the Second World War: the Godwin-Austen Report. This report, which will be analysed later in this chapter came after the major battles of the North African theatre. While the need for strategic revision existed prior to the main battles of the campaign, the Godwin-Austen Committee's timing meant rather than guiding the strategy and creating innovative doctrine for desert warfare, it served instead as a reflective, lessons learned process.

The Battles of El Alamein and Axis Retreat

As one of the most decisive and defining engagements of the North African campaign, El Alamein saw a 'dramatic turnaround' in the Eighth Army's fortunes, which Jonathan Fennell attributes to 'a resurgence of morale' between September and October 1942.[478] On the other hand, Harper ascribes the change in fortunes to the assumption of command by Alexander and Montgomery.[479] Historians continue to disagree concerning what caused the transformation of the Eighth Army from struggling to victorious, but most agree that the Second Battle of El Alamein became the major turning point of the North African war. This thesis takes the position that it was not one factor that resulted in the transformation but rather the culmination of experience and increased knowledge at all levels. To attribute a causal relationship with

[478]Fennell, *Combat and Morale*, p. 280.
[479]Harper, *Battle for North Africa*, p. 41.

leadership change devalues the experience of the thousands of soldiers who had, over the past two years, learned how to fight in the desert and how to adapt to their surroundings, in addition to sharing that knowledge with new members of their units.

For signals, El Alamein represented both an opportunity and an unusual proving ground. The British Army utilised its experiences in the desert and created a defensive line between the Mediterranean Sea to the north and the Qattara Depression, making use of the knowledge gained regarding the desert terrain. The geographic limitations of the defensive position also differed from the previous experience of chasing the Italian and German armies across the Western Desert, allowing for more set piece tactics that characterised the introduction of Montgomery's strategies. Despite the construction of this defensive line, Harper argues that

> Spending so much energy and resources on a strong defensive position in such an important location and then abandoning it twice without a fight are not really indicators of tactical finesse. Rather they demonstrate considerable indecision and a lack of understanding of how such wasted effort affected the morale of those doing the digging and the fighting.[480]

Fennell, however, argues that morale of the British Army experienced a 'resurgence' and '[t]he incidence of battle exhaustion during the thirteen days of fighting at El Alamein was remarkably low, especially for an attritional infantry battle.'[481]

The slowed pace of battle faced at El Alamein allowed signals the opportunity to both coordinate more effectively and utilise R/T more frequently. As John Ferris argues, El Alamein brought a change to the circumstances of the British Army rather than a change to its signals and security system, which had not fundamentally altered throughout the North African campaigns. Ferris also indicates that the 'value of this system was initially constrained, however, because signals and security are the servants and not the masters of the field.'[482] Thus,

[480]Harper, *Battle of North Africa*, p. 48.
[481]Fennell, *Combat and Morale*, p. 283.
[482]Ferris, 'British Army, Signals and Security,' p. 286.

the individual signallers had developed effective means of communicating but had not been able to implement these methods on a grand scale due to the overall movements and demands of the Army's position.

The geography and positioning at El Alamein allowed Montgomery to fight a positional battle rather than contending with the vast distances and open desert plains that had characterized the majority of the conflict in North Africa thus far. The time the British Army had spent in overcoming the challenges of warfighting in the desert, largely from the LRDG's explorations and innovations, came to fruition when the Eighth Army successfully defeated the Axis Forces during all three battles at El Alamein between July and November 1942. The ability to learn from its experiences and the diversity of its divisions gave the Eighth Army a major advantage that resulted in a turning point of the campaign and overall war. By 1943, the Axis forces had been chased back to Tunis and the Allies declared victory in the theatre, moving firmly back to the European continent in 1943-1944.

Lessons Learned from the Desert

Analysing doctrine expecting to find the genesis of big, sweeping changes betrays the steps taken to get to the point at which change can occur. As Richard Hollingham argued, 'most progress is incremental' in science and technology with 'small changes in procedures or techniques, refinement of treatments and technologies,' resulting in more substantial progress than any single player or event.[483] Hollingham's commentary holds true across disciplines and can be applied to communications during the war. By 1943, the British Army had revised its approach to communications in several internal benchmarking processes, the most important of which have so far been discussed in this thesis: the Norman, Kirke, Jackson, and Bartholomew Committee Reports. After the war moved to North Africa and the array of adaptations had become hyper-localised, often resulting in disparate overly regimentalised

[483]Richard Hollingham, *Blood and Guts: A History of Surgery* (New York, 2008), p. 128.

communications system, Royal Signals once again sought to refine its system, coordinating across the Army and established a more unified approach and more uniform practice.

The result of this effort, the Godwin-Austen Committee's Report offered a glimpse into the attempts of the Army to reflect and respond to its experiences, as well as to share its in-theatre knowledge, in doctrinal change. Like the previous reports, particularly the Bartholomew Report, it demonstrated an acknowledgement that the communications of the Army must adapt during the conflict—it could not wait until the war was over to assess what would be necessary for future progress. The limitation of the Godwin-Austen Report, as the next chapter will show, was the same limitation of the previous reports: They were reports of the war fought *so far* and once the theatre again changed, their effectiveness essentially evaporated, leaving these reports to appear short-sighted and ineffective. The significance, however, remains that the Godwin-Austen Report recommended, mid-war, a significant change to the organisation of communications. In doing so, the Godwin-Austen Committee demonstrated the Army's ability to research and analyse contemporary efficiencies and performance, as well as provide a dissemination plan for this knowledge.

Nina Kollars writes of 'success quickly forgotten' when referencing informal technological adaptation and local changes made in US units during the Vietnam War.[484] The difference between what occurred during the North African campaign of 1940-142 and her thesis concerning later conflicts is the transcendence of many of these local changes into doctrine, a fusing of bottom-up and top-down agents of change into a strategy that takes the most significant of all the changes, regardless where the change began and created a new standard for the signal service. The Godwin-Austen Report, therefore, also differs from the Bartholomew Report in this respect: the vastness of the North African theatre and campaign

[484]Nina Kollars, 'War's Horizon: Soldier-Led Adaptation in Iraq and Vietnam,' *Journal of Strategic Studies* 38:4 (2015), p. 530.

made discerning exactly where and how innovations came about not as straightforward as the Bartholomew Committee's formal interviews in London. Instead, the report's authors travelled to North Africa to conduct the research and interviews in-theatre, giving an immediacy to the committee's task. In doing so, it created and integrated an important feedback loop to the benchmarking process developing at the War office, paving the way for the establishment of the learning process described in the introduction of this study and put into action European theatre discussed in the next chapter.

The Godwin-Austen Committee

In June 1943, General Harold Alexander, Army Group Commander, requested the formation of a committee to investigate and 'eradicate differences in signal practices' that had arisen from the varied and localised experiences of the First and Eighth Armies in North Africa and the Middle East.[485] Nalder noted that 'the War Office, while accepting most of the lessons of the Desert, had not thought it appropriate to reorganize to the same model the signals units in the United Kingdom, which formed part of the considerable strategic reserve eventually destined for the Second Front.'[486] So, while the War Office acknowledged the extent of the 'lessons of the Desert,' it did not wish to adopt *all* of the lessons, instead desiring the committee to distil them to best practice. The remit stemmed from the embarrassing failures of the British First Army and Eighth Army to work together effectively as 18 Army Group along with the American forces during Operation Torch in November 1942. Essentially, the War Office found it unacceptable that First and Eighth Armies had regimentalised their signals practices to the point that they could not work together effectively, creating further issues with then working with the American signal practices as well as ongoing issues with the imperial forces joining the British in North Africa.

[485]Nalder, *Royal Corps of Signals*, p. 350.
[486]Ibid.

The War Office formed the committee under the chairmanship of Major-General A. Reade Godwin-Austen, who lent his name to its subsequent report. Nalder's chronicling of the committee and how it produced its recommendations is particularly important when understanding the Godwin-Austen Report as Nalder, then a Brigadier and Deputy Director of Signals (Organization) and later CSO of 15 Army Group, served on the committee.[487] The committee travelled to North Africa and 'took evidence from commanders and senior staff and signal officers.' Aside from Godwin-Austen and Nalder, it comprised two staff officers, Major Haslegrave and Major Lewis (secretary).[488] The witnesses interviewed for the committee's evidence included six major generals, four brigadiers, two colonels, seven lieutenant colonels, two majors, and one squadron leader. Of these, the main evidence was taken Major-General W.R.C. Penney, CSO 15 Army Group; Major-General L.B. Nicholls, SO-in-C Home Forces; Major-General C.H.H. Vulliamy, SO-in-C Middle East; and Major-General L.G. Nicholls, CSO Allied Forces Headquarters.[489] Under the direction of Godwin-Austen, the committee reviewed the 'experience of all operations which had so far taken place, except those in South-East Asia and the Far East,' and, when finalised, the 'recommendations were accepted by the War Office without reservation and were implemented as soon as possible.'[490] Nalder further outlined that the committee's recommendations 'stood the test of the rest of the war in Europe,' but, as a core participant in the process, as well as his later position as the historian of the Royal Corps of Signals, his account of the effectiveness of the Godwin-Austen Report begs further interrogation and will be addressed more specifically in the next chapter.[491]

The Godwin-Austen Committee operated under the remit to resolve local differences due to the need for a 'basic organisation and doctrine.' This became increasingly significant

[487]Ibid., p. 351. Nalder later succeeded Maj Gen WRC Penney as CSO, 15 Army Group in Italy.
[488]Godfrey, *British Army Communications in the Second World War*, p. 144.
[489]TNA 32/15071 Report of the Godwin-Austen Committee; Nalder, *Royal Corps of Signals*, p. 351.
[490]Nalder, *Royal Corps of Signals*, p. 351.
[491]Ibid.

not just within the various British armies; the US entry into the war added another layer of compatibility to be accounted for in an increasingly technical and complex communications system. The Committee, as will be shown, repeatedly affirmed that 'local circumstances may require variations in employment and application.' Here, the Godwin-Austen Report addressed an important element of the British Army's approach to how it modified and adapted to new theatres: it built in the flexibility for units to adopt local solutions to localised problems but notes that too many local solutions tips the balance away from a functionable strategy. The Godwin-Austen Committee set out to bring the overall signals policy together and establish a uniform, basic organisation that would characterise the communications framework moving forward. In doing so, it played a significant role in not just doctrine formation but embodied the very core of how change and transformation occurred during this stage of the war. In investigating what worked in the field, seeking the testimony of various CSOs and SOs-in-C, the Godwin-Austen Committee devised a higher-level change that addressed the issues faced in the North African and Middle Eastern theatre at all levels. By comparing the formations and their experiences in North Africa in particular, the committee adopted many of the local solutions as broad strategy, elevating the local solutions to doctrine-level. This method of utilising the evidence at its disposal to respond to issues that had arisen to create a strategy showed progress, as did its timeliness, in doing it while the formations it studied were actively engaged in campaigns. The CSO 15 Army Group, for example, could not attend the committee due to the Sicilian campaign. Instead, the committee visited 15 Army Group.[492]

The Godwin-Austen Committee's work, however, suffers from one of its own main criticisms of local solutions: like the major reports discussed previously in this thesis, it evaluated a past theatre, in this case North Africa, to develop a strategic framework for a future theatre in Europe. The major issue with which the committee had to contend, which will be

[492]TNA 32/15071

discussed in the next chapter alongside the campaigns in Europe during 1943-1945, was whether this attempt to change and introduce best practice could provide recommendations that were practical enough to be effective, concise enough to be implemented across the entire British Army, and realistic enough pertaining to resources and manpower. Past reports, as previously discussed, attempted to make timely and effective changes, but the resulting policies still resulted in the need for the Godwin-Austen Committee. Unlike the previous attempts, then, the Godwin-Austen recommendations included language that identified where and when the informal practices of local adaptation should be made and at what point local solutions became too varied, regimentalised, and disaggregated. Essentially, what the Godwin-Austen Committee sought to find in developing its 'basic organisation and doctrine,' was the middle ground, the point at which formations should stop using local solutions and identifying areas where formations should *never* use local solutions.

This approach and the committee's understanding of where it should limit the autonomy to make independent adaptation is exemplified in the report:

> It should be borne in mind that the differences in signal organisation and employment, other than technical, may be largely due to differing technique of command and unilateral methods of controlling the battle, sub-dividing headquarters and administration. Whilst reasonable latitude must be allowed any commander in such matters, signal resources can only be provided to meet the requirements of a standard methods. It may well be, therefore, that the first task of the Committee will be to decide what should be the policy of command most suitable to a European theatre of war.[493]

The phrase *reasonable latitude*, employed by the committee to describe the grey area of local solutions and informal knowledge transfer, sees the British Army finally articulate its approach to how it adapted its communications during the first half of the twentieth century. This thesis argues that *reasonable latitude* did not just apply to command, it applied to the entirety of the British Army ranks, especially in communications. The main strategy reports during this

[493]TNA 32/15071

period, without necessarily articulating it in the same matter as Godwin-Austen, sought to define *reasonable* while assuming a level of *latitude* always applied in theatre.

The Godwin-Austen report, then, is significant not just for its recommendations, which include standardised company composition, best vehicles, allotment of manpower, and organising where signal policy should originate. Godfrey argues that the report's impact can be found in its establishment of a 'framework for an effective communications system involving line, wireless and messengers, with duplication and redundancy, so that if one method failed, another could take over.'[494] Just as important for signals, however, is the report's articulation of the sphere of reasonable latitude. It acknowledges several key characteristics to the British signals structure that had developed over the course of the war, which will be discussed in the following section.

Godwin-Austen Recommendations

The report issued by the Godwin-Austen Committee in 1942 made many recommendations that affected the Royal Signals framework. Its goal to re-align the British Army's communication network resulted in a substantial undertaking and evaluation of both current practices and past experiences of commanders. The report's significance, however, does not just lie in what it recommended but also how the committee came to those conclusions and the spirit with which they intended the recommendations to be understood. These aspects of the Godwin-Austen Report therefore require it to be seen as part of the series of reports that this thesis has addressed rather than a standalone War Office committee. The most recent report, the Bartholomew Report, differed greatly from the Godwin-Austen Report for several reasons, namely that the 1939-1940 war that the Bartholomew Committee evaluated had changed considerably by 1942.

[494]Godfrey, *British Army Communications in the Second World War*, p. 148.

One of the major differences concerned the location in which the Godwin-Austen Committee worked – North Africa rather than London – which heavily influenced the nature of the recommendations, addressing the practicalities and limitations of implementation. On addressing an ongoing, resource limited conflict, the committee acknowledged that it

> must be guided by the facts that manpower and production are limited and continual increases are impossible. It is unlikely therefore that the ideal will be achieved and so the fundamental aim must be the standardisation of the technique of command and intercommunication within the capacity of known resources.[495]

In addition to noting the restrictions in manpower and production, as well as difficulties in disseminating information, the committee commented that

> Implementation of such recommendations as are accepted cannot of course be carried out simultaneously by all formations. In the meanwhile strict instructions should be issued that no more theatre establishments are to be approved in respect of any of the units covered by this report…without the prior sanction of the War Office.[496]

Recognising the difficulty in establishing uniform communications policies during an active war, the report first halts the ability to adopt the local solutions or 'theatre establishments' that had so characterised the campaign in an effort to stop the armies' communication practices from diverging any further. While understanding that it would be impossible to effect change across the entire Army all at once, it also understood that it needed to prevent formations from continuing to adapt away from what was to be the new standardised model.

Part of this standardisation affected despatch riders specifically. For example, it changed the primary vehicle of despatch riders from motorcycles to jeeps, as well as combining the different despatch riding organisations—the regular DR section and the DR Light Car sections—that had evolved during the conflict. Moving forward, DR sections were to have nine jeeps, and the agreed standardised numbers of sections for each of the levels of command. Regarding the line communications, the speed and conditions of the North African theatre

[495]TNA 32/15071, Report of the Godwin-Austen Committee, p. 4.
[496]Ibid. p 2.

resulted in a reduction of line communications with an increase in the recommendation of wireless: 'The rapid pace of operations which have taken place during the last few months has made it impossible to provide adequate line communications quickly enough even at the army level and it has thus been necessary to rely very largely on wireless,' including linking the Rear HQ of a higher formation to the Rear HQ of a lower formations, which had 'not previously been provided for in war establishments between divisions and brigades.' [497] Thus, the report not only reshuffled equipment and supply routes but also how formations linked together internally.

The Godwin-Austen Report also provided examples of how it adopted what had previously been considered local solutions and made them into signals policy. One of these examples, given in full below, demonstrates how a system of wireless deception evolved in the Middle East and was to become a standard of wireless security practice due to its endorsement in this report. It also shows the extent to which the committee reviewed not only the process but the suitability for broader adoption of the practice:

> With a view to wireless deception, Middle East evolved a system of controlled wireless activity whereby periods of wireless silence and periods of wireless inactivity were interspersed at irregular intervals between periods of wireless activity. Those applied to all field formations and units but excluded fixed wireless services and training establishments. Wireless activity implies full use of wireless by all, often accompanied by restrictions on other forms of communication. During periods of wireless inactivity tuning calls are permitted at irregular intervals and wireless can be opened up or used under prescribed conditions. During periods of wireless silence use of wireless is rigidly prohibited subject to the usual latitude on gaining contact or in grave emergency. The system was put into operation with a view to accustoming the enemy to varying conditions and to enable the tactical moves of formations to be carried out without raising the enemy's suspicions. The scheme to be successful must be ordered by GHQ and must be promulgated as far ahead as possible. It must be related to the general plans for deception by all other means. The system proved its value when applied to wireless deception prior to the offensive at EL ALAMEIN in October, 1942. The Committee recommends the adoption of similar systems in other theatres.[498]

[497]Ibid., p. 21.
[498]Ibid., p. 76.

Aside from its detailed recommendations concerning organisation and practices that had evolved, the language of the report forms an integral part of its significance. It repeatedly refers to 'the rapid pace of modern battle' in discussing both mobility and line communications, indicating the understanding and acceptance of the most recent campaigns as different from the 1939-1940 period in Europe. Other terminology adopted further supports the notion that the new policy codified *reasonable latitude*, including acceptance of 'flexibility,' arguing that 'in the modern battle considerable elasticity is necessary, and new or modified demands have to be catered for with the minimum of delay.'[499] Along with 'reasonable latitude,' the 'considerable elasticity' advocated in the report encapsulates its theme and most important approach to communications during the war: though it devised a standard, the report also expected that, by necessity, the standard would not be followed verbatim. Instead, the Godwin-Austen Report did not provide a diktat for communications, it provided the standard from which formations and the individuals within those formations, whatever their rank, can and should deviate as conflict requires.

Conclusion

This chapter analysed the adaptability of communications in the North African theatre from 1940 to 1942, or, more precisely, from the Bartholomew Report to the Godwin-Austen Report. In considering the Bartholomew and Godwin-Austen committees, it demonstrated the British Army's commitment to learning as the war progressed. The time span within which the Army sought to not only gather evidence and articulate its findings but also make recommendations for both large scale and minor changes to communications policy shows an orchestrated attempt to improve not only the efficiency of the Army but also solve problems and challenges as they arose. As shown in this chapter for the Bartholomew Report and the

[499]Ibid.

next chapter for the Godwin-Austen Report, the Army did attempt to follow the recommendations of the reports; however, the war continued to outpace the reports. This situation of making recommendations during an active conflict and the unpredictable theatre moves gave the appearance of the Army constantly being behind the learning curve. For example, by the time the Bartholomew Report made recommendations based on the experience in Europe, the war had largely moved to the North African theatre. Likewise, the Godwin-Austen Report's release coincided with the newly opened European theatre.

The vast differences of the North African theatre to Europe, as well as the WDF and Eighth Army to the BEF led to great changes on the ground as units adapted as necessary. As the war moved to Africa, the identity of the Army itself also morphed: it became an expansive imperial army with increasingly diverse voices and approaches to communications and signals. The theatre itself also challenged despatch riders and communications to the core: the climate, terrain, geography, and environment forced responses and flexibility that resulted in increasing variation to standard procedure. The growth of this 'regimentalism' and the growing disunity in practice as different units faced different challenges in different parts of the theatre led to the War Office convening the Godwin-Austen committee to evaluate existing practices for uniformity and bring cohesiveness to communications.

The defining outcome for despatch riders and the individual soldiers in Royal Signals came in the form of a phrase that finally articulated what they had been doing during their entire experience in the desert and the war more broadly: *reasonable latitude*. The War Office's committees and reports officially indicated that a standard doctrine should only be the starting point for practice; experience and on-the-ground adaptation had to be built into operations. The Godwin-Austen Report clearly indicates that policy did not always originate from the top-down or always come directly from the bottom-up. Instead, what was more significant was the impact of an adaptation, not necessarily where it originated, creating an asymmetric confluence of

ideas and nebulous process of learning. Additionally, the despatch riders demonstrate that this overarching strategy of 'reasonable latitude' did not apply just to the officer class; all members of Royal Signals needed to have the same 'flexibility,' 'fluidity,' and 'considerable elasticity' in order to fulfil the expectations of the Army.

The War Office accepted the recommendations of the Godwin-Austen Committee in full, and the report began circulating in 1943. However, just as had happened to the Bartholomew Report and its recommendations, the war once again changed theatres. As will be discussed in the following chapter, the move back to Europe changed the environment, climate, terrain, and logistical challenges with which the Royal Corps of Signals had to contend. Furthermore, as will be shown, an important member of the Godwin-Austen Committee, RFH Nalder demonstrated a significant continuity in communications strategy from the North African experience to Italy, the first theatre considered in the next chapter.

CHAPTER FOUR:
Godwin-Austen Report of 1942 to the European War's End in 1945

Introduction

By 1943, the British Army had transformed itself from the small, outmoded British Expeditionary Force of the 1939 'Phoney War' to the multinational army of the victorious North African campaign. The years between these two characterisations spawned not only frontline adaptation out of necessity but also significant lessons-learned investigations by War Office committees. The latter, most notably the Godwin-Austen Report discussed in the previous chapter, served as the Army's internal benchmarking process, resulting in significant changes to communications policy. As described in the previous two chapters, the Army routinely collected information and examined its performance, tactics, and strategy during these three years in an effort to increase its efficiency and responsiveness to the Axis forces. Importantly, by 1942, the War Office articulated its reliance on 'reasonable latitude' in the Army, formalising its approach of allowing flexibility, fluidity, and 'considerable elasticity' to respond to the continuously changing war.[500] By resisting an organisational overhaul of its existing structures and training during the conflict, the Army repeatedly acknowledged that dissemination of knowledge and know-how required structural changes that proved difficult to execute whilst undertaking combat. For example, the CSO of 15 Army Group in Italy, Major-General Reginald F.H. Nalder reiterated in correspondence with the War Office's Director of Signals Major-General Sir Leslie Phillips that many of the changes recommended by the Godwin-Austen Committee could not realistically be implemented in-theatre amidst an active campaign.[501]

[500]Report of the Godwin-Austen Committee, TNA 32/15071, p. 21.
[501]Newsletters, CSO 15 Army Group to DS War Office, Dec. 1943- Dec. 1944, TNA 244/126.

This chapter follows the British Army that returned to Europe and faced further challenges in environment, strategy, and tactics, as well as the growing presence of and partnership with Allied forces, that required new solutions. Unlike its early 1939-1940 defeats in Europe, the Army proved victorious, utilising the knowledge and experience it had gained from the war, deploying adaptative and innovative techniques wherever possible, but importantly, refraining from implementing change where needed. Often viewed as a failure to implement change, it is important to understand and acknowledge the decision making and cognition of commanders and soldiers who chose not to implement a change because, in their opinion, the risks or difficulties of doing so outweighed the benefits. Historians have conflated this process of choosing not to make a change with a failure of the agents to understand and appreciate more advanced and new tactics.[502] Here, experience and uncaptured informal knowledge often played a larger role than formal processes for which records survive in archives. This chapter explores this continued tension between informal and formal knowledge mechanisms and their relation to the methodological tensions of utilising official documents and oral histories.

In doing so, it also connects the War Office's tendency to implement limited, pointed strategy changes and recommendations to its understanding of the learning process the Army developed over the course of the war. Its recognition and acceptance that major changes could not? be feasibly implemented whilst campaigns were in-process demonstrated its understanding of both its ability and limitations to learn, disseminate, and effect new knowledge. By evaluating evidence of its own performance and weighing it against available resources, Royal Signals not only established internal benchmarking processes but had also decided by the Godwin-Austen Report to codify reasonable latitude, flexibility, and fluidity among its officers and soldiers. It also showed the ability to consider the options and, for the

[502]See, for example, Edward Smalley, *British Expeditionary Force, 1939-1940* (Basingstoke, 2015).

benefit of the immediate campaign, elect not to make a change that, in retrospect, may appear as the inability to accept new methods. As this chapter demonstrates, Royal Signals also increasingly placed the informal learning process solidly within the learning structure, elevating the lived experience to the same consideration and stature as top-down command. Thus, by the time of the Italian campaign, the Army, and Royal Signals in particular, had established an embryonic process through which change could emanate from any level, which matured during the European campaigns and proved an important driving force in the overall victory that came in 1945.

This chapter explores this process by analysing the effects of the Godwin-Austen Report in two main theatres: Italy and Northwest Europe. Though the Italian campaign began with the invasion of Sicily in 1943 and the invasion of Northwest Europe began with the D-Day landings at Normandy in 1944, both of these theatres must be understood as simultaneous and concurrent. Though this chapter discusses the theatres separately, understanding them as occurring so close together in time leads to a better understanding of why lessons from Italy did not necessarily flow to Northwest Europe in time to make great impacts. The chapter also largely traces the continued evolution of the Eighth Army in order to follow the experience and learning process of its soldiers, many of whom had served in North Africa. Though other armies and services are explored, by keeping the Eighth Army at its centre, this chapter continues the tracing of the informal knowledge that began in France in 1939 and developed during the war.

In addition to the time lag, the change in theatre and environment further challenges the understanding of the effectiveness of the Godwin-Austen Report. As discussed in the previous chapter, the Godwin-Austen Committee utilised evidence and experience from desert warfare to make recommendations and provisions for Royal Signals. It suffered the same fate as the Bartholomew Committee's Report after the Dunkirk evacuation: by changing theatres quickly, many of its recommendations lost their direct relevance. The establishment of the committee

to evaluate communications policies, however, remains the report's most influential and significant contribution to the war and the Army more broadly. This chapter analyses the impact of the report as the last major wartime revision to signals policy, finding it an essential internal benchmark of a wartime process of early organisational learning that establishes Royal Signals, if not the Army as a whole, as a learning organisation during the Second World War.

The first half of this chapter introduces the Italian campaign, demonstrating why the experience of the Eighth Army in North Africa served as both an advantage and a disadvantage, taking into account how well communications transferred its knowledge from the largely desert warfare of 1940-1942 to the 'craggy mountains' and urban centres of Italy. It also explores the composition of the Allied forces in the campaign, analysing the increasing presence of the United States military and how it created both avenues for collaboration and dissonance between signals corps, as well as larger intra-service and intra-Allied tensions. As the campaign into the 'soft underbelly' of Europe became increasingly difficult and German resistance became increasingly strong, this chapter evaluates the various challenges that arose, identifying tensions between strategy and lived experience that arose and survive in oral histories. Furthermore, a case study of medical learning and innovation is presented to demonstrate that the reasonable latitude, flexibility, and knowledge acquisition developed and demonstrated by Royal Signals occurred in the broader Army, particularly in the technical and scientific arms. The incorporation of the study of the Army's ability to respond to the threat of malaria is also made on the basis of the ground-breaking and essential role of this discovery to victory; the knowledge developed within one area of the Army quickly found dissemination and incorporation into wide organisational knowledge. This also serves an example of directly transferrable learning: shortly after overcoming the challenge in Italy, the landing force in Northwest Europe also faced malaria.

The second half of the chapter details the campaign in Northwest Europe from the 'D-Day' landings at Normandy through to the end of the war, paying particular attention to Operation Market Garden as a case study of the learning process. It poses many of the same questions of Northwest Europe that it explores in regard to Italy, showing the ongoing adaptability required in simultaneous campaigns and intra-Army experience. The exposition of this process reveals the development of the interplay and complexity of learning, adapting, innovating, and creating effective strategy developed during the crucible of the last phase of Second World War in Europe. Finally, the chapter explores the growing conceptualisation of learning that emerges in oral histories of this phase of the war, particularly when accounting for differences in the experience dichotomy of the Northwest European forces: those who had extensive training for Europe and no battlefield experience, often referred to as 'green,' and those who had extensive battlefield experience but no training specifically for Europe, characterised by the term 'veteran.' By finding the point at which these processes worked in conjunction, this thesis shows how, through the lens of despatch riders and communications, the British Army not only adapted but also improved its learning process. It is also for this reason that this chapter pays particular attention to the method through which Montgomery transferred veterans of North Africa to Europe in an attempt to transfer knowledge from their experiences in North Africa.

The Italian campaign: Major-General Reginald F.H. Nalder as a Source

As discussed in this study's introduction, published in 1953 and 1958, respectively, *The Royal Corps of Signals and its Antecedents* and *The History of British Army Signals in the Second World War* serve as the Royal Signals Institute's official histories of both the Royal Corps of Signals and communications more broadly during the Second World War. These compendia, however, suffer from many of the flaws of official histories: they are censored,

have limited objectivity, and have an agenda of presenting Royal Signals favourably. Furthermore, as Ben de Jong noted, official histories suffer from a specific and unorthodox historical limitation: they allow the official historian access but deny others. This, in turns, creates only one version of the history of the service, obstructing other interpretations and evaluations.[503] Effectively, by 'carrying the stamp of authority, official history permitted a sober account of events to be advanced,' discouraging 'the increasingly sensationalist nature of "outsider" publications,' whilst also providing 'some positive influence over that difficult terrain – the public understanding of the past.'[504] The author of these histories, Major-General Reginald Francis Heaton Nalder, became corps historian after a long career as a Royal Signals officer, reaching the senior ranks of the corps and firmly placing him as an 'insider' of the corps and its traditions. Despite these flaws inherent in his official histories, Nalder's account proves vital in understanding the evolution of Royal Signals from its earliest formations of 'C' Telegraph Group, as detailed in the first chapter of this thesis.

Though used throughout this study, Nalder's accounts become both increasingly insightful and increasingly problematic for the periods toward the end of the North African campaign and the duration of the Italian campaign. As a member of the Godwin-Austen Committee and subsequently the CSO 15 Army Group, he had not only first-hand knowledge in the development of the policies and recommendations of the Godwin-Austen Report but was also responsible for disseminating and utilising the report in his role as CSO. Furthermore, his historical account does not separate his role as corps historian and active participant during this period, blurring the lines between his two roles and the objectivity he attempts in earlier and later passages. As one of the authors of the Godwin-Austen Report, one of the discussants at the committees evaluating the report's recommendations, one of the COs tasked with

[503]Ben de Jong, 'Official Intelligence Histories. Is there a Problem?" *Leidschrift* 30: 3 (October 2015), p. 84.
[504]Richard J. Aldrich, 'Policing the Past: Official History, Secrecy and British Intelligence Since 1945,' *The English Historical Review* 119: 483 (Sep. 2004), p. 922.

implementing the recommendations, and then the chronicler of the experience, Nalder appears throughout this chapter in a variety of capacities.

For this reason, in this chapter, Nalder's historical works receive treatment as both primary and secondary sources with acknowledgment of the flaws of both considerations. His letters and papers form an important source for this period, particularly his series of letters with the Director of Signals at the War Office, Maj. Gen. Sir Leslie Phillip, which shed light on Nalder as CSO and frequently discuss the Godwin-Austen recommendations—as well as the feasibility of implementing changes during an active campaign. [505] He was also most likely the author of the 'Historical Notes on Signals in the Italian Campaign,' recording his thoughts on the significance of the campaign at the time.[506] Nalder cannot simply be dismissed as a biased corps historian, nor can he be celebrated as an objective observer – he had a very real stake in not just the messaging of how Royal Signals performed in this campaign, but also in explaining how the Godwin-Austen Report's recommendations were or were not implemented and the decision-making process behind these choices. Understanding whether or not the Army adopted the recommendations and made operational and strategic level command changes, then, requires not only understanding Nalder the CSO but also Nalder the historian.

The Italian Campaign

The decision to invade Italy emerged from the January 1943 conference at Casablanca with the further decision to invade mainland Italy occurring at the Third Washington Conference (Trident) between U.S. President Franklin D. Roosevelt and British Prime Minister Winston Churchill in May 1943.[507] From the beginning, the Italian campaign involved much

[505]Newsletters, CSO 15 Army Group to DS War Office, Dec. 1943- Dec. 1944, TNA 244/126.
[506]Historical Notes on Signals in the Italian Campaign, TNA 244/121.
[507]Memorandum by the British Chiefs of Staff, *Foreign Relations of the United States, Conferences at Washington and Quebec*, 14 May 1943, Office of the Historian, Foreign Services Institute, United States Department of State (Hereinafter referred to as OHFSI), Document 94; John S. D. Eisenhower, *They Fought at Anzio* (Columbia,

political back and forth among the Allies as the war moved increasingly to a global context and the partnerships between Allied states matured. The invasion of Italy—which began with the island of Sicily—took five months of coordinating before launch as Operation Husky on 10 July 1943.[508] The goals of the campaign, after deliberation and contention with Soviet considerations, included attacking Italy 'relentlessly to insure her elimination from the war. We [the Allied Powers] believe this, more than any other single event, would hasten the early defeat of Germany,' in part by forcing Germany to divert resources to the Balkans, which would also reduce pressure on the Soviet Union. Capture of Italy, the Chiefs of Staff continued, would also provide airfields that would allow air bombardment of Germany from Northern Italy as well as the United Kingdom.[509] By the end of operations in Italy, the Allied forces hoped to have overstretched the Germans by making them defend Northern Italy, the Balkans, and the Eastern Front against the Soviet Union, as well as created favourable conditions for Turkey to enter the war against the Axis Powers, securing expanded access for Allied forces in the Mediterranean.[510]

Importantly, the discussions concerning the Italian campaign at this conference spoke of their simultaneous relationship with the preparations for the 'operations from the United Kingdom in 1944.' This concurrent preparation, however, also became a contentious issue with the American forces, who viewed any campaign in Italy as 'an unwelcome distraction' from the more important and essential cross-channel invasion.[511] As will be detailed later, this dissention between Allies from the beginning of the campaign, debating its very purpose, revealed a tension that characterised the theatre for the duration of the conflict in Italy.

Missouri, 2007), p. 7; Samuel Eliot Morison, *History of the United States Naval Operations in World War II: Volume 9; Sicily-Salerno-Anzio, January 1943-June 1944* (1954; rev. ed., Chicago, 2002), p. 5.

[508]G. A. Shepperd, *The Italian Campaign 1943-1945: A Political and Military Re-assessment* (New York, 1968), p. 21.

[509]OHFSI, Document 94.

[510]Ibid.; For Turkey's neutrality, see John M. VanderLippe, 'A Cautious Balance: The Question of Turkey in World War II,' *The Historian* 64:1 (Fall 2001), pp. 63-80.

[511]Peter Hart, *Voices from the Front: Durham Light Infantry in World War Two*, 2nd ed. (Barnsley, UK, 2010), p. 55.

Furthermore, this tension affected the British soldiers in a multitude of ways, including creating communications challenges and affecting morale. The evolution of the Allied Powers and full integration of their Supreme Command structure demonstrated the increased complexity of the Allied army that went to Italy in 1943 compared to the one that left France in 1940.

Despite being 'the longest campaign in Europe in which British forces were involved, and the first to be crowned with success,' the Italian Campaign remains overshadowed in both historical narratives and popular memory by the Normandy landings.[512] The British experience in Italy, however, proved to be some of the fiercest, most taxing fighting that the British Army endured, equivalent to or surpassing that of Normandy based on oral history recollections. Though the initial landings at Sicily and Salerno occurred relatively quickly and successfully, the campaign soon bogged down in conditions often compared to the worst of the trench warfare of the First World War.[513] This theatre forced the Army to adapt again on the same scale that it had just retooled for desert warfare. Whereas the North African campaign relied on armoured and mechanized fighting, the topography of Italy demanded instead a shift to infantry and artillery, in addition to trenches and a resurrection of trench warfare. As the war wore on, the conditions in Italy, along with missteps in leadership, resulted in an acute morale problem, which in turn resulted in increased absenteeism and desertion.[514] These issues, when combined with the brewing manpower crisis caused in part by the ever increasing duration of the war, made the Italian Campaign not only a hotbed of combat experience but also a focus of learning and adapting. When the Army and Royal Signals desperately needed to solve multiple issues to sustain its efforts, it leaned heavily on the reasonable latitude it had just formalised and expected commanders to solve their local problems the best they could.

[512]Christine Ann Bielecki, 'British Infantry Morale during the Italian Campaign, 1943-1945' (Unpublished PhD Thesis, University College London, 2006), p. 2.
[513]Oral History of James Corr, IWM SA 13080; R.M.P. Carver, 'The War in Italy, 1943-145," *Royal United Services Institution Journal* 146:5 (2001), p. 63.
[514]Bielecki, 'British Infantry Morale during the Italian Campaign, 1943-1945.'

The Italian Campaign comprised three major operations: Sicily in July 1943 (Operation Husky), Salerno in September 1943 (Operation Avalanche), and Anzio in January 1944 (Operation Shingle). Resulting in 313,000 Allied casualties and approximately 336,000 German casualties, the campaign proved more complex than expected, particularly after Italy's surrender and exit from the war.[515] The Italian Campaign, then, put the 15 Army Group and its successor Allied Armies in Italy (AAI) against the Axis forces composed mostly of German soldiers. The 15 Army Group, commanded by British General Sir Harold Alexander, at first encompassed the British Eighth Army and the US Seventh Army under Generals Bernard Law Montgomery and George S. Patton, respectively.[516] The US Fifth Army, under Lieutenant General Mark Clark, soon replaced the Seventh Army, but the name '15 Army Group' remained in use for the duration of the war. Two distinct forces constituted the US Fifth Army, making it a mixed British and American army: the British X Corps under Lieutenant-General Richard McCreery and the US VI Corps under Major General Ernest Dawley. X Corps comprised the 46th Infantry Division, which included British Marine Commandos, and the 56th Infantry Division, which had previously served in North Africa and the Middle East as part of Eighth Army.[517] The complex command structure at the beginning of the Italian Campaign is depicted below in Figure 20.

[515]Eisenhower, *They Fought at Anzio*, p. 3; Eric Morris, *Circles of Hell: the War in Italy, 1943-1945* (New York, 1993), p. 437. German numbers include prisoners.
[516]Bradley P. Tolppanen, 'Field Marshal Harold Alexander: A Selected and Annotated Bibliography,' *Journal of the Society for Army Historical Research* 88:353 (Spring 20210), p. 38.
[517]Eisenhower, *They Fought at Anzio*, pp. 9-10.

	Allied Forces Headquarters (AFHQ), Mediterranean (General Dwight D. Eisenhower, later Sir Henry Maitland Wilson then Sir Harold Alexander)	
	Allied 15 Army Group/Allied Armies in Italy (AAI) (General Sir Harold Alexander, later US Lt. Gen. Mark Clark)	
Army Command	**8th Army** (Gen. Bernard Law Montgomery, later Lt.-Gen. Sir Oliver Leese, later Lt. Gen. Richard McCreery)	**7th US Army** (Gen. George S. Patton) **Later replaced by** **5th US Army** (Lt. Gen. Mark Clark)
Subordinate Units	**XIII Corps** (Lt.-Gen. Sir Miles Dempsey) • **5th Infantry Div** (Maj.-Gen. Gerard Bucknall) • **Canadian 1st Infantry Div** (Maj.-Gen. Guy Simonds) • **231st Infantry Brigade Group** (Brig. Roy Urquhart)	**X Corps** (Lt. Gen. Richard McCreery) • **46th Infantry Div** o British Marine Commandos • **56th Infantry Div** • **7th Armoured Div** • **Special Services Brigade** • **US Ranger Force** **US VI Corps** (Maj. Gen. Ernest Dawley)

Figure 20: Command Structure of 15 Army Group, July 1943 (British unless otherwise identified)

Despite the integrated Allied forces and the increasing complexity of the war in Italy, ongoing debates between the British and Americans concerning the focus of the campaign and the European theatre meant that Supreme Commander, Mediterranean Forces, General Dwight Eisenhower, 'was, in fact, invading Europe on a shoestring' with only four divisions against sixteen German divisions.[518] After the Allies' 1943 reassignment of Eisenhower to command the Supreme Commander Allied Expeditionary Force (SCAEF) for the invasion of Northwest Europe, Sir Henry Maitland Wilson assumed command as Supreme Allied Commander, Mediterranean Forces, substantially altering higher command; furthermore, the 15 Army Group's designation changed to Allied Armies in Italy, and it undertook the major campaigns of 1944, most notably the Anzio landings. The command structure in Italy underwent further major changes in December 1944 including Alexander taking Maitland Wilson's place as

[518]Eisenhower, *They Fought at Anzio*, p. 7.

Supreme Commander, Mediterranean Forces; reversion to the name '15th Army Group'; Clark replacing Alexander as Commander of 15th Army Group; McCreery replacing General Sir Oliver Leese as commander of the Eighth Army; and US Major General Lucien Truscott replacing Clark to command the US Fifth Army.[519] As mentioned in the previous chapter and discussed more fully in the next section, despite eventual victory in the region, the Allied forces found significant tensions and disagreements coloured the relationship and strategy moving forward. These tensions characterised many of the communications interactions between Allied forces, down to the most basic elements of language and codes used in 15 Army Group.

Italian Campaign: Organisational Challenges

The major organisational issues of the Italian campaign came in challenges not previously faced by the British Army. Firstly, it had to quickly develop its working relationship with the US forces, now a key player in the war. While simultaneously figuring out its partnership with the US Army, Royal Signals also had to determine how and to what extent it should adopt the Godwin-Austen recommendations. Moreover, it then faced the challenge of how to implement the changes. Though Nalder outlined in his history that the War Office accepted the report in its entirety, the archival evidence demonstrates that in writing his history, he glossed over the debates and committees that met in 1943 to discuss the report. While he participated in these committees, Nalder also oversaw communications during the opening phase of the Italian campaign, providing a key insight into the organisational issues and command challenges for this period of the war.

Intra-Allied Cooperation

[519]Jacob L. Devers, 'Operation Dragoon: The Invasion of Southern France,' *Military Affairs* 10:2 (Summer 1946), p. 9.

One of the first challenges of the campaign came before the Allies ever landed in Sicily: the American and British forces had to develop a working relationship closer than any previously negotiated. As partners on a larger scale than in North Africa, the systems and armies of the two major forces in the campaign had to work together, but as 15 Army Signals noted, 'certain basic differences between American and British organisations early became apparent.'[520] Going one step further, Christine Bielecki, in her investigation of morale in the campaign, argued that 'The Italian campaign was, from the beginning, the result of a compromise between the Americans and the British who never constituted a clear, coherent policy in the Mediterranean' after the end of the North African campaign. Particular difficulty existed between Leese, Montgomery's successor as Commander of the Eighth Army, and Clark, the Commander of the US Fifth Army.[521] In the official British history of the campaign, Brigadier C.J.C Molony noted that by June 1944, 'The British and American Chiefs of Staff were becoming steadily more at odds about the future policy of the campaign in Italy.'[522] Meanwhile, American historian Samuel Eliot Morison argued in 1954 that while British forces 'wished to nourish the Mediterranean at the expense of the build-up for OVERLORD,' the Americans 'stood firm in their belief that a frontal attack was the only way to defeat the German armies, and resisted every proposal to divert forces to the Mediterranean.'[523] Thus, even the official accounts echoed this tension in how they recorded and communicated the campaign.

The stance of the American high command, particularly Army Chief of Staff George C. Marshall, strongly influenced not only the relationship between the Allies but also the interpretation of the history of the campaign. John Eisenhower, for example, wrote that the American strategists 'found themselves dragged from one operation to another in the

[520]TNA 244/124.
[521]Bilecki, 'British Infantry Morale during the Italian Campaign,' p. 340.
[522]C.J.C Molony, *The Mediterranean and Middle East*: *Vol. V: The Campaign in Sicily 1943 and the Campaign in Italy, 3rd September 1943 to 31st March 1944* (London, 1973), p. 290, quoted in Ibid.
[523]Morison, *History of United States Naval Operations, Vol. 9*, p. xii. Capital emphasis in original. This study does not capitalise operation names unless in quotation.

Mediterranean throughout the year 1943' in the 'slippery slope of Allied commitment to the Mediterranean.'[524] In his 1946 address to the American Military Institute, US General Jacob Devers, Deputy Supreme Allied Commander, Mediterranean Theatre of Operations and commander of the US 6th Army Group spoke of the 'limited value of the Italian offensive.'[525] Furthermore, according to Eric Morris, the Italian campaign highlighted the fundamental differences in British and American approaches to European conflicts: whilst Britain fought Continental wars by periphery campaigns such as Italy to 'weaken them at the extremities,' the Americans preferred 'the big battle as the decisive engagement.'[526]

The differences in opinion concerning not only the military approach to Italy but the purpose of the campaign led to many debates and discussions between the Allies. The Casablanca conference of January 1943 reached a compromise, and the result began the Italian campaign. Planning and coordinating a major campaign out of compromise, however, had its drawbacks and inevitably required additional compromises at all levels. For communications, these compromises can be found in 'certain basic differences' that included who would exercise ultimate control of signal communications in Italy and the differences in local control versus unified control of signals systems:

> It thus became a matter of prime importance to reach working agreements with the various American formations whereby such direction should be exercised by arrangement if not by charter. Thanks to the good will of all the various signal officers concerned the seeds were sown of a truly integrated system which was to prove invaluable in the later stages of the campaign.[527]

Prior to Italy, however, the initial tone of the communications partnership suffered from a dispute pertaining to wireless telegraphy procedure. The British Joint Communications Board issued a memorandum critical of the Combined Communications Board (CCB)'s handling of

[524]Eisenhower, *They Fought at Anzio*, p. 7.
[525]Devers, 'Operation Dragoon,' p. 10
[526]Eric Morris, *Circles of Hell: The War in Italy, 1943-1945* (New York, 1993), p. 8.
[527]TNA 244/124.

the approved W/T procedure from May 1942 referred to as London Communications Committee Procedure (LCC Procedure). The dispute arose after the US Navy

> submitted a minority report pressing for acceptance of United States Joint Army and Navy Procedure, which is a fundamentally different procedure. As a compromise, the C.C.B. then evolved an entirely new procedure…which, on examination, was found to be based on United States Joint Army and Navy Procedure.[528]

The report continues that the following had already adopted the LCC Procedure: the US and British navies; the US and British armies in the European Theatre; the Air Forces in the U.K. and Middle East; and nearly all forces in the S.W. Pacific area. This extensive use of this procedure 'could therefore be introduced worldwide at an early date with minimum repercussions on the forces engaged in operations.' Furthermore, the report indicates that though the Royal Navy and RAF would suffer 'great inconvenience' in changing to 'compromise procedure,' the British Army would have the most difficult transition:

> The British Army has the special problem of training a number of non-English-speaking operators. Their agreement to 'L.C.C. Procedure' for combined used, involved considerable alterations to their own internal procedure. The more drastic changes entailed in adopting 'compromise procedure' would be likely to have an adverse effect on military communications.[529]

Incensed that the U.S. Navy would try to undermine what it considered not just the more practical and agreed option, but also the 'better one,' the British Joint Communications Board urged: 'Should, however, the American remain adamant, advantage could be taken of para 5 of the C.C.B Charter…which allows for the various strategic areas handling their own communications problems.'[530]

Tensions concerning communications policies, then, permeated the early development of the Allied partnership between the U.S. and British signal corps. Described in a telegraph from the British Joint Staff Mission (JSM) in Washington to the Chiefs of Staff, London, as

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[528]"Annex I: Combined Wireless Telegraphy Procedure: Disagreement between British and United States Signal Departments," 3 November 1942, TNA 193/21, p. 1. Pagination of the file 193/211 is complex due to multiple letters, reports, and memoranda being housed together.
[529]Ibid.
[530]Ibid. p 2.

being at a 'Complete impasse' whereby 'Our signal representatives here have been instructed by service departments in London not to give way. U.S. Navy equally adamant.' The issue, they determined, 'appears to be whether inconvenience to us of not having combined wireless procedure would be greater than that of changing our existing basic procedure.'[531] The larger issues not just of how the two forces intended to work together but also which procedures they would use, who would modify what, and how the war experiences so far could feed into the best, most efficient practice, remained to be debated and worked out as the war progressed.

Adapting the Godwin-Austen Report to Combat

In addition to the ability to learn and adapt with its partners and on its own, Royal Signals also displayed the ability to 'unlearn' or forget: the need to adapt from theatre to theatre proved an important example of this. Despatch riders learned how to conduct themselves in Europe during 1939-1940 and then *unlearned* many of those practices to make room for the needed knowledge for the desert phase of the war. Now, despatch riders once again found themselves needing to retool from desert warfare to the environment of European geography and urban centres. The lessons they had learned in North Africa, then, often had to be *unlearned* in order to adapt to their new surroundings, a complex process of knowledge modification. The flexibility required for this knowledge transformation serves as another instance of the 'considerable elasticity' that the Godwin-Austen Report deemed such a high priority for an efficient signal service. As will be discussed later, many soldiers from the Italian Campaign repeated this process again when transferred to Northwest Europe in 1944 by Montgomery in an effort to bring battlefield experience to a largely untested landing force.

An example of the new challenges for despatch riders exists in the account of Durham Light Infantry (DLI) anti-tank platoon despatch rider, James 'Jimmy' Corr. As the DLI had

[531]Telegraph from JSM Washington to Chiefs of Staff, London. 31 October 1942. TNA 193/211.

joined the 46th Division of the First Army in Algiers in January 1943, DLI soldiers had experiences of desert war and fought throughout the Italian Campaign. Corr's experience stands out among accounts of DLI soldiers at the time because his transition from North Africa to Italy also involved his transition into the role of despatch rider. After two days of training on a Norton side value motorcycle, he had to travel 150km as the usual despatch rider required hospitalisation. His training, which involved 'the experience of what you had already learned in North Africa,' included this long journey

> they must have thought it was a comedy show, the lads in their trucks. I was stalling, I was coming off, and I was stalling, but when I got there I was a despatch rider. I learned the hard way. When I got there, I was a despatch rider. And I could drive it like you know. But my first experience of it…Majority of training was riding the bike, controlling it, listening out for anything, and how to throw yourself off it safely…Well you slowed your brakes rapidly, you'd throw the bike that way and you went that way [the direction depending on] whichever bend of the road you were on.[532]

As Corr evidences, commanders continued recruiting—and appointing—despatch riders as the war continued, pulling from infantry where necessary to ensure communications options remained open. This level of discretion allowed for replenishing of the despatch rider ranks when required, while also maintaining a system of informal learning and training that had to be carried out in the field. Commanders had to retain the ability to not only select men with the aptitude for the job but also the ability to learn a new role without formal instruction. As will be shown, this continued throughout the European theatres until the end of the war.

Nalder routinely referred to his need to be flexible and fluid in his position as CSO 15 Army Group. Though he had made many of the Godwin-Austen Report's recommendations, he now found himself in command in the increasingly intense campaign in Italy at the same time that the War Office committees convened to 'plan future action to be taken on the report' and 'to deal with certain recommendations which could be disposed of immediately.'[533] Here,

[532]Corr, IWM SA 13080.
[533]'Meeting to Discuss Major General Godwin-Austen's Report,' 10 September 1943, TNA 193/211

Nalder served in three capacities: as an author of the Godwin-Austen Report, as a member of the committee discussing the actions to be taken, and as a CSO. Another member of the Godwin-Austen Committee, Major Haslegrave also attended the War Office committee to discuss the outcome of the report, but notably, Godwin-Austen himself did not attend, though he joined a further discussion committee five days later to determine the organization of the GHQ Liaison Regiment, responsible for intelligence communication.

Chaired by Major-General J.S. Steele, Director of Staff Duties (DSD), the 15 September 1943 committee considered the implementation of the recommendations of the Godwin-Austen Report, focusing specifically on how the report should be translated to GHQ Liaison Regiment. The options given consisted of: following the example of 21 Army Group, 15 Army Group, or a 'compromise solution suggested by the committee based partly on the experience of 15 Army Gp and partly on the need for economy stressed in their terms of reference.'[534] The presence of Godwin-Austen and Nalder at this committee was not an accident – Nalder, in particular, as the CSO 15 Army Group held particular experience and necessary information for consideration of the options presented. Other committee members included Lieutenant-Colonel A.H. McIntosh of GHQ Liaison Regiment and Lieutenant-Colonel L. F. Heard representing 21 Army Group. By selecting these officers, the War Office sought to combine the recommendations of the Godwin-Austen Report with the experiences of the signal officers in the field. Of great importance, the GHQ Liaison Regiment required separate consideration from the rest of the Army; here, the War Office demonstrated its understanding not only of its need to take individual unit requirements under consideration but also that it needed to analyse the experiences of its own units before selecting a path.[535]

[534]TNA 193/211.
[535]Ibid.

After discussion, the committee agreed that 15 Army Group 'should be allowed to retain its own "J" org, which will be regularized by the production of a War Establishment.'[536] Furthermore, the committee determined and 'took note' that 21 Army Group and GHQ Liaison Regiment disagreed with the Godwin-Austen Report on the recommended wireless sets; the recorded result was 'Provided there was no supply difficulty, it was considered that this unit, having regard to the importance of its role, should be allotted the best sets possible consistent with that role.'[537] In essence, this evaluation of the report and the experiences of 21 and 15 Army Groups resulted in reaffirmation of 'reasonable latitude.' When faced with evidence that, in fact, the recommendation did not fit the best practice, the CSOs employed latitude to use whichever equipment suited the job at hand.

Thus, by September 1943, the War Office had not only commissioned and produced the Godwin-Austen Report, but it had also sponsored committees to discuss how best to implement the recommendations, as well as evaluate whether all of the report's recommendations should be kept. Meanwhile, in Italy, the British Eighth Army had taken Sicily and crossed into the Italian mainland while the American Fifth Army's assault on Salerno under General Mark Clark began on 9 September 1943. Again, Royal Signals simultaneously undertook an active campaign and sought to collect, analyse, and disseminate its lessons learned from previous campaigns. The relevance to the new campaign and theatre remained to be seen, but it began its approach by making appointments such as Nalder who understood the doctrine and recommendations more than any other officer. By putting him in this position, the Army provided the best chance for the Godwin-Austen Report to be taken seriously and implemented whenever and wherever possible.

[536]Created in 1941, J Service referred to the GHQ Liaison Regiment that intercepted enemy radio communications in order to report to GHQ.
[537]TNA 193/211.

Nalder, however, highlighted the size of the task in his second newsletter to the Director of Signals, Maj.-Gen. Phillips, in December 1943: 'As regards the Godwin-Austen reorganisation, I have not been able to do very much yet.'[538] In this same letter, he also noted the difficulty in adapting the signal units to Europe and indicated that not only did he need to consider the abilities of reinforcements but also needed the autonomy to account for ethno-cultural and national differences within the Eighth Army:

> I am very perturbed about the two Indian Divisional Signals (nos. 4 and 8). Both are completely deficient of the second wireless section, CRA's section and the RE section, and are at a great disadvantage vis-à-vis the other divisional signals alongside which they have to work. Do you consider that it would be possible to make special dispensation for these two units which are working in a European theatre under conditions quite different from those for which they were presumably designed? There is a horrid rumour going about that only Madrasi reinforcements are to be sent in future for the Indian Signal Corps. This will be a serious blow to the 4th Division, who are largely Sikhs and P/Ms ['Punjabi Mussalman'[539]]. The 8th has a large proportion of Madrasi's but has Sikhs and Dogras as well.[540]

The diversity of the Eighth Army, as discussed in the previous chapter, continued to shape not only its personnel but also its development and even its reinforcement planning—by 1943, the command structure had learned that it must not only consider language but also ethnic tensions if it was to maintain an efficient force. As discussed earlier, these additional layers of the Eighth Army's identity and composition also played a role in the communications procedure disagreement between the British and US militaries. The multinational composition of Eighth Army brought new ideas and approaches to finding solutions; however, its polyglot nature made changing processes in-theatre difficult, particularly for communications. Furthermore, although Nalder refers to this mixing of units, or cross-posting, in racialised and colonial language, he recognised the problematic practice of reinforcing units with unrelated regiments. Cross-posting, as will be discussed in the next section, formed a major point of contention and

[538]R.F.H. Nalder to L. Phillips, 20 December 1943, TNA 244/126.
[539]Matthew David Kavanagh, 'The 10th Indian Division in the Italian Campaign,1944-45: Training, Manpower and the Soldier's Experience,' Unpublished MA Thesis, University of Birmingham, 2014, p. 19.
[540] Nalder to Phillips, 20 December 1943, TNA 244/126

threat to morale for soldiers in Italy by interrupting not only regimental loyalties and identity but also established informal learning networks.

Morale and Reinforcements

The landings in Sicily and then mainland Italy came after the major victory for the Allied forces in North Africa. This proved to be a pivotal point not just in communications with the implementation of the Godwin-Austen Report but in the wider Army, turning from the campaign failures of 1939-1941 and towards the victories that would begin to characterise the Allies' war. Coming on the heels of the North African campaign, the Italian campaign began immediately – troops had to adapt to ongoing fighting rather than recoup and rest. This led to issues with morale and perseverance for the campaign, which segmented into two distinct phases: static fighting followed by a highly mobile phase. The hard slog of the Italian campaign, which subsequently became 'overshadowed by the Normandy landings,' weighed heavily on the soldiers fighting. This affected every aspect of the campaign, though not necessarily in the alarmist fashion often remembered for the 'desertion crisis' of Italy. Bielecki, in her study of British infantry morale during the Italian campaign, noted that of the multitude of factors that affect morale, the following proved the most important for front-line soldiers, along with regular contact and news from home:

> Immediate concerns such as the successful outcome of operations in which they were involved; low casualty rates; their own appreciation of their particular military situation and their hope that their own side—especially the artillery—would destroy the enemy before the enemy could retaliate; the ability of their officers and NCOs to lead them effectively and maintain good levels of training and discipline; the efficiency of their weapons; the knowledge that, if wounded, medical assistance would be prompt and efficient; the speed and quality of reinforcements; strong esprit de corps and comradeship/small group cohesion; good rations while in the line; and comfortable living conditions, with sufficient hot food, washing facilities, entertainment and leisure time out of the line.[541]

[541]Bielecki, 'British Infantry Morale during the Italian Campaign,' p 19.

Bielecki also argued an important consideration for evaluating the morale and its impact on the experience of the Italian campaign: 'sick men cannot fight effectively, and sickness was the biggest drain on manpower.'[542] In fact, with the exception of a few weeks during the twenty-two months of the campaign, the number of men sick exceeded the battle casualty numbers. As will be discussed later in this chapter during a medical case study, endemic malaria proved a devastating blow to the British fighting power in Italy and proved to be a challenge that had to be solved alongside the developing campaign challenges such as morale, manpower, and terrain adaptations.

Diane Butler's report for the Cabinet Office's Historical Section entitled 'The British Soldier in Italy' evaluates a number of issues that arose during the Italian campaign. Investigating the British Army's approach to soldiers' wellbeing, her analysis demonstrates several responses emerged during the war, resulting in the Army implementing new programming and directives. The driving force of these changes, she argued, traced back to the composition of the Army of the Second World War: from the beginning, it was a majority civilian force that presented different requirements than the interwar Regular Army that had served the British Empire. By the time of the Italian Campaign in 1943, these civilian-soldiers who had different priorities, expectations, experiences, and needs had spent up to four years in constant deployment. Coping with this alongside the ferocious defense of Italy by the retreating Germans, the ongoing threat of malaria and sickness, and coordinating an increasingly intertwined partnership with Allied forces led to a need for better systems of welfare and a more progressive understanding of the individuals who fought within the Army.[543]

Though produced after the war, Butler's analysis for the Cabinet provides a useful point of evaluation of what the Army attempted whilst engaged in a theatre with unforgiving terrain

[542]Ibid., 50.
[543]D.F. Butler, 'The British Soldier in Italy: September 1943- June 1944; Living Conditions, Morale & Welfare, Discipline.' Cabinet Office, Historical Section. TNA CAB 101/224.

and an experienced enemy on the defense. What her report shows is that the Army made changes and instituted initiatives as local responses followed by broader expansion across the theatre before adopting Army-wide programming. An important thread that Butler reiterates is that as the Army moved towards a more centralized organisation rather than the traditional regimental system, it had to do so both in response to the influx of new soldiers with no military experience as well as finding a way to replace the welfare duties of the regimental officer. Furthermore, issues of transitioning from the regimental system caused by manpower shortages and the need for reinforcements created situations in which cross-posting became a major challenge to morale. The Salerno Mutiny, which will be discussed later in this chapter, had its roots as much in the regimental identity of the soldiers as it did in collective familiarity with one another. As Corr indicated, the question was never really whether the 'Salerno Mutineers' would fight—it was how to get them to agree to fight in a cross-posting arrangement. Extreme examples of cross-posting occurred, such as the ones Nalder identified concerns about: 5 Essex of 8 Indian Division received 700 reinforcements from thirty different units within three months.[544]

Though her report, like Bilecki's investigation, outlines the challenges and threats to morale in the theatre, Butler makes a very important distinction that has great implications for understanding the role of morale in the campaign as well as its sporadic appearance in oral histories and firsthand accounts. She wrote that though her report

> may give the impression that the men were querulous and that morale was shaky, it was not. Report after report emphasises that it was splendid and particularly among the fighting troops; to misquote Dr. Johnson, danger concentrates the attention wonderfully. It was when the men came out of the line, and with the men in Rear or Base areas that worries arose. (The MEF christened themselves the Men Europe Forgot.) Never did these, however, express any doubts as to the final outcome of the war. Complete confidence was felt in the Prime Minister and in the Army leaders, Alexander and Montgomery. When Montgomery went he was regretted but Leese was warmly welcomed. There was high confidence in equipment, though the advantage of the Americans in mechanization was noted. Even if the Army did feel itself the

[544]Ibid., p. 22.

> Cinderella of the Services, relations with the RAF and Dominion troops was good and the RAF flyers were admired. Relations with Americans improved, particularly among combat troops who had come to feel respect for their fighting qualities; in the rear doubts still lingered.[545]

This passage from Butler's analysis of morale helps to explain the dichotomy in archival sources: though clear evidence of a morale crisis exists in official documents and commanders' discussions concerning both initiatives and punishments, oral histories in particular do not commonly dwell on recollections of low morale. Instead, they identify the challenges of keeping their spirits up and their reliance on their units and common identities to do so. One of the main issues with cross-posting can be found here: it introduced men from other, often rear reinforcement units with no common link, identity, or knowledge, who may also have lower morale having not been on the front lines with their new units and disrupted established networks and relationships where the sharing of informal knowledge occurred. Butler also indicated that the majority of challenges to morale came from the rear – the further the soldier from the front line, the higher the likelihood of low morale. Because of this relationship to place and purpose within the war, despatch rider morale tended to remain relatively high, despite facing the challenges and heightened emotions discussed so far throughout this study.

Despite despatch riders such as Jimmy Corr maintaining that his company and battalion of the DLI retained fairly high morale, the difficulties faced in fighting in Italy took their toll. When examining his recollections of morale and breaking points of men, he compared the conditions of Italy to that of the First World War. The trench warfare, slow attrition, and re-emergence of issues such as trench foot, made comparisons to the 1914-1918 conditions fairly common. Corr, however, noted that

> there wasn't the strain attached to us as there was to the First World War soldiers. I mean you read about them and it were horror. And I've read all the stories about them. We never had anything like that to put up with…direct assaults day after day, knowingly running into machine gun fire. It was just terrible. But we hadn't that, so

[545]Ibid., pp. 30-31.

> there wasn't as much strain on. I've seen them go bomb-happy, standing next to you talking one minute, the next minute they're a lunatic.[546]

When prompted further considering men 'going bomb-happy,' Corr noted that the soldiers most likely to suffer from it were men who 'came in, "Wait until I get up to them Germans, I'll show you what I do to them"…came out with what they were going to do what they want [*sic*]. Trying to make themselves confident. But they were the first ones to go.'[547] He also recalled one incident that highlights the impact not only on the individual suffering from breakdowns but also on the wider unit, as comradeship proved so vital to maintaining broader morale:

> there was the case of one, Paddy Moran, over at war's end. And he just run up and started running towards the jerries screaming at the top of his voice. Well we laughed at him like and brought him down, dragging him back and went to hold him until the ambulance came and had to put him into handcuffs to get him in the ambulance, he was just away with it. In a split second just like that his nerve went…Aye, he just flipped. Just as quick as that. As fast as striking a match he was away.[548]

As Corr's account demonstrated, 'bomb-happiness' became an issue of morale discussed by the War Office; considered 'involuntary deserters,' soldiers 'suffering from "shell shock" or "bomb-happiness"' formed a small proportion of deserters but their plights had larger implications for their immediate comrades.[549] In fact, the condition saw a major improvement by the Italian campaign—the January 1944 establishment of the Reinforcements, Reallocation and Training Centre meant that

> men who had been classified as 'bomb happy' and might have been treated as waste material, perhaps to remain neurotic for life, could be rehabilitated by carefully thought out programme of military training and welfare.[550]

By the Northwest European campaign, those designated as 'bomb happy' increasingly found themselves removed from the front line—and not necessarily returned.[551]

[546]Oral History of James Corr, IWM SA 13080.
[547]Ibid.
[548]Ibid.
[549] Butler, 'The British Soldier in Italy.' p. 36.
[550]Ibid., p. 10.
[551]Oral History of Alfred Leigh, IWM Sound Archive 18548.

Italy, then not only served as a centrepoint of change for the soldiers who adapted to their circumstances, but for the Army as a whole, where it managed to introduce new structures and efforts to respond to the newly arising challenges within its ranks. The problem that arose was not a simple, straightforward problem that could be solved by strategy or Staff College training. As Butler wrote, 'As the problem, therefore has many facets, it must be expected that many different remedies were needed to deal with it.'[552] She notes that 'The conception of Welfare was completely changed during the Second World War,' moving away from a structure where the regiment 'provided a man's all,' to one that deemphasised the regimental officer's role:

> With the outbreak of war the regular Army was swallowed up in the vast numbers conscripted into its ranks; temporary soldiers, men who at heart remained civilians. These, the Army authorities quickly realised, presented a much more complicated problem so requiring a much wider conception of welfare than would do for the regular Army. At the same time the regimental officer, although his prime object was still the wellbeing of his men, would have his hands too full with training and fighting to be able to give the matter more attention.[553]

These factors, combined with the increasing length of the war, led to several initiatives in Italy to overcome the volatile morale of units, which found further challenges the closer the British and American soldiers worked together, and British soldiers became aware of better conditions and rations of the American troops. The largest, most pressing morale issue, however, remained cross-posting, which led to mutiny in Italy.

The morale and manpower challenges the Army faced came crashing together on September 17, 1943, when it suffered one of the largest mutinies in British Army history on the beach of Salerno. In response to being cross-posted to X Corps to fight in Salerno rather than returning home as expected, the 50th and 51st (Highland) Div. veterans of North Africa mutinied in response to being assigned to different divisions. Called in part to reinforce the

[552]Butler, 'The British Soldier in Italy,' p. 12.
[553]Ibid., p. 14

DLI, the reinforcements' main grievance was the dissolution of their division and regimental ties for the X Corps assignments. Bielecki contends that there proved 'no evidence that the men would refuse to fight if they were returned to their own units. Morale, in its most limited definition, does not therefore seem to have been an issue here.'[554] Corr, acting as despatch rider and for the quartermaster of his division on the day of the mutiny, observed the incident on the beach. Of the hundreds who initially mutinied, after a speech from Corr's CO Johnny Preston, the Parliamentary inquiry noted that the number of men still engaged in the mutiny reduced to the 192 eventually charged and sentenced to several years in prison; the ringleaders, initially sentenced to death, had their sentences commuted to twelve years hard labour.[555] Corr's interpretation of the event as an observer noted that

> It was organised by these sergeants, why should we go and help these out, we've done our fighting in the desert…He forgot we had been in North Africa and all like…They weren't frightened to fight, but they wanted to fight with their own battalion, that was their argument…I had a bit of sympathy for them, I mean I had been dragged out my battalion…but when you go in the Army, you fight, no matter where you are. And that was that. The Army has the last word, the right word. They could have shot them for it on the beach no argument.[556]

Signaller Ronald Elliott, one of the initial mutineers who rejoined the line, noted the difference in his unit's and the 51st (Highland) Div.'s interpretation of the mutiny: the 'Jocks,' he recalled,

> Had the sort of tribal feeling about it in terms of their argument that they were Scottish soldiers and should be in a Scottish division. So it was a nationalistic thing form their point of view as well as everything else. The Durhams didn't have that sort of aspect to it. Most of it was more like trade union solidarity than it was anything else; 'We'll al [*sic*] stick together lads and they can't do anything to us!' It had little to do with war.[557]

Corr's witnessing of the events with the Salerno mutineers, in particular, and how they were dealt with, including the promise of returning to their divisions after the fighting ceased, had residual effects throughout his company. As he freely admitted, despatch riders not only circulated rumours but actually started many of them based on information gleaned from their

[554]Bielecki, 'British Infantry Morale in the Italian Campaign,' p. 163.
[555]HC Deb 22 Mar 2000; vol. 346, col. 242-249WH
[556]Corr, IWM SA 13080
[557]Oral History of Ronald Elliott, IWM SA 10167.

frequent visits and presence in headquarters. Gaining most information from the orderly office drivers and headquarters despatch riders, the company DRs often provided information that 'mostly came out true' such as their next movements. As Bielecki indicated, information and knowledge of the immediate circumstances tended to improve morale, allowing DRs such as Corr to contribute to their companies by serving as the liaison for informal networks of information.[558]

Recognising the power of information, the Army established the Army Bureau of Current Affairs (ABCA), which Butler referred to as 'one of the most striking innovations,' to organise weekly talks and discussions to communicate information to the soldiers.[559] Corr's admission of despatch riders becoming involved in spreading rumours and information among the troops had two sides: while information and knowledge improved morale, 'anxiety was enormously increased by rumour.'[560] Furthermore, the Army newspapers worked hard 'scotching unsettling rumours,' while Corr and despatch riders like him attempted to improve morale by passing on information that could not be verified.[561] In Butler's conclusion, she argues that 'The British soldier was virtually armoured against propaganda, domestic or enemy, but prone to swallow rumours,' indicating that perhaps Corr's efforts to gain and pass on information remained a double-edged sword.[562]

Issues that despatch riders and signallers experienced such as environmental and organisational challenges, as well as morale and manpower depletion, affected more than just Royal Signals and regimental communications structures. These wider issues brought different challenges to the various arms of the Army. The next section will examine the Army's learning in a case study of malaria prevention. It does so for two primary reasons: to demonstrate the

[558]Ibid.; Bielecki, 'British Infantry Morale in the Italian Campaign,' pp. 18-19.
[559]Butler, TNA CAB 101/224, p. 16, 29.
[560]Ibid., pp. 18-19.
[561]Ibid., p. 29.
[562]Ibid., p. 42.

learning process had developed more broadly than just in communications and, secondly, to examine a technical branch and the effects of when a learning process is completed in an arm that, like communications, significantly affects all other parts of the Army by altering organisational knowledge and logistics. The ability to overcome malaria in the early stages of the Italian campaign also led to specific medical policies that provided clearer procedures when malaria emerged in Normandy in 1944, demonstrating an important example of effectively transferring new information to a concurrent theatre.

Learning Process: a Case Study of Malaria Prevention

When looking to the Italian campaign for environmental challenges, outside of the terrain that has been discussed previously, the most notorious example is that of malaria. Unable to maintain a fighting force in face of the ever-increasing caseload of ill soldiers, the Army had to develop a response quickly and effectively. However, it did not do so easily, and this experience shows the learning process developing within the Army in setting outside communications—the ability of the organisation to learn, then, was not limited to communications or the Royal Corps of Signals. This section looks at the process of learning involved in creating and implementing effective malaria policies, the soldiers' struggles and responses, and the methods through which the Army eventually brought the malaria outbreak under control.

Labelled 'enemy Number 1 at the start of the Italian campaign,' malaria and its prevention demonstrated an advanced learning process.[563] Endemic to Italy, and an ongoing public health issue for Italian authorities, malaria posed a threat to not only the efficiency and effectiveness of the Allied armies, but also their general health and existence. Specifically, the most frequently fatal strain of malaria, *plasmodium falciparum* remained endemic in the region.

[563]Butler, 'British Soldier in Italy,' p. 8.

Though much research existed on malaria since Sir Ronald Ross identified its infectious parasite in the gastrointestinal tract of mosquitoes in 1897, by the Second World War, quinine remained the main form of treatment for the British.[564] The Asian theatre of war, however, meant that once the Japanese forces conquered the Dutch East Indies, quinine-producing cinchona farms fell out of the Allied supply chain, cutting off 90 percent of the world's quinine supply. Prior to the war, German scientists developed a synthetic malaria suppression pharmaceutical, Atebrine (mepacrine) and sold it to the United States.[565] U.S. and Allied chemists succeeded in developing Atebrine into a useable drug by 1942, in time for the Italian campaign. Thus, the U.S. issued malaria suppression in the form of prophylaxis tablets, but the British Army suffered from low adherence to suppression protocols and prophylaxis at first. The result, as Mark Harrison noted, led to over 20,000 British troops admitted to hospital with malaria during the 1943 invasion of Sicily. Harrison and Amy Outterside both contend that the failures in malaria suppression when medical policy and appeals both existed rested with disinterested officers. As Harrison indicates a 'fundamental obstacle stood in the way of malaria control: the indifference and even hostility to anti-malaria precautions displayed by those in positions of responsibility.'[566]

The solution to the malaria problem for the British was employing a complex approach that incorporated many different layers and forms of learning and information dissemination. The British interwar approach to malaria control centred on ditch and water drainage, options

[564]Ronald Ross, *The Prevention of Malaria* (London, 1910); Ronald Ross, 'On some Peculiar Pigmented Cells Found in Two Mosquitos Fed on Malarial Blood,' *British Medical Journal* (Dec. 18 1897), p. 1786; Ronald Ross, 'Observations on a Condition Necessary to the Transformation of the Malaria Crescent,' *British Medical Journal* (Jan. 30, 1897), p. 251; Ronald Ross, 'Observations on Malaria Parasites made in Secunderabad, Deccan,' *British Medical Journal* (Feb. 1,1896), p. 260.

[565]Mepacrine was the British term for the trade named drug Atebrin so will mostly be used by this thesis except where a distinction between British-issued and American-issued drugs is required. L.J. Bruce-Chwatt noted that mepacrine is now called quinacrine in the USA. L.J. Bruce-Chwatt et al. *Chemotherapy of malaria*, 2nd ed. (Geneva, 1986), p. 13.

[566]Mark Harrison, 'Medicine and the Culture of Command: the Case of Malaria Control in the British Army during the two World Wars,' *Medical History* 40 (1996), p. 446; See also, Amy Outterside, '"War against the mosquito": Alliees, Italians, and malaria during the occupation of Puglia, 1943-1946,' *Journal of Modern Italian Studies* 22:5 (2017), pp. 571-586.

not entirely practical for wartime campaigns. Instead, the Army had to find a way to encourage the already established malaria suppression techniques. What can be seen in responding to this issue that affected the entire Army is a process whereby the medical strategy existed, the higher level and institutional learning existed, but the lower-level learning and practice failed. Without crossing from higher level learning to lower-level learning, the Army failed to impact the practice of individual soldiers who did not use their issued mosquito nets or insect repellents, as well as the continued use of shorts and adapted uniforms that had suited the heat of the North African desert. Junior officers did not encourage following the guidance, and command continually produced misleading instructions concerning mecaprine and issued inappropriate uniforms and protective creams.[567] One account from the 16th Bn DLI indicates the extent to which soldiers dismissed the suggestions:

> We had bee-keepers' nets to put over our helmets to keep the mosquitoes off our faces. And cotton gauntlet gloves. They expected us to [go] into action in the evening and put on bee-keepers' mosquito nets and gauntlet gloves—it's unbelievable. Nobody ever did of course. I never put mine on and I didn't see anybody else put his on. I kept the net for straining juice out of grapes![568]

This episode in the British Army's adaptability clearly demonstrated the Army recognising the need for 'better education of combatants' and reinforcement of their education.[569] Identifying prior training as theoretical, the War Office released new guidance that firmly moved '[t]he burden of staying healthy' to the individual level, producing a 'plethora of propaganda pamphlets, booklets and posters' aimed at simple, accurate information to be learned and passed among soldiers.[570] Once it achieved the full extent of the response, Harrison notes, the Army's malaria cases dropped from 76 per 1000 in 1944 to 19

[567]Harrison, 'Medicine and the Culture of Command,' p. 446; TNA WO 222/159, A. W. S. Thompson, 'Malaria control in mobile warfare—Italian campaign 1943-45.'
[568]Oral History of Gerald 'Gerry' Kendrick Barnett, IWM SA 12239.
[569]Harrison, 'Medicine and the Culture of Command,' p. 447.
[570]Outterside, "War against the mosquito," p. 577. See also Wellcome Library GC200/D/1/8, '"Anti-malarial campaign," Central Mediterranean Forces, 1945.'

per 1000 in 1945.[571] When expanded to include North Africa and the full Central Mediterranean Force, the infection rates dropped from 82.9 per 1000 in 1943 to 20.7 per 1000 in 1945, according to the official statistics cited by Leonard J. Bruce-Chwatt.[572] Whilst these numbers decreased, the Australian Army, under direction of Brigadier N. Hamilton Fairley conducted field studies of 1000 volunteers to determine the appropriate suppressive dosage, firmly making this measure an 'essential part of a soldier's training' and again reinforcing the individuals' responsibility.[573] Thus, the Army, in adapting to its new environment, also adapted the latest medical research and scientific knowledge and solutions to the malaria problem it faced.

Prophylaxis and personal protective measures, however, did not suffice on their own to drive down malaria cases. The Army had to combine its knowledge of the environments hospitable to the malaria-bearing *Anopheles* mosquitoes and its experience in environmental mosquito eradication techniques, which included oil in breeding pools, clearing stagnant water, and using insecticide sprays. None of these environmental efforts proved as efficient as the spraying of *dicholorodiphenyltrichloroephane* (DDT), which American and British scientists identified as an effective insecticide in 1939 despite being first synthesized in 1874. It came into prominence in 1944, finding its first use against another infectious threat in Italy: typhus. Thus, the Army had to remain nimble enough to manifest multiple avenues of response to a single threat. But in overcoming malaria, it demonstrated that its experience in adaptability had practical, immediate effects and consequences. This became even more essential when the retreating German forces sabotaged canals and drainage systems in the Pontine Marshes, an area historically associated with high malaria concentration.

[571]Harrison, 'Medicine and the Culture of Command,' p. 450.
[572]L. J. Bruce-Chwatt, 'Mosquitoes, Malaria and War; Then and Now,' *Journal of the Army Medical Corps* 131 (1985), pp. 85-99; See also, W. Franklin Mellor, *History of the Second World War. United Kingdom, Medical Series; Casualties and Medical Statistics* (London, 1972).
[573]N. Hamilton Fairley, 'Chemotherapeutic Suppression and Prophylaxis in Malaria: An Experimental Investigation undertaken by Medical Research Teams in Australia,' *Transactions of the Royal Society of Tropical Medicine and Hygiene* 38: 5 (May 1945), pp. 311-365; Bruce-Chwatt, *Chemotherapy of Malaria*, p. 13.

Malaria, then, became a biological 'weapon of war' in Italy, and having methods in place to conquer it meant survival.[574] More than basic survival though, conquering malaria, which had been 'enemy Number 1' stemmed only from experience and developing effective knowledge networks. The 'vigorous fight,' as Butler referred to the anti-malaria efforts, only found success due to the collective experience and acceptance of the knowledge that prevention proved the only way to limit malaria's impact on the fighting effectiveness of the Army. This lesson quickly demonstrated its relevance when malaria grew as a medical challenge in the amphibious Normandy landings and subsequent Northwest European campaign, which form the centre of discussion for the rest of this chapter.

Northwest Europe, 1944-1945

As discussed previously, the desired route back into Europe differed greatly between the U.S. and British command. While the British aimed to re-enter Europe and pressure Germany from the Italian peninsula, American strategists, along with Soviet leadership, preferred a more direct invasion of Northwest Europe. This meant that as the Italian Campaign commenced, the Allied forces also began planning for a larger amphibious landing in northwest France. Most commonly referred to as the Normandy Landings or "D-Day," this campaign advanced from the French beaches on 6 June 1944 into Germany, eventually culminating in the unconditional surrender of Germany on 8 May 1945. The coordination of the Allied armies during the campaign took extensive cooperation and compromise, which, as shown previously, challenged the structures of the individual armies as well as creating tension between strategic goals. Though Mary Kathryn Barbier noted that 'by 1943, the Allied war effort had coalesced,'

[574]Harrison, 'Medicine and the Culture of Command,' p. 449.

and the Allies' 'combined arms operations clicked,' differences in tactics, strategy, aims, and personalities remained.[575]

This section firstly evaluates the Northwest European theatre and its planning, looking specifically at how communications plans developed in concert with the grander strategy. Part of this discussion revisits the Anglo-American relationship concerning approaches to communications strategy. In addition, it shows the Army that landed in Normandy was less diverse than the army groups of the North African and Italian campaigns, which affected its learning composition. The chapter then evaluates the effectiveness of the land force's ability to learn from itself and previous experiences. To examine this, the study largely follows elements of the Eighth Army, particularly the 7th Division as it served in both North Africa and Italy. Throughout this discussion, the context of ongoing campaigns in Italy and the Eastern theatres challenged the ability to transfer knowledge cross-theatre. Because these theatres occurred simultaneously, time lags and distance often prevented real-time sharing of knowledge.

The flow of knowledge and adaptations from the Italian theatre to Northwest Europe, both in the planning stages and after initiation, could not effectively occur during the campaigns. As the learning process requires time for an individual to digest informal and formal information, apply it to a specific problem or circumstance, and feedback the evaluation of success or failure, concurrent theatres meant that the potential for learning and knowledge transfer during the final phase of the war remained low. Despite this, Montgomery, for example, attempted to infuse 'experience' into the largely combat inexperienced landing army through personnel transfer. His attempts did not prove as successful as he hoped and differences in training, informal learning, and experience of local solutions soon became apparent. This

[575]Mary Kathryn Barbier, 'The War in the West, 1943-1945,' in *The Cambridge History of the Second World War: Volume I, Fighting the War*, ed. by John Ferris and Evan Mawdsley (Cambridge, 2015), p. 418.

also demonstrated why understanding learning and adaptation processes in wartime became essential in deploying resources and personnel effectively. In its final section, this chapter explores the increasing self-conceptualisation of learning evident through oral histories of the campaign. With the maturation of the learning process captured in these sources, the study addresses the growth of this learning process.

Campaign Origins: Overlord Planning

The opening of the Northwest European theatre on 6 June 1944 marked a date celebrated as a turning point in the war, overshadowing earlier building blocks of victory such as the British Army's early failures, its subsequent maturation in adaptation in the desert, and the experience of learning and knowledge transfer in Italy. Sam Edwards has outlined four key commemorative themes in the collective recollection and recognition of 'Britain's Normandy Story':

> that D-Day was an expression of Britain's commitment to France; that D-Day vindicated the retreat from Dunkirk; that D-Day was a final demonstration of Imperial unity and of national power; and that D-Day marked the last moment of transatlantic military and political parity.[576]

By June 1944, Britain's capacity to wage war had become increasingly difficult to sustain. It had suffered very recent manpower and morale challenges in Italy and now faced a campaign that brought the war geographically close to Britain for the first time since 1940. Dennis Showalter noted that

> D-Day was an operation that could be undertaken only once. Britain's moral and material capital was nearly exhausted, its fighting manpower so limited that the army sent to north-western Europe had to cannibalize itself: entire divisions were broken up to keep the rest operational. Failure, to say nothing of disaster, would have had incalculably negative consequences for the war effort of the island kingdom.[577]

[576]Sam Edwards, 'The Beginning of the End: D-Day in British Memory,' in *D-Day in History and Memory the Normandy Landings in International Remembrance and Commemoration*, ed. by Michael Dolski, Sam Edwards, and John Buckley (Denton, Texas, 2014), p. 87.
[577]Dennis Showalter, 'World War II in Europe,' in *War Since 1900*, ed. by Jeremy Black (London, 2010), p. 123.

Thus, the stakes of the invasion of Northwest Europe were extremely high. The Allies had to conduct a monumental level of planning, security, and coordination while simultaneously engaged in extensive, protracted fighting in Italy, as well as the ongoing Pacific and Southeast Asian theatres. Despite its eventual success and its central place in the memory of the war, the campaign in Northwest Europe had fundamental challenges, bringing to the fore the Army's ability to problem solve and adapt to yet another theatre.

The invasion of Europe through Northern France received the designation Operation Overlord and became one of the most comprehensively planned campaigns of the war. Organised under the remit of Supreme Headquarters Allied Expeditionary Force (SHAEF), Eisenhower became the Supreme Allied Commander of the offensive with Montgomery as commander of both 21 Army Group and the land forces. The complexity of the organisation can be seen below in Figure 21, which shows the composition of the Allied Expeditionary Force (AEF) that landed in 1944. The AEF intended to launch the invasion force in May, but shortages of landing craft, as well as weather conditions, resulted in rescheduling to 6 June. The Allies disembarked onto five beaches: GOLD (British), SWORD (British), JUNO (Canadian), OMAHA (US), and UTAH (US). The British 2nd Army, who landed on GOLD and SWORD, are the main focus of this discussion, though the Canadian 3rd Division of JUNO beach also features due to the Canadian Force falling under the 21 Army Group, commanded by Montgomery (see Figure 21).[578]

[578]Mary Kathryn Barbier, 'The War in the West, 1943-1945,' in *The Cambridge History of the Second World War: Volume I, Fighting the War*, ed. by John Ferris and Evan Mawdsley (Cambridge, 2015), p. 400.

	Supreme Headquarters Allied Expeditionary Force (SHAEF) (General Dwight Eisenhower, Supreme Allied Commander)				
Army Command	**21 Army Group** (Gen. Bernard Law Montgomery)	**12th US Army Group** (Lt. Omar Bradley)	**6th US Army Group** (Gen. Jacob L. Devers)	**Communications Zone**	**First Allied Airborne Army** (Lt. Gen. Lewis Brereton)
Subordinate Units	**1st Canadian Army** (Harry Crerar) **2nd Army** (Lt. Gen. Miles Dempsey) • **I Corps** (John Crocker) • **XXX Corps** (Gerald Bucknall) • **VIII Corps** (Richard O'Connor) **Lines of Communication** (British)	1st US Army 3rd US Army 9th US Army	7th US Army 1st French Army	United States Communication Zone (Comzone)	All Allied Airborne Formations inc: US IX Troop Carrier Command US VIII Corps (Airborne) I Airborne Corps 1st Special Air Service Brigade Polish 1st Independent Parachute Brigade RAF troop carrier units 15th US Army

Figure 21: Command Structure of Northwest Europe Allied Expeditionary Force, June 1944

Northwest Europe: 21 Army Group Planning

Evaluating the British Army's performance in Northwest Europe requires considering how it learned from itself both broadly as an organisation and as the 21 Army Group. More specifically, the British Second Army comprised a mix of new, 'green' divisions with little to no battlefield experience and veteran divisions transferred from the Italian theatre. The reasoning behind this combination lay in Montgomery's attempt to forcibly transfer knowledge and experience to the 2nd Army, infusing it with informal information. This combination, however, did not result in the expeditious transfer of learned experiences and knowledge as expected. As these learning processes required time to understand, disseminate, and put into practice, Montgomery's misunderstanding of experience and learning transfer resulted in the veteran divisions becoming the less effective forces. David French has noted that

> The army that landed in Normandy in June 1944—whatever its alleged faults—was a very different and very much more battle-worthy organization than the army that was

> expelled ignominiously from France in May and June 1940. Between the Dunkirk evacuation and D-Day the British army experienced a military renascence. However, as the Normandy campaign showed, the transformation was not complete, and it still had certain shortcomings.[579]

The soldiers with no battlefield field experience had spent the years 1939-1944 in Britain training for the assault; the veteran forces, especially the Seventh Armoured Division, transferred from Italy after their time in North Africa. This training provided to the former group included theatre-specific information, tactics, and geographical knowledge. By acquiring this information, as well as training with the same equipment to be used in the assault, the Army prepared these soldiers for war in Northwest Europe. The veteran soldiers who transferred theatres, however, were at a disadvantage because they had not had the opportunity to train specifically for the conditions of Northwest Europe. Where the veteran group excelled was utilising their battlefield experience to adapt to a new environment with new leadership while navigating an amphibious landing of the kind experienced in Italy. The experienced divisions outperformed the 'green' divisions in the initial amphibious landing and assault on the beaches largely because they had done it previously. Once the campaign turned into a slow, forward progression, the 'green' divisions and their years of preparation for this specific theatre became the more efficient and better suited divisions for the conflict. Montgomery insisted that the 'veteran formations of XXX Corps had to be kept intact,' despite suggestions that a solution may have been to break up the veteran formations and distribute the experienced personnel to the inexperienced divisions. Here, as discussed previously, the danger of cross-posting war-weary divisions resurfaced. The question then became which would be more beneficial—trying to get personnel to share their experience and informal knowledge or trying to keep divisions together and avoid the morale and personnel issues brewing in Italy at the same time.[580] In the

[579]David French, 'Invading Europe: The British Army and its Preparations for the Normandy Campaign, 1942-44,' *Diplomacy and Statecraft* 14:2 (2003), p. 289.
[580]Ibid., pp. 290-291.

attempt to transfer the experience and knowledge of XXX Corps directly, Montgomery avoided cross-posting, a lesson the British Army had learned in a hostile manner in Italy.

The Northwest Europe campaign, characterised by an extended, comprehensive planning stage lasting the 'best part of three years,' included the development of 'specially designed' equipment, strategy, and tactics. According to Nalder, this 'long-awaited campaign' comprised the 'most elaborate organization of any amphibious operation on record.'[581] This extensive planning separated the Normandy landings and subsequent theatre from previous campaigns and theatres as the ability to plan, develop solutions and equipment, and train for a specific theatre did not characterize the experiences in Europe in 1939-1940, North Africa from 1940-1943, or Italy from 1943-1945. For signals, Nalder noted the specific challenges in the planning of a campaign to such an extent:

> Notwithstanding the fact that it is often difficult to make a comprehensive signal plan til the tactical plan is settled, it is of historical interest to note that for an operation of this magnitude the necessary signal installations for the launching could not possibly have been ready in time had they not been put in train long before the tactical and administrative plans had reached finality[582].

Referring to the challenge of developing the signals plan without a concrete tactical plan, Nalder here outlined the significant issue of having to plan alongside modifications to tactics and strategy. Moreover, he noted an essential element to understand the campaign:

> It is an interesting fact that few, if any, of these designs [for new or modified signals equipment] came from the active theatres overseas, where they were always able to improvise what they required and were usually too busy to prepare and submit detailed drawings and specifications.[583]

Thus, not only did communications for this campaign have to be planned without full knowledge of the tactical plan but also without much of the knowledge that had developed in other theatres.

[581]Nalder, *General Survey*, p. 73.
[582]Ibid., p. 76.
[583]Ibid., p. 75.

As the Italian campaign continued concurrently with the planning stages of D-Day, the information and knowledge developed and shared in Italy did not fully transfer to Northwest Europe. Not only did it take time for the adaptations and informal knowledge to be understood by the combatants in the origin theatre, but the time lag and distance, in addition to the lack of written and formalised knowledge, made it nearly impossible to apply the learning effectively elsewhere. When taken with the question of the effectiveness of the veteran divisions who were transferred, it became clear that one of the main lessons concerning communications and learning in the Northwest Europe theatre was that knowledge and information garnered from the most recent, relevant campaigns could not be relied upon to impact other theatres and campaigns immediately. Moreover, as will be discussed later, despite the temptation to move entire divisions to retain the knowledge and experience gained, the counterweight of new environmental, personnel, and theatre challenges coupled with accounting for morale created a situation that demonstrated that understanding how informal knowledge transferred had become essential.

Intra-Allied Cooperation

Just as Allied cooperation in Italy required compromise and adjustment, the Allied partnership in Northwest Europe continued to demand concessions and finding middle ground. Despite 'cracks in their partnership,' the overall success of the Allied Powers can be seen when considered through combat historian Master Sergeant Forrest Pogue's 1954 description of the alliance:

> An alliance is based on an agreement by two or more powers that they will oppose their combined forces and resources to a common enemy. They do not agree thereby to have an absolute community of interest. The success of such an alliance is to be judged, therefore, not by the amount of heat which may be engendered between the powers in their attempts to find a course of action which will most nearly preserve their individual aims while gaining a common goal, but rather by the degree to which the powers, while frankly working on a basis of self-interest, manage to achieve the one aim for which their forces were brought together. On that basis the Western Powers forged a unity

> seldom, if ever, achieved in the history of grand alliances. Their commanders, while striving to preserve national identity and gain individual honors for their forces, still waged a victorious war.[584]

As Maurice Matloff has argued, the 'divergence in British and American concepts of strategic theory emerged early' and persisted throughout their alliance.[585] The British continued to emphasise the campaign in Italy and saw the Northwest Europe campaign as a final strike once the Mediterranean theatre had weakened Germany. Churchill's preference for indirect wars on the periphery rather than the direct conflict desired by American command increased the tension between the two Allies during the planning stages. As Matloff noted, the British strategy

> reflected the caution bred by huge losses in World War I, the experience at Dunkirk, insular and maritime traditions, widespread imperial interests, a small-scale economy, limited manpower for ground armies, and last, but not least, the prime minister's inclinations.[586]

Alan Levine further explained the fundamental divide in opinion when articulating even the naming of the theatre:

> A discrepancy in terminology indicates the difference in British and American thinking. The British, then and later, referred to the scene of the campaign of 1944-45 as 'Northwest Europe.' The Americans, by contrast, referred to it as the 'European theater of operations,' almost as though the Mediterranean campaign was not taking place in Europe at all.[587]

These lingering strategic differences, which had resulted in the split of opinion concerning the merit of the Italian campaign, reappeared in the debate concerning Montgomery's 'single thrust' approach, which would concentrate forces northward.

Lessons Learned in Northwest Europe

[584]Forrest C. Pogue, *The Supreme Command* (Washington, D.C., 1954; Washington, D.C., 1989), p. xii
[585]Maurice Matloff, 'Wilmot Revisited: Myth and Reality in Anglo-American Strategy for the Second Front,' in *D-Day 1944*, ed. by Theodore A. Wilson (Abilene, Kans., 1994), p. 4.
[586]Ibid., p. 5.
[587]Alan J. Levine, *From the Normandy Beaches to the Baltic Sea* (Westpoint, Conn., 2000), p. 3.

Allowed by Eisenhower to pursue a narrow thrust through the Netherlands and into Northern Germany, Montgomery coordinated a two-part, combined operation that utilised airborne divisions to secure territory and bridges for the British XXX Corps to advance.[588] The result of this assault, however, remains debatable. Though it did not complete its task of securing a path through to the Ruhr and the British saw defeat, it did succeed in liberating the Dutch towns of Eindhoven and Nijmegen. The plans began to go awry when more German troops were in the area than anticipated; communications issues and failures exacerbated the problems, and the Battle of Arnhem did not go favourably for the British. The routing of the British XXX Corps and the capture of over a thousand British and Polish POWs by the Germans demonstrated the importance of effective and adaptable communications with communicators able to change course and find ways to overcome challenges.

If one charts war experience in a single, linear fashion from 1939 to these final stages of the war, it is easy to misunderstand the complexities of the learning process that developed and how it continued to work in face of new challenges. As this study demonstrates by periodising the war based on the series of internal benchmark committees in communications, battlefield experience and wartime learning occurred perpetually with largely hyper-localised knowledge proving the most common and easily shared amongst units. The final phases of the war in Europe and now the main theatre for the British proved no exception. As mentioned earlier, one of the most significant challenges that faced the British Army by this point stemmed from the growing knowledge and learning differences between the British forces who had been training and based in the UK and those who had experience in Italy and North Africa.

By the time British forces reached the Battle of Arnhem, a variance between the knowledge of the 'veteran' and 'green' parts of the Army had emerged, with, by this time, the

[588]See IWM Photograph Archive K 7586 for the British paratroopers of the Pioneer Assault Platoon of 1st Parachute Battalion, 1st Airborne Division on their way to Arnhem, 17 September 1944.

‘green,’ previously UK-based formations proving more successful in gaining ground and facing the urban landscapes of Europe for which they had specifically trained. Intentionally moved by Montgomery in an effort to distribute battlefield knowledge and experience, the divisions transferred from Italy found their experience and knowledge increasingly less useful, forcing them to unlearn—and then relearn—effective methods and informal knowledge along the way. Initially capitalising on experience of amphibious landings from the beginning of the Italian campaign, these units showed great promise as a method of transferring inter-theatre knowledge and functioning as a learning conduit; however, the farther inland the Allied forces advanced, and the more influential the American command became, the less relevant this experience became.

The challenges to communication during the Northwest European campaign in many ways mirrored those of the 1939-1940 experience, particularly the retreat to Dunkirk. Aside from German resistance, unfamiliar landscapes, civilian populations and refugees, and underdeveloped, bombed out roads proved the main challenges to progressing towards Germany and eventual victory. The significant difference between 1939-1940 and 1944-1945, however, proved the degree to which the British forces responded with solutions in the field. This was possible because it had greatly developed the way it learned during war and how it thought about theatre-specific, as well as broader, strategy-level knowledge. Despite the imperfections of Montgomery’s attempt, by recognising and integrating informal learning as part of its learning process, the British Army, and Royal Signals specifically, established an effective benchmarking system. This system proved capable of identifying and gathering information, as well as making sense of it before it became obsolete. Furthermore, the Army demonstrated the ability to choose not to undertake substantive change when its position in active combat made reorganisation impractical.

Learning in Oral Histories of the Northwest European Campaign

The Army's approach to its internal benchmarking and ability to navigate innovations from multiple levels was not the only progress in learning by 1944. Recollections of the later stages of the war increasingly make references to learning and knowledge production. The final section of this chapter explores this somewhat unexpected phenomenon in the source material. The 'green' soldiers who had been called up and then trained in the UK while the North African and Italian campaigns progressed experienced different forms of training than those who left Britain earlier. This difference in training and the complexities of integrating the lessons learned and established by the benchmark committees meant that by the time of the Normandy landings, both the informal knowledge and the formal training varied greatly within Britain's own forces, let alone when accounting for the wider armies of the British Empire.

Significantly, oral histories of soldiers who fought later in the war increasingly reflect on learning and their basic training – perhaps it is to do with the length of training and anticipation of combat versus the units who spent 1939-1944 actively engaged in battles. Furthermore, oral histories demonstrate the sustained socio-economic shift of the soldiers who became the communicators: it remained common for despatch riders to leave school between the ages of fourteen and sixteen and enter the workforce throughout the war. Instead of pursuing further and higher education, many of them worked as messenger, telegraph, and delivery boys, roles not dissimilar from despatch riding.[589] This study holds that this is an important factor in the development of the learning process utilised during the war—in contrast to the university-educated soldiers and officers with little to no work experience discussed in chapter one, the ongoing shift of the soldiers' socio-economic backgrounds meant that when new soldiers joined up or were conscripted, they largely had work experience, work histories, and often had

[589]See, for example, Oral History of Tommy Willmot, IWM Sound Archive 19806; Oral History of Dennis Hayward, IWM Sound Archive 29431; Oral History of John Harnett 21796; Oral History of Alfred Leigh, IWM SA 18548.

already learned—or were in the process of learning—a trade in the civilian world. Whether this meant training on the factory floor, as a messenger boy, as a bricklayer or mason's apprentice, or any other opportunity sought by working class youth, they had experience learning from experienced tradesmen and each other. This cannot be understated in the ways in which it appears in the wartime soldier's learning process. It is a substantially different method of learning than formal education and further encouraged peer education and comradery-based, informal learning.

For example, Alfred Leigh's recollections of his basic training demonstrate a perspective of the opportunity offered not only by the Army itself but also by the Army's environment. Recalling his love for the open air and regular meals, he noted the training was an improvement over his former job working night shifts in a factory. His recollections go further, however, in describing his experience: 'it did advance your education. Everything you learn everyday you always advance on education, you always learn something.'[590] Leigh's account of his war experience contains specific references to his learning: for example, 'I learned to drive in the Army. I learned to drive on a quad.'[591] He continues that within a year he had learned to drive Bren gun carriers, be a cook, drive a jeep, drive a jeep adapted to carry stretchers, drive a 1500cwt Morris, and how to deal with malaria in Normandy. Like the other oral histories explored in this thesis, Leigh's account gives evidence of the ongoing process and continual need to learn as the war progressed: from training, from each other, and, in many cases, figuring out solutions as required. Demonstrating this last process, Leigh recalled shelled telegraph wires—copper and 3mm thick—blown across the road and thus becoming tangled in his jeep's prop shaft, requiring several hours to cut loose. Considering he had only just learned

[590]Oral History of Alfred Leigh, IWM SA 18548.
[591]Ibid.

to drive, being able to free a drive shaft in Northwest Europe while in-theatre marks a major progression in his skillset and learning capacity.[592]

Tommy Willmot, who joined the 2nd Fife and Fofar Yeomanry in 1939 but remained in Britain and Northern Ireland until 1944, echoed Leigh's experience. Beginning work as a messenger boy at twelve, however, he brought with him to his role as a despatch rider a significant lesson from his time at Lawsons Department Stores in Dundee: 'I learned very early, this is the way to live. Pick somebody's brains out, someone would tell you.' Leaving formal education at age fourteen, Willmot thrived as a messenger boy and worked his way up to salesman by 1939. This significant experience directly informed his approach to being a soldier, and the use of his oral history allows this thesis to integrate his prior experience into his wartime experience: he learned to ride a motorcycle and serve as a despatch rider before he then became an instructor for training other despatch riders in the UK-based forces, passing on his informal knowledge in a formalised setting. [593] Recollections that focus largely on transference of skills appeared more often in the accounts that addressed the final phase of the war. Increased interaction between the civil and military trades due to proximity during preparation for Normandy as well as continued recruitment seem to have greatly influenced this.

Conclusion

By the time of the German surrender in May 1945, the British Army had developed its learning processes and communications methods significantly. Each theatre contributed localised knowledge, reinforcing the concept of reasonable latitude, which the War Office only formally established in the 1942 Godwin-Austen Report. The first theatre discussed in this chapter, Italy, demonstrated the ongoing complexity of lessons-learned committees convened

[592]Ibid.
[593]Oral History of Tommy Wilmot, IWM SA 19806.

during active conflict: time works against recommendations. The introduction of the Northwest European theatre in 1944 further showed that the Army had learned effectively but still faced challenges and shortcomings in execution of its lessons-learned determinations. Montgomery experimented with trying to directly transpose lessons learned and battlefield experience by moving divisions from Italy to France but found that wartime knowledge transfer proved tricky. Despite its flawed outcome, and the ongoing fatigue of some of the soldiers who by this point had fought in multiple theatres, the attempt itself is significant.

The Army's internal benchmarking through its establishment of lessons-learned committees to assess its communications systems in response to each major theatre demonstrated its proactivity in learning from its failures as well as successes; its move to institute changes during the conflict to capitalise on the immediacy of local knowledge shows an acute awareness of the need to make these lessons relevant and specific. This chapter examined the final major Western theatres for the British forces, Italy and the Northwest European campaigns, and found an advanced initiative to transpose not only experience but battlefield knowledge to lesser experienced formations. In addition, recollections in oral histories show an increased conceptualisation of learning. This demonstrates that many of the changes that began prior to the war—the socioeconomic shifts in who formed the Army, as well as what skills and equipment to which they had access—had by this point greatly affected the learning process of communications and the wider Army.

CONCLUSION

The End of the War in Europe

When General Alfred Jodl, Chief of Staff of the German Army, signed Germany's unconditional surrender at the Supreme Headquarters, Allied Expeditionary Forces (SHAEF) in Reims, France, on 7 May 1945, the British Army fought across France, Norway, North Africa, the Middle East, the Mediterranean, Italy, and Northwest Europe. As has been detailed, part of this experience included negotiating and learning to work with the Allied Powers, so when Soviet Premier Josef Stalin and his Chief of Staff General Alexei Antonov demanded an additional surrender in Berlin, it became the Act of Military Surrender on 8 May 1945 and served as the official surrender of German forces in Europe:

> We the undersigned, acting by authority of the German High Command, hereby surrender unconditionally to the Supreme Commander, Allied Expeditionary Force and simultaneously to the Supreme High Command of the Red Army all forces on land, sea, and in the air who are at this date under German control.[594]

After declaring the 7-8 May 'Victory in Europe Days,' Prime Minister Winston Churchill, in his address to Parliament noted that

> our gratitude to our splendid Allies goes forth from all our hearts. We may allow ourselves a brief period of rejoicing, but let us not forget for a moment the toils and efforts that lie ahead. Japan, with all her treachery and greed, remains unsubdued. The injuries she has inflicted upon Great Britain, the United States and other countries and her detestable cruelties call forth justice and retribution. We must now devote all our strength and resources to the completion of our tasks both at home and abroad.[595]

Thus, though Germany's surrender marked the end of the war in the European theatre, the Pacific theatre remained in a state of war until August 1945 after the use of two atomic bombs by the Allied forces. As its focus remains the British forces in Europe and North Africa, this

[594]'Act of Military Surrender 5/8/1945,' Instruments of German Surrender, 5/4/1945-5/10/1945, Records of the U.S. Joint Chiefs of Staff, 1945-1977, Record Group 218, United States National Archives and Records Administration (NARA) 6943512. See also 'Act of Military Surrender 5/7/1945,' Instruments of German Surrender, 5/4/1945-5/10/1945, Records of the U.S. Joint Chiefs of Staff, 1945-1977, Record Group 218, NARA 1747981; 'Letter from Grossadmiral Karl Dönitz, 5/6/1945,' Instruments of German Surrender, 5/4/1945-5/10/1945, Records of the U.S. Joint Chiefs of Staff, 1945-1977, Record Group 218, NARA 6943507;
[595]Winston Churchill, 'Germany (Unconditional Surrender), HC Deb 08 May 1945 vol 0 cc1867-1869.

thesis uses the end of the war in Europe to end the period of the Second World War discussed. Though much research remains to be conducted utilising similar methodological approaches in the Pacific theatres, it sits outside the remit of the current analysis of the learning and adaption of the communications networks within the Royal Corps of Signals.

This final chapter summarises the findings of this study and considers its implications for three questions: the methods through which the Army adapted its communications structure; the effectiveness of the learning process that developed as a result; and the need to utilise oral histories to understand the adaptation, transformation, and learning of the Army more effectively.

Learning and Adaptation in the Communications Structure

The end of the war in Europe also marked an end to the environment and conditions that demanded—and therefore facilitated—advancements in technology and communication methods as well as a much more complex development of the learning processes within the British Army. The Army that went to war in September 1939 grew and developed through experience, training, and the use of a developing learning process that effectively utilised lessons-learned committees to benchmark its learning and make use of its knowledge creation process. The transformation of the small British Expeditionary Force that entered France in 1939 into the victorious, Allied Army that defeated Germany in 1945 occurred due to many factors.

This study demonstrates that one of the more important ones was the ability to identify lessons during wartime, collect the information and discuss through committees, and disseminate policy changes to spread best practice. More importantly, the Army increasingly recognised that local solutions and the informal knowledge that individuals shared with one another often provided the most useful and effective information to be shared, but also that this information could be hyperlocal—that is, it did not always translate well. The speed with which

this information had to be gathered, filtered, analysed, and then distributed also gave the outwards appearance of an Army that was always behind the times and catching up to the new theatres in which it found itself. This is an unfair criticism: armies base their ability to predict the future of combat on their experiences, making use of the internal networks they establish to absorb knowledge and redistribute it to the most soldiers in the most effective and efficient ways possible. The British Army learned a tremendous amount during the Second World War; the knowledge it accumulated during the war led it to make changes as it judged necessary to improve its effectiveness. It also increasingly granted its officers and its other ranks limited autonomy under the concept of reasonable latitude, which emerged as an official policy from the Godwin-Austen Report of 1942, discussed in chapters three and four.

This study utilises despatch riders as its vehicle to examine the British Army's ability to learn during the Second World War. These messengers served as an effective part of the forces in Europe and North Africa because they were capable of learning and adapting owing, in part, to incorporation of their lived experiences. Through investigating the Royal Corps of Signals and its influence on communications throughout the Army, this study demonstrates the importance not only of policy changes during a conflict but also the individual soldiers' role in effecting immediate changes and sharing knowledge. While the War Office conducted its internal benchmarking committees, the individuals in combat spread their experiences and knowledge among their peers, creating a system in which transformation could develop at any level and snake through the Army in unexpected ways.

This study builds on Fox's model of learning in the British Army of the First World War but expands it to include other ranks and builds its understanding of informal knowledge from oral histories of soldiers. It supports research into the impact of culture on learning but, like, Fox, asserts the Army heavily relied upon informal learning as a method not only of knowledge creation but also dissemination. The establishment of lessons-learned committees

throughout the war to consider best practice in communications clearly demonstrates the War Office's attempts to modify communications structures and policy to best suit the war it was fighting. The parallel development of in-theatre knowledge and growth of the Army, as well as its diversification in theatres such as North Africa, led to an important policy change found in concepts of reasonable latitude of the Godwin-Austen Report and the acknowledgement of transferable knowledge found in Montgomery's flawed attempts to move the 7th Armoured Division from Italy to Northwest Europe.

Fox's contention that 'the formal-informal split is useful…Such a split masks the complexity of organisational learning' correlates to the communications experience in the Second World War.[596] The learning process that developed during the war built on changes that began during the interwar period, most notably, the change in the socio-economic positions and education levels of the soldiers who became despatch riders and other ranks. It also developed due to the budgetary and material changes made in response to the interwar policies, leaving a small, colonial army in place by the rearmament period. To trace the evolution of the learning process of this study requires tracing the development of the role of despatch rider from its beginnings as part of the Signal Service of the Royal Engineers through to the despatch riders of the Northwest European campaign of 1945. Only by considering both the role and technology of communications and the transformation of the soldiers who filled the communications ranks can the extent of the Army's learning transformation be appreciated.

The complex learning process that developed included a process that accepted suggested changes from all directions: higher command, officers, and soldiers. It also required that concepts pass through all these spheres to become effectively integrated into organisational knowledge. That is, even the smallest modification made in the desert could wend its way through the process to become standard across theatres. Likewise, modifications suggested by

[596]Fox, 'Putting Knowledge into Power,' p. 259.

command could be acted upon in the frontlines, creating best practice. This study uses this model to frame learning: it did not happen through a top-down or bottom-up method; learning, by definition, occurred by all members of the armed forces at all times in all capacities. Transforming it to useable organisational knowledge; however, took time and establishing a process through which it could be assessed. This study has used despatch riders to trace this evolution from the early beginnings of war to the end of the Second World War in Europe. It also makes use of a largely under-utilised methodology: oral histories.

The Use of Oral Histories in Understanding Learning

Despite their flaws, oral histories remain a valuable source of archival information for historians. They have the capacity to tell the human story behind important events and allow participants the opportunity to reconstruct their experience and perspective and contribute to the broader understanding of historical events. Though they suffer from the challenge of diminished memory and inaccurately recalled details due to the passage of time and outside influence, oral histories also allow historians to capture an allusive part of the historical record: informal knowledge and learning. This study has utilised oral histories of soldiers, particularly despatch riders and signallers of the Army. It does so in tension with official documents and the reports of the lessons-learned committees accessed from the UK National Archives.

While exploring the interplay between these two types of sources, this study found an unexpected learning process as well as vast networks of informal learning that occurred throughout the war. The time lag between the event and the collection of the oral history also allowed for the completion of the learning process: in the throes of war, individuals do not have the time necessary to reflect on their learning, nor do they have the opportunity to analyse the methods through which they are acquiring and disseminating knowledge. Oral histories, then, are an effective tool in accessing not only the complexities of what different soldiers learned

at different times, but from whom, how it was deployed, and whether they passed it on to others.

This study shows that oral histories also allow for the integration of more diverse perspectives into the historical record. As has been demonstrated, the socio-economic makeup of the Army changed drastically in the twentieth century. With it, the education level of officers and other ranks varied greatly – despatch riders, for example, rarely continued education after the ages of fourteen to sixteen. This meant that literacy and letter writing did not necessarily come naturally to soldiers; as was discussed in chapter three, morale issues with writing home also affected the number of records created by this group of soldiers. It is, therefore, disingenuous to say that the written archival records are representative of the Army; without the oral histories that archivists and historians have painstakingly collected, along with the visual and material records, the written records of the Second World War do not allow for exploration of themes in learning and informal networks.

Implications

Although this thesis has considered the learning and transformation process of communications in the British Army of the Second World War, its findings have implications for the understanding of how other aspects of the armed forces transform and learn during conflict. Chapter four's case study of military medicine's navigation of the malaria crisis, for example, demonstrates that these concepts of learning are broader than just communications. This process did, in fact, take its own nebulous route throughout the Army as it developed more broadly and became an effective learning organisation by the end of the war.

Additional implications of this study are found in the use of oral histories in reconstructing informal knowledge networks for members of the armed forces, particularly those engaged in combat or active operations. The framework for routinely collecting and

archiving these histories allows historians to access the otherwise inaccessible and ensure it is integrated into the historical record.

This thesis originated in the question of 'what does the use of despatch riders tell us about the Army' and finds that the answer is a complex labyrinth of adaptability, informal learning, training, lessons-learned committees, and policy changes. Utilising wartime communications methods, which have largely escaped historians' interrogation, this study examined this question and found the Army to be resilient, resourceful, adaptive, and capable not only of learning on-the-go, but also of developing a sophisticated process of learning that was responsive to the war's movements and demands. The despatch riders themselves, through oral histories, tell this story, as do the lessons-learned committees—Kirke, Jackson, Bartholomew, and Godwin-Austen. Together, these two parallel sources demonstrated how the Army learned, the extent to which it developed a process for this learning, and how oral histories are the key to understanding not only the origin of much of the knowledge but also the effectiveness of policies implemented during the war.

APPENDIX: PHOTOGRAPHS

Figure 3: Despatch rider delivers message to the 1st Border Regiment signals office in Orchies, France, 13 October 1939. IWM Photograph Archive O129

Figure 4: Motor Cycle Despatch Rider, Egypt. c. 1931. Royal Signals Museum Uncatalogued Collection.

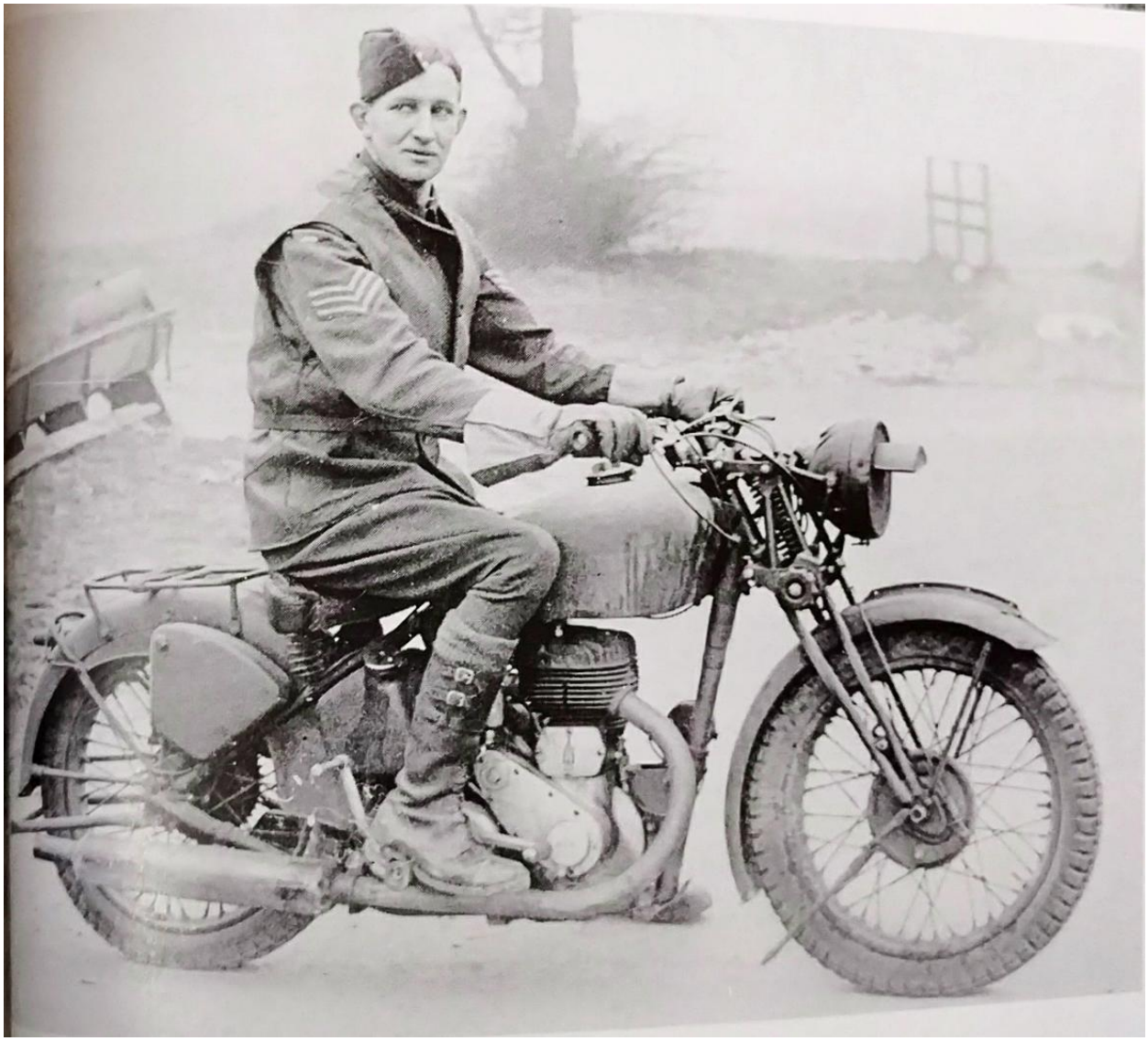

Figure 5: Lance Sergeant R. Bainbridge in leather jerkin, DR breeches, and double buckle high boots. IWM Photograph Archive HU 93312.

Figure 6: 56th (London) Divisional Signals. Private papers of Kenneth Lee. Private Collection.

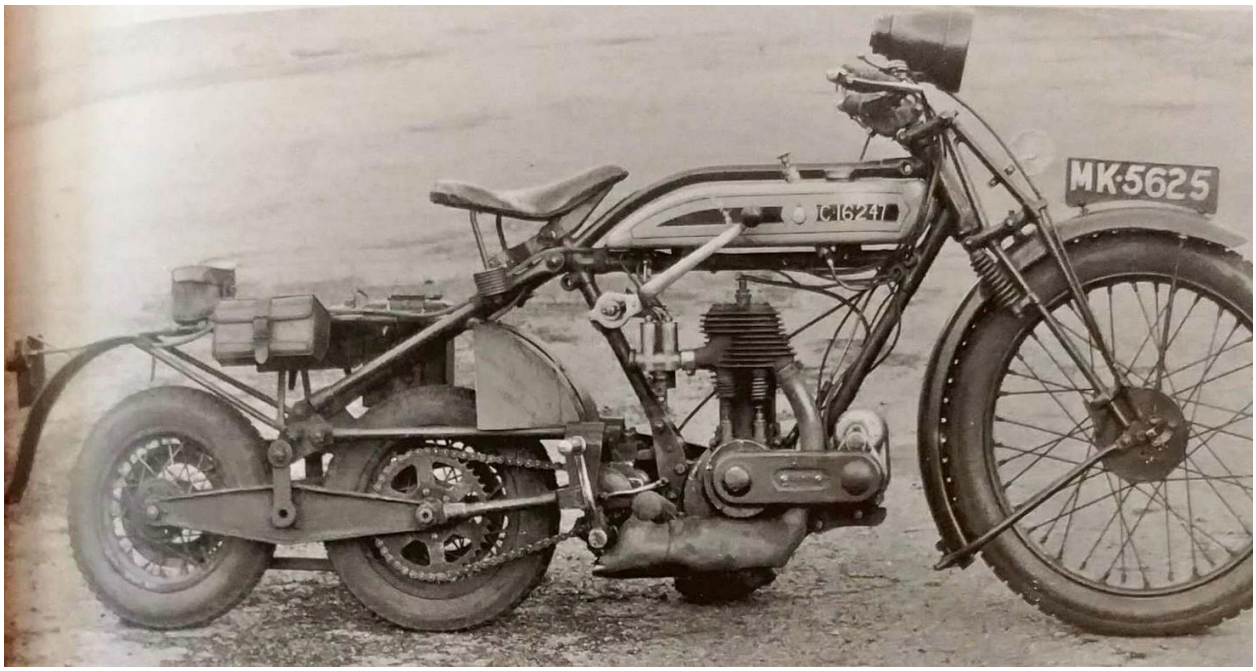

Figure 7: First Experimental Conversion of a Triumph motorcycle to 3-wheeler. 1926 Triumph 494cc SV Single-Cylinder. IWM Photograph Archive HU 93252

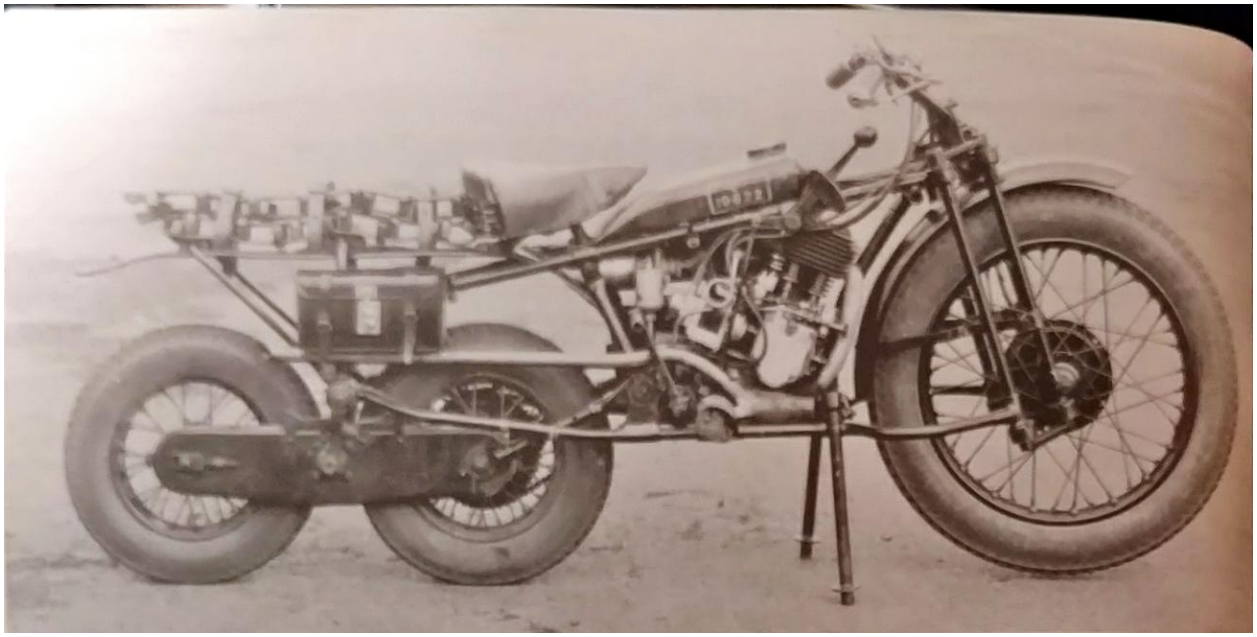

Figure 8: Osborn Engineering Company (OEC) 3-wheeled motorcycle. IWM Photograph Archive HU 93258

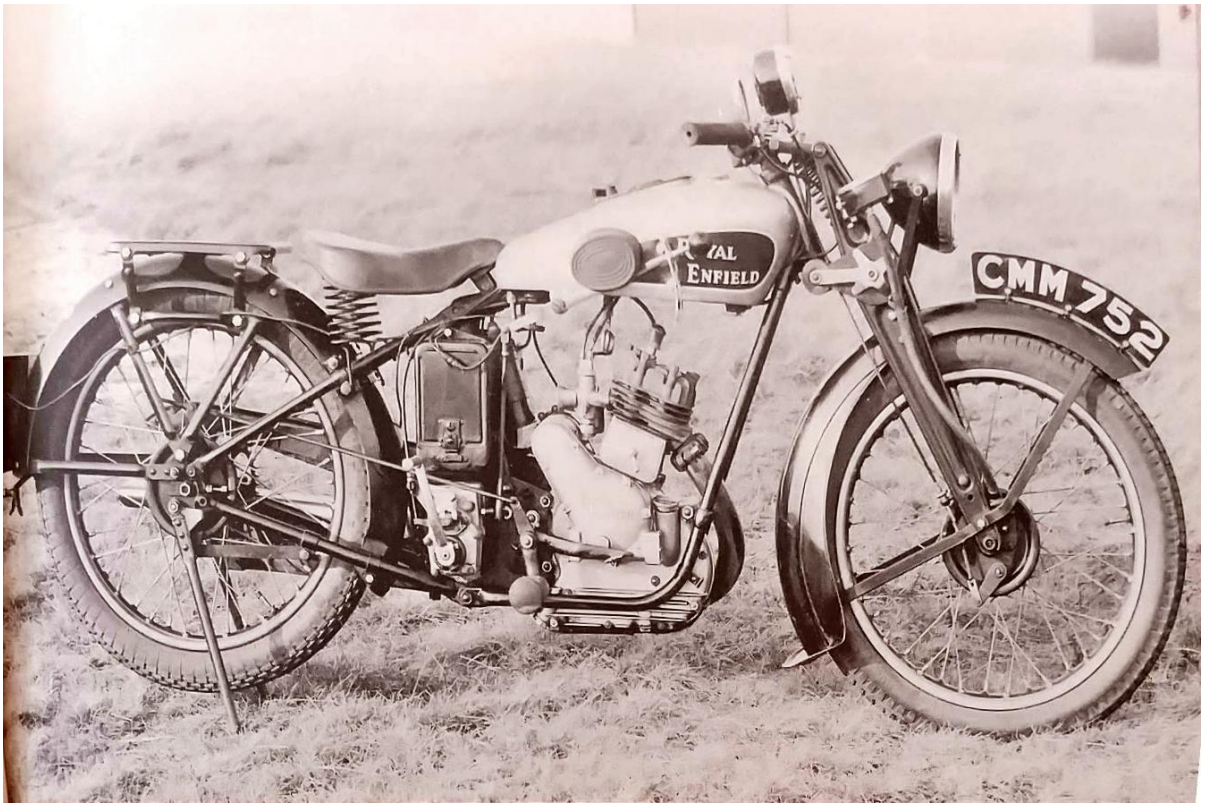

Figure 9: Royal Enfield motorcycle type B, 248cc side valve. 1935. IWM Photograph Archive HU 93260.

Figure 10: British Despatch Rider on a Norton 16H. IWM Photograph Archive ARMY TRAINING 8/7.

Figure 11: Headdress Badge of the Royal Corps of Signals. IWM Object Archive INS 16960

Figure 12: Sgt JH 'Crasher' White and Sgt Freddie Frith in October 1942. IWM Photograph Archive H 24685

Figure 13: Sgt 'Crasher' White and Sgt Freddie Frith give a demo of 'fast cornering' during training at RASC Driving School, October 1942. IWM Photograph Archive H24689.

Figure 12: 'An Indian D.R. making up time on a good stretch of road.' Motor Cycle Trial of D.R.s in Cyprus, taken by Lt. Tanner, 3.3.1942. IWM Photograph Archive E9008.

Figure 13. Royal Corps of Signals Motor Cycle Display Riders, c.1935. Royal Corps of Signals Museum.

Figure 14: Royal Corps of Signals Display Riders, c. 1935. Royal Corps of Signals Museum.

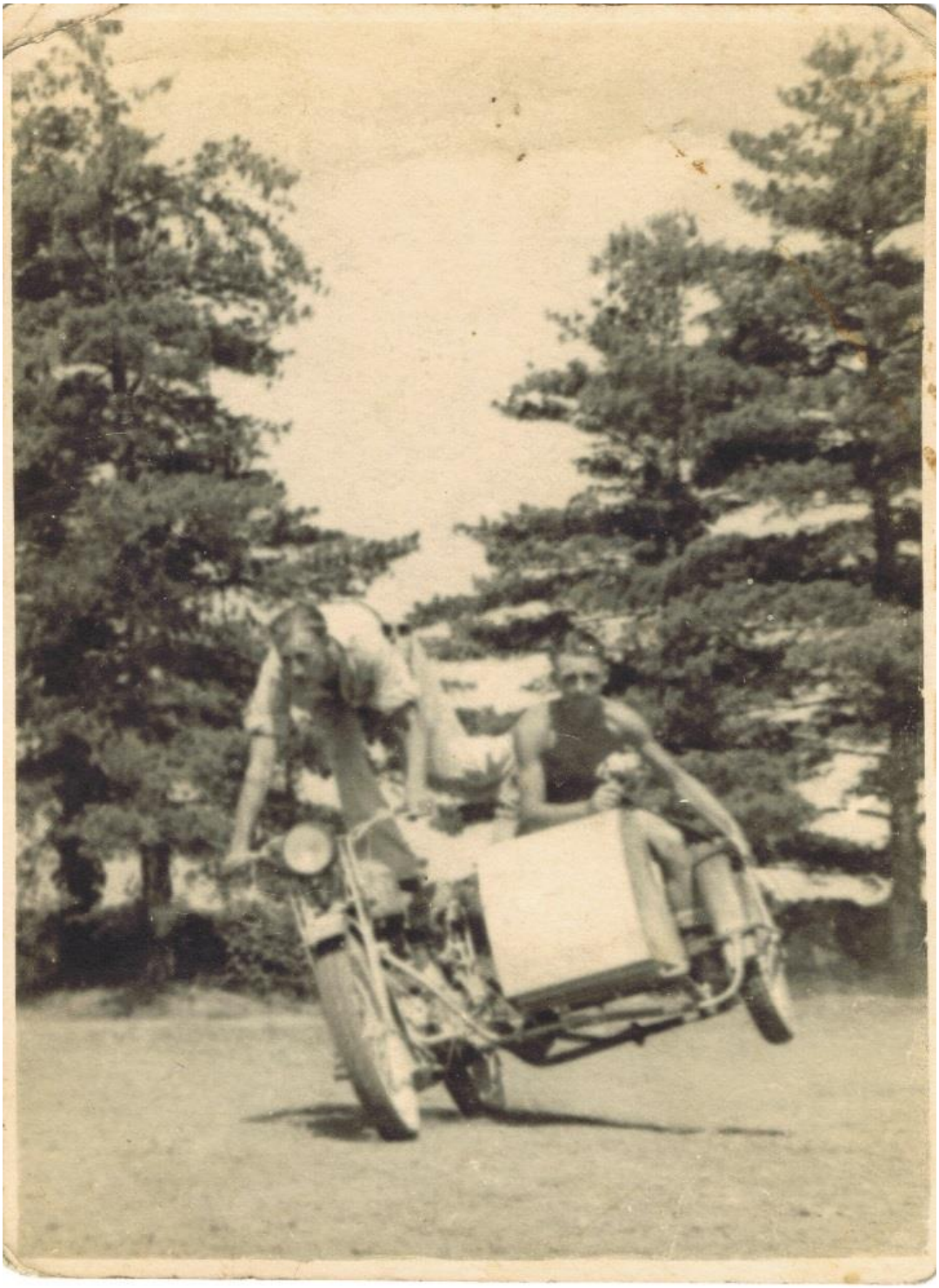

Figure 14: Despatch Riders Kenneth Lee and 'Jimmy,' c. 1942. Private Papers of Kenneth Lee.

Figure 15: ATS Motorcycle Despatch Rider in Northern Ireland, 26 September 1941. IWM Photograph Archive H 14291

Figure 17: An ATS FANY Motorcycle Messenger sits on her motorbike as she receives her instructions from a FANY Corporal at the ATS MTC training centre, Camberley. IWM Photograph Archive D 5721.

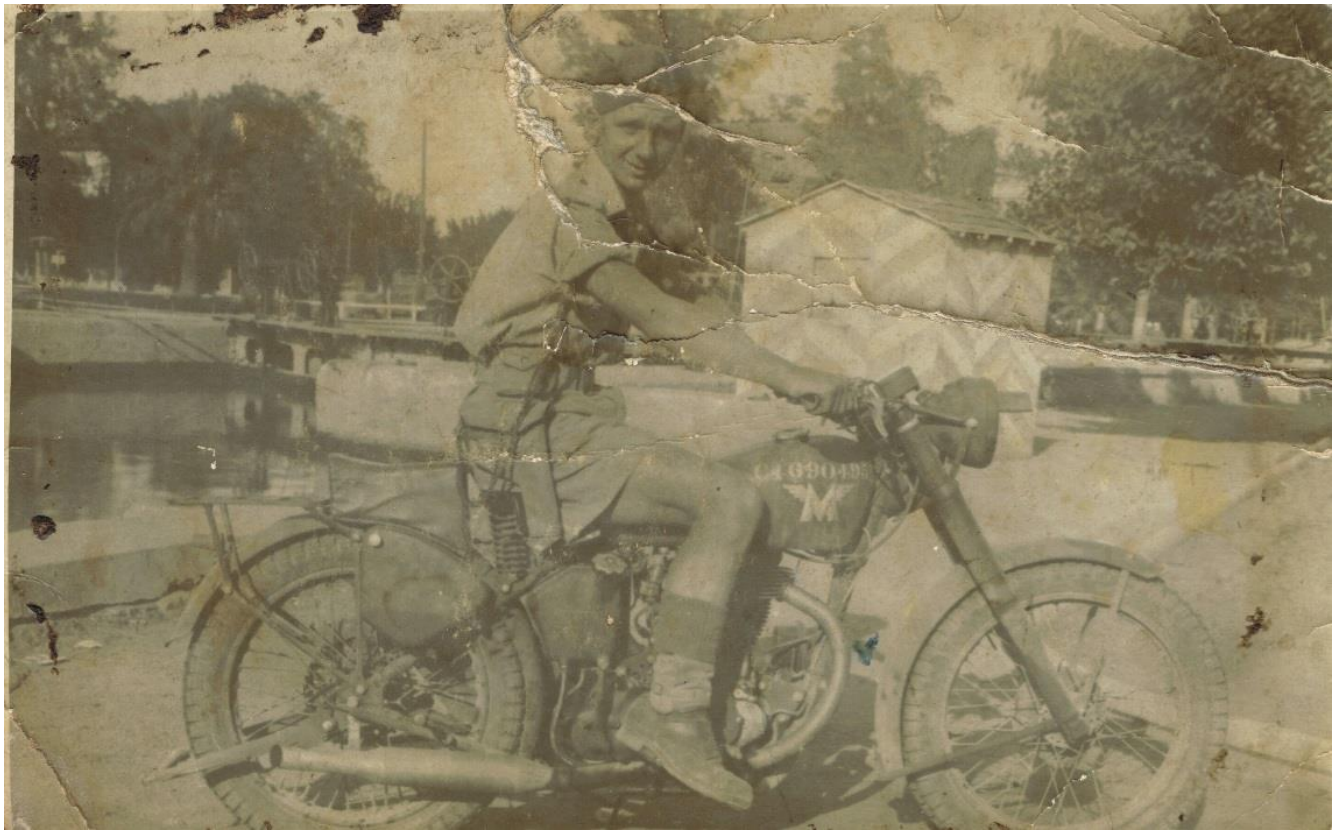

Figure 16: 56th Div Signals DR Kenneth Lee in 1942. Private Papers of Kenneth Lee.

Figure 19 'Len in 1942.' Private Papers of Kenneth Lee.

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9862	Oral History of Ralph Alger Bagnold
9909	Oral History of David Lanyon Lloyd Owen
9961	Oral History of James Douglas Patch
10601	Oral History of Frederick Edwin Cottier
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17327	Oral History of Pamela Mary Pope
17360	Oral History of Gladstone Keate
19923	Oral History of Arthur Walter Frederick Foreman
20495	Oral History of Lawrence Herbert Thompson
20504	Oral History of Charles Henry 'Taffy' Bonner
20737	Oral History of William Oliver Millard
21550	Oral History of Fred Johnston
21556	Oral History of Thomas Walter Parkinson
22136	Interview with Alan Windsor Beecroft
22341	Interview with William Avery
22392	Oral History of Roy Douglas Heron
22586-2	Interview with Arthur Featherstone
22677	Oral History of Herbert Geoffrey Rees
26780	Oral History of Annie Wright
27440	Interview with Douglas Wheeler
29599	Oral History of Edward Cecil Osbaldeston Mitford
29612	Oral History of Alf Saunders
29613	Oral History of Merv Curtis
34491	Oral History of Alex (Jim) Russon
13080	Oral History of James Corr
13362	Oral History of William "Bill" Jack Pinn
29804	Oral History of Alf Lloyd
10167	Oral History of Ronald Elliott
12239	Oral History of Gerald 'Gerry' Kendrick Barnett
19806	Oral History of Tommy Willmot
29431	Oral History of Dennis Hayward
21796	Oral History of John Harnett

18548 Oral History of Alfred Leigh

Imperial War Museum Photograph Archive

ARMY TRAINING 8/7 Photograph of British Despatch Rider on Norton 16H
D 5721 Photograph of ATS FANY Motorcycle Messenger receiving instructions, Camberley
H 14291 Photograph of ATS Motorcycle Despatch Rider in Northern Ireland, 26 September 1941
H 24685 Photograph of Sgt JH 'Crasher' White and Sgt Freddie Frith, October 1942
H 24689 Photograph of Sgt JH 'Crasher' White and Sgt Freddie Frith demonstrating fast cornering at RASC training, October 1942.
HU 1009907 Photograph of T.E. Lawrence on Borough Superior
HU 63150 Photograph of 'RAF Despatch Rider for the RAF 15 Supply and Transport Column on his Harley Davidson Motorbike in North Africa, C. 1943.'
HU 93252 Photograph of Triumph 3-wheeler motorcycle
HU 93254 Photograph of Triumph motorcycle 3/1, 343cc SV Single-Cylinder model
HU 93255 Photograph of Triumph motorcycle 3/1, 343cc SV Single-Cylinder model
HU 93256 Photograph of Triumph motorcycle, 350cc SV Single-Cylinder model
HU 93257 Photograph of Osborn Engineering Company 3-Wheeled Motorcycle, 350cc Blackburne engine
HU 93258 Photograph of Osborn Engineering Company 3-Wheeled Motorcycle
HU 93260 Photograph of 1935 Royal Enfield Model B, 250cc SV Single-Cylinder model
HU 93312 Photograph of Lance Sergeant R. Bainbridge
NA 13092 Photograph of A Beagle, RASC despatch rider, 19 March 1944.
O 129 Photograph of Despatch Rider delivering a message to the signals office of 1st Border Regiment, Orchies, France, 13 October 1939.
E 16501 Photograph of British Signaller at Work in a Radio Truck, Second World War 1939-1945: North Africa
E 7972 Photograph of Two members of Royal Signals in Egypt, 3 February 1942
HU 24964 Photograph of the Long Range Desert Group (LRDG),
HU 69650 Photograph of Long Range Desert Group ('G' Patrol) with SAS, May 1942
HU 16666 Photograph of the Long Range Desert Group ('T' and 'G' Patrols)
E 9008 Photograph of Indian Despatch Rider competing in Motor Cycle Trials for D.R.s in Cyprus, 3 March 1942, Taken by Lt. Tanner.
RML 801 Photograph of Italian Bersagliari riding Moto Guzzi motorcycle across hard sandy desert
NA 624 Photograph of Sgt Etherington of Morden Surry, crossing a mountain stream
K 7586 Photograph of Pioneer Assault Platoon of 1st Parachute Battalion, 1st Airborne Division in a USAAF C-47 Aircraft on their way to Arnhem, 17 September 1944

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