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Detecting the Need for Change:
How the British Army Adapted to Warfare on the Western Front and in the
Southern Cameroons

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Abstract: This paper addresses a gap in the literature on military adaptation by focusing on the first step in the adaptive process: detecting failure. We argue that institutionalized feedback loops are a critical mechanism for facilitating detection. Feedback loops are most effective when they filter information and distribute lessons learned to senior tactical commanders. In turn, effective filtration depends on incorporating front line soldiers and specialists into intelligence cells while creating a protected space for dissent. We evaluate our theory against both irregular and conventional wars fought by the British Army: the counterinsurgency campaign in the Southern Cameroons (1960-61) as well as the evolution of British assault tactics on the Western Front of the First World War (1914-18).

Introduction

War is defined by uncertainty. Technologies and doctrines evolve between conflicts, making it impossible to fully anticipate the best way to fight the next war. Adversaries misrepresent their strategies and capabilities. And combat is always shrouded in a fog of contradictory information and flawed intelligence. For all these reasons, adaptation is critical to wartime military effectiveness. Military organizations that can accurately detect performance gaps and rapidly generate viable alternative tactics, techniques and procedures (TTPs) will be more effective than those that cannot. In essence, adaptive military organizations are much more likely to be effective military organizations.

For scholars, policy makers and military leaders alike, the challenge is to understand why some military organizations have proven better at adapting than others. While the British and German armies are oft-cited examples of military organizations that are particularly good at adaptation,¹ we have few generalizable theories to explain why. As Rosen points out, variables that appear to foster change in one case seem to impede change in another.² Similarly, despite the tendency to broadly portray some military organizations as more dynamic and flexible than others, such sweeping characterizations usually fall apart under scrutiny. Some particularly adaptive organizations, such as the German army, lost the wars they waged. Other military organizations may have failed to change for reasons beyond their control, such as political

¹ Timothy T. Lupfer, *The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War* (Colingdale, PA: Diane Publishing, 1981); Bruce I. Gudmundsson, *Stormtroop Tactics: Innovation in the German Army 1914-18* (Westport, CT: Praeger, 1989); Paddy Griffith, *Battle Tactics of the Western Front: The British Army's Art of Attack 1916-18* (New Haven, CT: Yale University Press, 1994); John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam* (University of Chicago Press, 2005); Robert T. Foley, "Dumb Donkeys or Cunning Foxes? Learning in the British and German Armies During the Great War," *International Affairs* 90, no. 2 (2014): 279-298; Aimée Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918* (Cambridge: Cambridge University Press, 2018).

² Stephen Peter Rosen, *Winning the Next War* (Ithaca: Cornell University Press, 1994).

constraints.³ Most problematic for scholars and leaders in search of a universal theory of adaptation, most militaries have a decidedly mixed track record. For example, the U.S. military proved more successful at adapting to counterinsurgency in Iraq than it was in Vietnam.⁴

We take a different approach to understanding why some militaries are better at adapting than others. Instead of generating and testing a single theory, we follow the example set by the business and economics literatures on organizational change and disaggregate adaptation into a multi-step process.⁵ Rather than trying to explain every step in the process, we focus on the first step—detecting failure. We argue that institutionalized feedback loops are a critical mechanism for facilitating detection, which must occur for the adaptation process to begin.

To be clear: by institutionalized feedback loop we mean something specific. It is not enough to generate after action reports or circulate lessons learned memoranda. War produces an overwhelming amount of information. Unfiltered and unrestrained, the routine production and widespread dissemination of small unit experience is more likely to cause information overload than to trigger change. We posit that feedback loops must proactively filter information and will work best when they include both front-line personnel and dedicated specialists, create a protected space for dissent, and disseminate analysis directly to senior tactical leaders.

³ Kristen A. Harkness and Michael A. Hunzeker, 'Military Maladaptation: Counterinsurgency and the Politics of Failure,' *Journal of Strategic Studies* 38:6 (2015), pp. 777-800.

⁴ Andrew F. Krepinevich, Jr., *The Army and Vietnam* (Baltimore, MD: Johns Hopkins University Press, 1986); James A. Russell, *Innovation, Transformation, and War* (Palo Alto, CA: Stanford University Press, 2011); Jeannie Johnson, *The Marines, Counterinsurgency, and Strategic Culture: Lessons Learned and Lost in America's Wars* (Washington, D.C.: Georgetown University Press, 2018).

⁵ Terry N. Clark, 'Institutionalization of Innovations in Higher Education: Four Models,' *Administrative Science Quarterly* 13:1 (1968), pp. 1-25; James G. March, 'Exploration and Exploitation in Organizational Learning,' *Organization Science* 2:1 (1991), pp. 71-87; Mary M. Crossan and Marina Apaydin, 'A Multi-Dimensional Framework of Organizational Innovation: A Systematic Review of the Literature,' *Journal of Management Studies* 47:6 (2010), pp. 1154-1191.

The remainder of the article is structured as follows: After reviewing the literature, we present our model of recognizing failure, focusing on the necessary elements of a good institutionalized feedback loop. We then illustrate this model using the case from which it was developed: British counterinsurgency operations in the Southern Cameroons from 1960-61. We then test our model against a very different case, while still controlling for known prerequisites for adaptation: the evolution of the British army's assault tactics on the Western Front during the First World War. We also leverage within case variation, showing that the British Expeditionary Force's efforts to formalize and institutionalize its feedback loops in 1917 led to a much greater capacity to recognize shortcomings in its infantry assault tactics. We conclude by discussing key lessons for militaries seeking to become more adaptive organizations.

Literature Review

A robust literature on wartime adaptation has emerged within the past decade. Earlier scholarship tended focused on peacetime innovation—sweeping, top-down technological and doctrinal shifts that took years to unfold.⁶ Two concurrent developments persuaded the field to shift away from innovation and towards wartime adaptation, typically defined as incremental, bottom-up changes in tactics, techniques and procedures that take root over a compressed time span.⁷ The first occurred when Grissom called on innovation scholars to pay more attention to

⁶ Elizabeth Kier, *Imagining War: French and British Military Doctrine between the Wars* (Princeton: Princeton University Press, 1997); Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (Ithaca: Cornell University Press, 1984); Rosen, *Winning the Next War*; Kimberly Marten Zisk, *Engaging the Enemy: Organization Theory and Soviet Military Innovation, 1955-1991* (Princeton: Princeton University Press, 1993).

⁷ Stuart Griffin, 'Military Innovation Studies: Multidisciplinary or Lacking Discipline?' *Journal of Strategic Studies* 40:1-2 (2017), pg. 2. See also, Williamson Murray, *Military Adaptation in War: With Fear of Change* (Cambridge: Cambridge University Press, 2011).

bottom-up change in his heavily cited review of the military innovation literature.⁸ The second involved the U.S. military's struggle to adapt to the wars in Iraq and Afghanistan. The nature and duration of those conflicts generated a wealth of data, sparked scholarly interest in the issue, and convinced the Department of Defense to increase funding for related research.

In his 2010 article, "Improving in War," Farrell offers one of the most influential theories of such bottom-up change. He enumerates several preconditions that maximize the likelihood of successful adaptation: prospective defeat, decentralization, and leader turnover.⁹ Subsequent research echoes many of Farrell's core insights. Examining the Israeli Defense Force's operations against Hezbollah, Marcus concurs that change is most likely in military organizations with weak central doctrine, numerous informal networks between officers to facilitate communication, a lack of "ownership" of ideas, and a collaborative learning culture.¹⁰ In his study of the French army during Afghanistan, Schmitt finds that French units readily learned from their NATO allies, although material constraints and historical preferences always caused them to modify borrowed practices to some degree.¹¹ And Kollars, Muller, and Santora theorize that diversity within a given community of practice facilitates bottom-up learning, especially when it occurs as a structured, dialectic process.¹²

⁸ Adam Grissom, 'The Future of Military Innovation Studies,' *Journal of Strategic Studies* 29:5 (2006), pp. 905-934.

⁹ Theo Farrell, 'Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006-2009,' *Journal of Strategic Studies* 33:4 (2010), pp. 567-594.

¹⁰ Raphael Marcus, 'Military Innovation and Tactical Adaptation in the Israel-Hezbollah Conflict: The Institutionalization of Lesson-Learning in the IDF,' *Journal of Strategic Studies* 38:4 (2015), pp. 500-528.

¹¹ Olivier Schmitt, 'French Military Adaptation in the Afghan War: Looking Outward or Inward?,' *Journal of Strategic Studies* 40:4 (2017), pp. 577-599.

¹² Nina A. Kollars, Richard R. Muller, and Andrew Santora, 'Learning to Fight and Fighting to Learn: Practitioners and the Role of Unit Publications in VIII Fighter Command 1943-1944,' *Journal of Strategic Studies* 39:7 (2016), pp. 1044-1067.

Although most work on adaptation suggests that decentralization and weak institutional controls (e.g. informal vs. formal doctrine; frequent leadership turnover) are positively associated with adaptive behavior, some scholars disagree. Contrasting the development of gun trucks in Vietnam and Iraq, Kollars finds that front line troops are always engaged in bottom-up experimentation.¹³ However, the degree to which these low-level experiments are captured and transmitted across the broader institution depends on the centralization of its knowledge networks. For example, in Vietnam, the U.S. Army possessed decentralized knowledge networks, leading to the loss or duplication of most experimental solutions. In contrast, during the Iraq war, the Army grouped technicians working on gun trucks into two locations, thereby inadvertently centralizing the relevant knowledge networks and facilitating effective bottom up change. Similarly, Harkness and Hunzeker argue that decentralization is necessary, but insufficient for explaining organizational change, particularly in cases where political imperatives, or the costs associated with implementation, prohibit certain types of adaptation.¹⁴

As important and relevant as its insights are, the literature on military adaptation still suffers from at least three important gaps. First, the adaptation literature takes for granted that military organizations in general—and front line troops in particular—know when they are failing. Haaland aptly frames the problem: “Lessons are rarely objective truths waiting to be discovered. They are rather biased and fluid interpretations of confusing events. Identified

¹³ Nina Kollars, ‘War’s Horizon: Soldier-Led Adaptation in Iraq and Vietnam,’ *Journal of Strategic Studies* 38:4 (2015), pp. 529-553.

¹⁴ Harkness and Hunzeker, ‘Military Maladaptation.’

lessons serve multiple purposes, and widely accepted lessons may not result in adaptation because other concerns may be considered more important.”¹⁵

We agree with this critique. The existing literature seeks to explain adaptation *after* the performance gap has already been identified. Such an approach is incomplete. Combat generates mountains of raw information and front line troops—although they possess the most immediate and often visceral experiences of failure—are often the *least* equipped to understand its root causes, if only because they operate where the fog of war is thickest and time constraints are at their most severe. Moreover, for good reason, front line troops are trained to fight, not analyze. As a result, it is hard to know if a tactic, technique, procedure or piece of equipment worked (or failed) because it was inherently sound (or flawed) or because of some other set of confounding factors.

Second, empirical testing has been notably skewed toward insurgency/counterinsurgency campaigns, with the noteworthy exception of Kollars’ work on the Eighth Army Air Force during the Second World War. Learning and adaptation are surely just as important to conventional combat as they are to unconventional and asymmetric warfare, a deepening policy concern given recent geopolitical developments in East Asia and Europe. We cannot be confident that theories of wartime adaptation apply to conventional conflicts until we test them against relevant cases. For example, it is entirely possible that decentralization seems like an important variable driving adaptation precisely because of the decentralized nature of counterinsurgency combat. However, when applied to conventional combat operations, the opposite may well hold true.

¹⁵ Torunn Laugen Haaland, ‘The Limits to Learning in Military Operations: Bottom-Up Adaptation in the Norwegian Army in Northern Afghanistan, 2007-2012,’ *Journal of Strategic Studies* 39:7 (2016), pg. 1004.

Finally, the literature is inconsistent about its unit of analysis. Some scholars look at front line battalions while others examine divisions, armies and/or the entire organization. This provides ample room for cherry picking cases. Given the nature of warfare, it would be exceptionally rare for absolutely no front line units to engage in ad hoc experimentation or adaptation. Within any fighting organization, some unit at some level of operation will try something new—whether existing strategy, doctrine, or TTPs are working. Therefore, it is almost always possible to find a unit engaged in a process of “adapting” (or attempting to adapt). While interesting, this is also largely irrelevant to the vital question of military effectiveness. Policymakers and military leaders are interested in adaptation, not for its own sake, but because they want to make their soldiers, sailors, and airmen more effective on the battlefield. Thus, the relevant question is not, “are some units trying new ideas?,” because surely some will and some will not be for all sorts of idiosyncratic reasons. Rather, the relevant question is “did the part of the organization that was tasked with winning this war adapt?”

From this perspective, scholars should focus on the highest-ranking command within a given military organization assigned with the mission of fighting and winning the war in question. In some cases, a battalion task force may have been the highest-ranking command assigned to handle a crisis or contingency. If a platoon or company within that battalion engaged in bottom-up adaptation, but the overarching battalion did not change its operating procedures, then it is inaccurate (or at least irrelevant) to say that change occurred. However, if experiments within a single platoon “trickled up” to influence that battalion’s operations, then adaptation truly did occur. The same standard should apply in cases where a regiment, a division, an army, or the entire military has been charged with winning a war.

We realize our focus on the highest-ranking command within a given military organization privileges a vertical (i.e. top down) view of learning. We readily acknowledge that wartime learning encompasses other meaningful modes of knowledge transmission, including between individuals (liberal), frontline units (horizontal) and civilian actors and agencies (external). Nevertheless, we adopt a top down view for the purposes of this article, because 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 organizations.

We address these gaps by breaking down the adaptation process and theorizing how military units recognize when they are failing. After illustrating this new model against the counterinsurgency case in which it was developed, British operations in the Southern Cameroons, we then test it against a case of conventional warfare: the British Expeditionary Force during the First World War. Each case focuses on the highest-ranking command in theater tasked to win the war.¹⁶

Recognizing Failure: Feedback Loops as a Mechanism of Adaptation

Our theory starts from the beginning of the causal story. Adaptation is a multi-phase process, with each step presenting unique tasks and obstacles. We seek to explain adaptation's

¹⁶ For a deeper discussion of the important role that top level leaders play in facilitating change, see Rosen, *Winning the Next War*, pp. 20-22. For an introduction to horizontal learning, Robert T. Foley, "A Case Study in Horizontal Military Innovation: The German Army, 1916-1918", *Journal of Strategic Studies* 35, no. 6 (2012): 808-809. For an overarching discussion of different learning pathways, see Fox, *Learning to Fight*, pp. 53-72.

first phase—detecting failure and/or a performance gap—and develop a mechanism for *how* this happens. While the prerequisites that Farrell identifies (clear threat, decentralization, supportive leadership, and leadership turnover) make adaptation more likely,¹⁷ we argue that they are not decisive in the absence of a fifth variable: institutionalized feedback loops that make detection possible in the first place. Understanding how feedback loops function can thus provide important insights into how militaries might adapt better.

Rosen was the first military innovation scholar to emphasize feedback loops.¹⁸ As he aptly points out, no matter how visionary the leader, they cannot foster change without recognizing its need in the first place. Leaders rely on feedback loops to continually update them on performance. Unfortunately, we still lack a systematic way to understand how these loops operate – a theory to help militaries make detection routine instead of ad hoc. We are thus left to wonder: what makes a feedback loop effective; and how do they facilitate detection?

To answer these questions, we begin with three presuppositions. First, someone in the organization must realize that units are failing to meet their objectives, or that the price of success is unnecessarily high. Second, information that objectives are not being met, or that the objectives themselves are inappropriate, must make it into the hands of leaders with decision-making power. Third, the information must arrive in a way that ensures it will be noticed and its importance recognized. Military commanders are constantly bombarded with information, much of it raw and contradictory. This is especially true at the tactical level, where commanders must often process feedback in real time.

¹⁷ Farrell, 'Improving in War,' pp. 571-573.

¹⁸ Rosen, *Winning the Next War*, pp. 30-35.

To meet these conditions, we posit that the key causal mechanism enabling militaries to detect battlefield shortcomings are institutionalized feedback loops that link information generated at the front lines with intelligence assets and senior tactical leaders. It is not enough, however, to merely provide commanders with information—as many existing after action programs do. Too often, the literature on military change in general, and arguments about feedback loops in particular, ignore the fact that commanders at every level are literally drowning in data. As Clausewitz opined, “many intelligence reports in war are contradictory; even more are false, and most are uncertain.”¹⁹ This is perhaps even truer in modern war, where reams of data are constantly being collected and commanders are often buried under mountains of poor information and superficial analysis.²⁰

Rather, we suggest that feedback loops become more useful, and more likely to detect tactical failure and the corresponding need for adaptive behavior, the more they *filter* information before it reaches commanders’ desks. Indeed, this was a solution first identified (at a rudimentary level) by Napoleon as he grappled with commanding an immensely expanded and dispersed military machine. His new general staff churned out daily, weekly, and fortnightly situation and intelligence reports, covering everything from local food availability, to the state of uniforms and equipment, to reconnaissance missions, to prisoner interrogations, to after action reports on

¹⁹ Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (New York: Everyman’s Library, 1976), p. 117.

²⁰ For example, the British army transmitted over 13 million telegrams during the Second Boer War. By the end of the First World War, GHQ was fielding 195,000 telegrams per month. Brian Hall, ‘The British Army, Information Management, and the First World War Revolution in Military Affairs,’ *Journal of Strategic Studies* 41:7 (2018), pp. 1004 & 1012. Six decades later, the U.S. military was producing 90,000 pages of data per month as part of a single analytic effort, the Hamlet Evaluation System. ‘Resolve (January 1966—June 1976)’, directed by Ken Burns and Lynn Novick, in *The Vietnam War: A Film by Ken Burns and Lynn Novick*, September 20, 2017; Arlington, VA: Public Broadcast Service, 2017), online. For a deeper discussion of the way the U.S. Army’s produced and analyzed data during the Vietnam War, see Douglas Vetock, *Lessons Learned: A History of US Army Lesson Learning* (Carlisle, PA: US Army Military History Institute, 1988), pp. 104-118.

battles. What Napoleon found was that this mountain of information proved difficult to manage, especially as reports were aggregated into increasingly summarized and almost meaningless forms for his perusal. To cut through the morass, he developed what van Creveld termed “the directed telescope”—a small group of officers who would be tasked, as needs arose, to find, collate, and interpret the information Napoleon needed.²¹

In a modern context, the basic concept of Napoleon’s directed telescope can be revamped to provide the critical function of filtration—to cut through the noise and provide military commanders’ with knowledge of their failures. First, such filtration requires the use of dedicated analytic assets that can effectively assess and then package lessons learned so that they gain the attention of senior tactical officers. This might seem obvious, but one would be surprised at how often intelligence staffs find themselves marginalized and tasked with busy work (e.g. laminating maps) instead of engaging in genuine analysis. Our key theoretical contribution is thus adding this new element of filtration to the established concept of feedback loops.

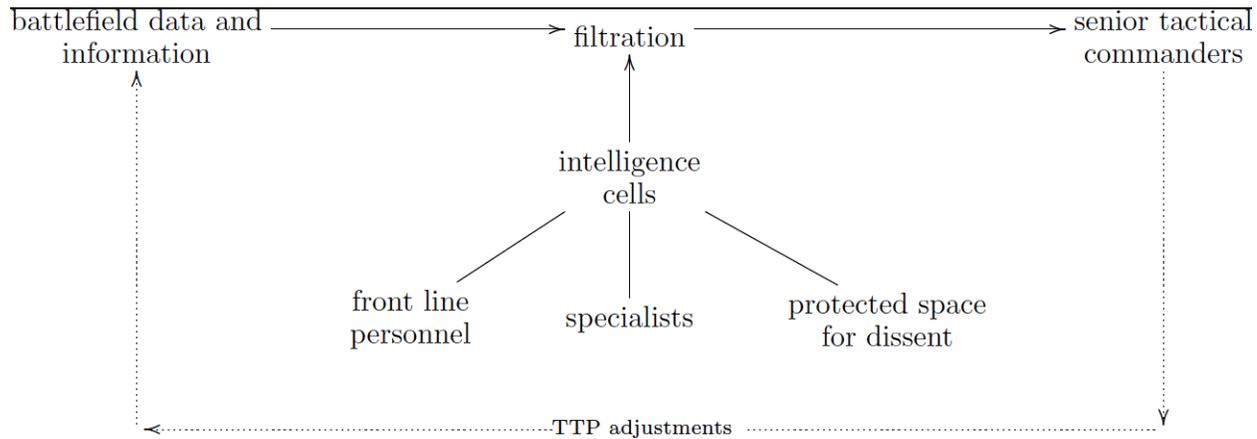
Filtration requires knowing what information is necessary. Like leaders, filters can just as easily ignore relevant facts, transmit the wrong information, and fall prey to confirmation bias—fixating on information that fits with pre-existing expectations.²² The question then becomes, how can the potential for bias and the generation of misinformation during the filtration process be minimized? We argue that analytic assets are more likely to capture and process the right kinds of information when they meet the following three criteria: they are staffed with

²¹ Martin van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), pp.74-78.

²² Robert Jervis, ‘Reports, Politics, and Intelligence Failures: The Case of Iraq,’ *Journal of Strategic Studies* 29:1 (2006), pp. 3-52.

specialists, incorporate front-line personnel, and create a protected space for dissent (see Figure 1).

[Figure 1 near here:
Institutionalized Feedback Loops]



First, analytic cells must be staffed with personnel who possess specialized knowledge relevant to the current adversary, the type of war being waged, and the local context. This experience can take many forms, including formal study (e.g. graduate school), extensive interaction (via foreign affairs officer programs and the like), or past combat experience (e.g. previous tours of duty in a similar environment). Scholars agree that specialists have a decided advantage over generalists when it comes to organizational change.²³ This may sound counterintuitive, since expertise could interfere with openness to new ideas. Modern

²³ See Michael Aiken and Jerald Hage, 'The Organic Organization and Innovation,' *Sociology* 5:1 (1971), pp. 63-82; Fariborz Damanpour, 'Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators,' *The Academy of Management Journal* 34:3 (1991), pp. 555-590; John R. Kimberly and Michael J. Evanisko, 'Organizational Innovation: The Influence of Individual, Organizational, and Contextual Factors on Hospital adoption of Technological and administrative Innovations,' *Academy of Management Journal* 24:4 (1981), pp. 689-713; David E. Lewis, *The Politics of Presidential Appointments: Political Control and Bureaucratic Performance* (Princeton: Princeton University Press, 2008).

organizations, however, are highly complex. War is no different. Generalists and amateurs often lack the appropriate expertise to monitor performance, even under stable conditions.

Second, analytic units work best when they integrate front line personnel, giving them a substantive role in analyzing information.²⁴ This helps overcome the paradox of frontline experience: allowing soldiers with detailed personal experiences of on-the-ground failures, as well as vital knowledge of local conditions and enemy TTPs,²⁵ to reflect and contribute to a more analytic process. Successful integration entails more than soliciting debriefs or after action reports (AARs). Indeed, such exercises are often seen as a distraction by combat troops already short on time to rest, recuperate and refit between missions. The process should work best when front line personnel are rotated through the analytic intelligence cell on a regular basis.

Alternatively, intelligence personnel can be sent on tours with combat units. Critically, insights from troops with firsthand knowledge of combat conditions will only inform the adaptive process to the degree that these soldiers have the time, safety, and opportunity to reflect and share their thoughts with analysts.

Third, these integrated analytic cells must include a protected space for dissent. If no one can safely criticize the choices of commanders, particularly high ranking or excessively popular ones, then problems may not be brought to their attention. Dissent can be institutionalized in many ways, from an informal culture of criticism to formally designating “red cells” (teams tasked with presenting a dissenting point of view). Regardless of how it is institutionalized, dissenters must be protected from punishment and promoted as readily as their peers.

²⁴ Examples of non-integration include: intelligence sections made up of analysts with no front-line experience; or an intelligence section that incorporates soldiers with recent front line experience but only allows them to perform routine tasks of a peripheral nature.

²⁵ Nagl, *Learning to Eat Soup with a Knife*, pg. 192.

Finally, even the best information and filtration processes are not useful if the resulting intelligence does not reach the right ears. We contend that the leaders who matter most in the context of military adaptation are senior tactical leaders with direct authority over front line units (e.g. those engaged in direct combat). Who counts as the appropriate senior tactical leader depends on context—the type of war being fought, the technology of weaponry, and the nature of the terrain. In modern counterinsurgencies, it will rarely extend below the level of battalion command nor above the level of division command. In large-scale, high-intensity conventional wars, however, it is entirely possible that division, corps, army or even theater commanders are the appropriate senior tactical leader on whom we should focus our attention.

To summarize our argument: the first step in adaptation involves recognizing failure and detecting the need for change. Clear threats, decentralized authority, leadership support, and leadership turnover make detection more likely. But the presence of an effective feedback loop, that filters information and disseminates it to tactical commanders, is decisive. Filtration, in turn, is most effective when intelligence units are led by specialists, actively integrate front line soldiers, and institutionalize a protected space for dissent.

Empirical Strategy

Our theoretical model was developed inductively through an analysis of archival documents on the small British counterinsurgency campaign in the Southern Cameroons, where the British did quickly recognize their own failures and performance gaps. We first present the materials from this case as an illustrative example of how institutionalized feedback loops can help filter information and identify operational failures. This further provides evidence of the

plausibility of our mechanisms. We then test our model against the evolution of assault tactics by frontline British Expeditionary Force (BEF) infantry units during the First World War. The BEF case also meets established prerequisites for military adaptation, including decentralization of command and an institutional culture supportive of dissent.²⁶

However, there are sharp differences in context between these two cases. Indeed, we are intentionally employing a 'most different' case study design that may strike some as implausible. The magnitude of challenges faced by the BEF—embroiled in a conventional war involving the mass mobilization, deployment, and coordination of national militaries—surely dwarf those of the single battalion stationed in Cameroon. Yet, maximizing contextual variation on a wide range of independent variables, while holding the outcome constant (successful learning) and then process tracing the mechanisms of learning, has important advantages at this stage of theory development. Principally, it provides for a difficult test of our theoretical model insofar as we must demonstrate the parallel unfolding of mechanisms across vastly different contexts.²⁷ This particular case also allows us to probe the model's applicability to conventional warfare. If our proposed causal mechanisms indeed operate in this very different battlefield context, then we can have greater faith in their generalizability across a wide range of wars.

²⁶ Elizabeth Kier, *Imagining War*; John A. Nagl, *Learning to Eat Soup with a Knife*; Jacqueline Newmyer, 'The Revolution in Military Affairs with Chinese Characteristics,' *Journal of Strategic Studies* 33:4 (2010), pp. 483-504; Theo Farrell and Terry Terriff, eds., *The Sources of Military Change: Culture, Politics, Technology (Making Sense of Global Security)* (Boulder: Lynne Rienner, 2002); Terry Terriff, 'Innovate or Die': Organizational Culture and the Origins of Maneuver Warfare in the United States Marine Corps,' *Journal of Strategic Studies* 29:3 (2006): pg. 478; Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Washington, D.C.: Johns Hopkins University Press, 1989); Andrew F. Krepinevich, *The Army and Vietnam* (Baltimore: Johns Hopkins University Press, 1986).

²⁷ See Barbara Geddes, *Paradigms and Sand Castles: Theory building and Research Design in Comparative Politics* (Ann Arbor: University of Michigan Press, 2003), pp. 94-95; Alexander L. George and Andrew Bennett, 'Process Tracing and Historical Explanation,' in *Case Studies and Theory Development in the Social Sciences* (Boston: MIT Press, 2004), pp. 205-232; John Stuart Mill, 'How We Compare,' in *A System of Logic* (New York: Harper, 1846), Book VI, Chapter 10; Theda Skocpol and Margaret Somers, 'The Uses of Comparative History in Macrosocial inquiry,' *Comparative Studies in Society and History* 22:2 (1980): pp.174-197.

Additionally, the BEF case allows us to leverage within case variation over time, since the British army institutionalized its feedback loop midway through the war. This complements the “most different” cross-case comparison by exerting within-case maximal control over important contextual factors (same war, same front, same adversary, same army, etc.) while allowing the outcome to vary (failure versus success at learning).²⁸ We can thus isolate the impact of an institutionalized feedback loop, demonstrating how its presence/absence was vital to whether adaptation occurred. As a final note of caution, our exclusive focus on the British military has its limitations. Future work will need to test the model against other military organizations with different institutional cultures and command systems.

The British Army in the Southern Cameroons

Four decades after the First World War, the British found themselves embroiled in counterinsurgency wars across their retrenching empire. These wars required an army that was flexible, adaptive and could successfully respond to the constantly shifting tactics of highly motivated insurgents. Analyzing the case of the Southern Cameroons, we argue that by this time the British Army had adopted many of the requisite characteristics of a learning institution and could complete the vital first step of adaptation: recognizing its own failures. Moreover, they were able to do so because of a sophisticated, institutionalized feedback loop that integrated specialists and frontline soldiers, protected dissent, and disseminated information to vital senior tactical commanders.

²⁸ See David Collier, James Mahoney and Jason Seawright, ‘Claiming Too Much: Warnings about Selection Bias,’ in Henry E. Brady and David Collier (eds.), *Rethinking Social inquiry: Diverse Tools, Shared Standards* (Lanham: Rowman & Littlefield, 2004), pp. 100-101; Geddes, *Paradigms and Sand Castles*, pp.117-119.

Background: A growing insurgency

By the late 1950s, the British colonial government in the Southern Cameroons faced a growing insurgency that had spilled over the border from French-controlled Cameroon, trusteeship having been split following Germany's defeat in WWI. In 1955, after widespread riots and amidst fears of communist influence, the French banned the pro-independence political party, the Union des Populations du Cameroun (UPC), and barred its members from participating in the all important pre-decolonization parliamentary elections. The UPC then developed an armed wing, the ALNK (Armée de Liberation Nationale Kamerun), and began a guerrilla campaign against the French colonial government. Based amongst the southern Bamiléké and Bassa ethnic groups, refugees and UPC operatives alike quickly began flowing across the porous and unguarded border into British territory, bringing the conflict with them.²⁹ Reluctant to become involved but unable to any longer deny the deteriorating security situation, on August 1, 1960, the British government deployed an intervention force, the 1 King's Own Royal Border Regiment, on a mission of auxiliary support to the local colonial government.³⁰ British involvement in the war lasted 15 months, never involved more than a single deployed battalion, and ended with the political decision to withdraw.

²⁹ Martin Atangana, *The End of French Rule in Cameroon* (Lanham, Maryland: UP of America, 2010), pp. 10-24; Nicodemus Fru Awasom, 'Politics and Constitution-Making in Francophone Cameroon, 1959-1960,' *Africa Today* 49: 4 (2002), pg. 7.

³⁰ Kew, United Kingdom, The National Archives, Foreign Commonwealth Office (FCO) 141/1619 56, "Telegraph No. Personal 90 from Secretary of State for the Colonies to Governor-General, Federation of Nigeria," April 22, 1960; FCO 141/1619 201, "Operational Directive for the Commanding Officer, Southern Cameroons," June 6, 1960; War Office (WO) 208/4385 61A, "1 King's Own General Report," July 10, 1961.

Institutionalized feedback loops

In their fight against the ALNK, the British forces employed a highly refined feedback loop that allowed them to successfully identify organizational failures. Here, we take the battalion as the key unit of analysis as this was the highest unit charged with obtaining victory in the field. The two deployed battalions—the 1 King’s Own followed by their replacements the 1 Grenadier Guards—were able to use intelligence cells to filter large amounts of raw information into vital lessons learned and to distribute those lessons both up and down the chain of command, including to both senior and junior tactical leaders in the field.

Like most wars, even the relatively small conflict in the Southern Cameroons generated large volumes of raw data. Information was being continuously generated by both British and French forces, including military, police, and intelligence units. Archival documents record a broad range of information being recorded and tracked, including the outcomes of operations, casualties (government, insurgent, and civilian), arrests, the leadership and cell structure of the insurgents, locations of arms caches, training camps and leadership cells, shifts in ALNK tactics and training, as well as such amorphous things as political and current events, local attitudes, and civilian support.³¹

Lessons and actionable intelligence were generated out of this large volume of information by a specially designated intelligence team. Moreover, this team possessed the three characteristics we argue are necessary to separate useful and relevant information from

³¹ For example, see WO 208/4385 57A, “Annex A to Perintrep 9/61: 1 King’s Own Border Group Intelligence Review: Southern Cameroons,” May 16-28, 1961; WO 208/4386 63A, “Perintrep 2/61,” June 17 - July 1, 1961; WO 208/4386 69A “Perintrep 4/61,” July 16 - August 4, 1961; WO 208/4386 74A, “MILO Report No. 17,” August 12-26, 1961.

background noise: inclusion of specialists, front-line integration, and a protected space for dissent.

First, the intelligence cell included specialists in both counterinsurgency operations and colonial administration. The 1 King's Own and 1 Grenadier Guards possessed a standard complement of intelligence soldiers. These intelligence "generalists" were augmented by a French liaison officer, three Special Branch officers, and a handful of Cameroonian soldiers. A three-man interrogation team was added in April 1961.³² The Special Branch officers were especially important in this regard since they had long been stationed in the colony and were experts trained to deal with political extremists, subversion, terrorism, and insurgency.³³ Many of the "regular" British intelligence officers also possessed extensive training and experience in post-colonial Africa and counterinsurgency operations. Between the end of the World War II and the intervention in the Southern Cameroons, British forces confronted civilian uprisings, terrorism, and insurgency in India, Palestine, Malaya, Kenya, Cyprus, Aden, Borneo, and Northern Ireland.³⁴ It is highly likely that all of the career intelligence officers assigned to the 1 King's Own and the 1 Grenadier Guards had previous personal experience fighting insurgents.

Second, British intelligence teams were physically near the front line, co-located with the headquarters company at Beau. Intelligence officers also spent a lot of time traveling through the area of operations, visiting front line companies, interrogating detainees, and interacting with the population. Commanders, intelligence officers, and police forces—both British colonial police

³² WO 208/4385 61A, "1 King's Own General Report (Aug. 1, 1960 - 3- May, 1960)," July 10, 1961; WO 208/4385 41A, "Memorandum from Director of Military Intelligence to Lt. Col. W.A. Robinson," April 17, 1961.

³³ The first British Special Branch units were formed in the late 19th century in response to the Irish Republican Brotherhood. They evolved to play a major role in colonial policing across the British Empire.

³⁴ Michael Carver, *Britain's Army in the Twentieth Century* (London: Macmillan, 1998).

and native police forces—met to exchange information each week.³⁵ British and French intelligence officers also held joint planning and debrief meetings each month—above and beyond military intelligence liaison officers’ day-to-day activities coordinating joint intelligence.³⁶

Finally, the British intelligence process tolerated dissent. Dissent was not formalized *per se* (e.g. with a red cell). The intelligence and other military reports, however, are remarkable for the frankness with which relatively junior officers criticize policies and practices. After returning to Britain, 1 King’s Own submitted a particularly scathing after action report. It complained that a translator shortage—of French speakers ironically enough—interfered with intelligence collection and analysis. It also accused Special Branch Headquarters of ignoring its request for more operatives and remanded the War Office for its lethargic and belated attempts to address these issues. Perhaps most striking, in his official turnover report to the Grenadier Guards, the commanding officer of the 1 King’s Own, Lt Col Robinson, accused the British government of deploying ground forces without giving them a mission. This was an extraordinarily bold critique for a “mere” battalion commander to levy against the War Office.

Even the most relevant and accurate lessons learned, beautifully filtered and packaged, are useless if key leaders pay no attention to them. A series of regular intelligence reports ensured that this was not the case for British tactical leaders in the Southern Cameroons. First, periodic intelligence reports (Perintreps) were written fortnightly by the battalion intelligence section and disseminated both up the chain, to the War Office and Force Commander, and across

³⁵ WO 208/4385 59A, “1 Gren Gds Southern Cameroons Internal Security Instruction,” June 29, 1961.

³⁶ WO 208/4386 2A, “MILO Report No. 2,” November 10, 1960.

the unit to the front line companies. Second, after action reports (AARs) were written by front line units after significant events and submitted to the battalion's intelligence and operations sections. Third, military liaison officer, or MILO, reports were written by British intelligence officers assigned to (and observing) French units and disseminated to the Force Commander as well as the War Office. And, finally, turnover reports were authored by the outgoing Force Commander for his incoming successor.

The distribution lists associated with these reports clearly indicate that these relatively succinct and filtered lessons learned were being transmitted to tactical commanders. Both Battalion Commanders, Lt Col Robinson and Lt Col Fraser, their intelligence officers, and their front line company commanders all received copies of the reports. Key leaders, moreover, carefully read and digested their Perintreps, AARs, MILOs and turnover reports. Virtually every archived copy includes formal responses, attached handwritten remarks, or comments in the margins. The critical tone found in many comments suggests that British officers took these reports very seriously and not as a pro forma part of their job.

Recognizing failure

This institutionalized feedback loop allowed the British to pass vital information to tactical commanders, assess critical gaps in performance, as well as understand the unintended effects of their combat activities—an especially important capability in counterinsurgency. The intelligence reports, especially the Preintreps, generally demonstrate broad and accurate knowledge of the local situation. They also gave commanders sophisticated information on

insurgent units, including their size, leaders, movements, camp locations, armaments, fortifications, foreign training, and tactical innovations.³⁷

Most importantly, the British battalion on the ground accurately identified three primary failures in their operational effectiveness. First, from both their own AARs and exchanges with French intelligence officers, they were able to recognize the large scale failure of their offensives against insurgent camps. The ALNK were using these bases in the Southern Cameroons to launch frequent attacks into French controlled territory and it was a key joint priority to dismantle them.³⁸ Yet, the operations against the camps rarely achieved any surprise and allowed insurgents to escape into the forest through pre-planned evasion routes and then across the unguarded and porous border.³⁹ For instance, in Operation ALLSOPPS, Company B of 1 King's Own launched a major offensive against an insurgent encampment near the border that was initially regarded a success. Subsequent MILO reports from British intelligence officers attached to French forces, however, allowed British commanders to see that ALLSOPPS simply displaced violence instead of eradicating it, with the targeted insurgents re-emerging later in French controlled territory.⁴⁰

Second, delayed analysis of prisoner interrogations and captured documents was prohibiting the timely generation of actionable intelligence, hindering operations. Insurgent cells

³⁷ Especially illustrative of the accumulation of this type of knowledge is WO 208/4386 63A, "Perintrep 2/61," June 17 - July 1, 1961.

³⁸ WO 208/4385 47A, "Report of Raid on Camp of 1st Mobile BN ALNK on Apr. 7," April 16, 1961; WO 208/4385 67A, "Despatch No: Personal 13 from Commissioner SC to Iain Maclood, MP," July 19, 1961; WO 208/4386 69A, "Perintrep 4/61," July 16 - August 4, 1961.

³⁹ WO 208/4385 47A, "Report of Raid on Camp of 1st Mobile BN ALNK on April 7," April 16, 1961; WO 208/4385 67A, "Despatch No: Personal 13 from Commissioner SC to Iain Maclood, MP," July 19, 1961.

⁴⁰ WO 208/4385 48A, "Perintrep 6/61," April 1-15, 1961.

would soon realize that a member had been arrested and relocate their camps. If there were any serious delays in processing, this would nullify the most useful information that could be extracted from captives. The reports pinned this problem on a scarcity of both intelligence personnel and, most critically, translators.⁴¹ As early as January of 1961, after only five months in theater, requests for additional personnel resources began flowing to superiors back in Britain.⁴²

Third, the battalion identified their legal context as a major obstacle to engaging in effective operations. Unlike other counterinsurgencies the British had recently fought in colonies like Kenya and Malaya, no State of Emergency had been declared in the Southern Cameroons. Without the framework and protection provided by Emergency law, British troops were not allowed to discharge their weapons without first being fired upon. This single prohibition prevented British units from achieving tactical surprise in their raids or from impeding insurgents from fleeing the area.⁴³

Despite clearly recognizing operational failures, the British nonetheless departed the Southern Cameroons after only 15 months, having largely failed in their mission. By this time, the ALNK had grown in strength to 1000-1200 insurgents in the Southern Cameroons alone. They controlled significant territory on both sides of the French/British border, especially in the Tombel/Mt. Koupe area. They had also developed the ability to produce local firearms, were

⁴¹ WO 208/4385 61A, "1 King's Own General Report (Aug. 1, 1960 - 3 May, 1960)," July 10, 1961.

⁴² WO 208/4385 9A, "MILO Report No. 4," January 20, 1961.

⁴³ WO 208/4385 57A, "Annex A to Perintrep 9/61: 1 King's Own Border Group Intelligence Review: Southern Cameroons," May 16-28, 1961; WO 208/4385 61A, "1 King's Own General Report (Aug. 1, 1960 - 3 May, 1960)," July 10, 1961; WO 208/4386 53A, "Perintrep 9/61," May 16-28, 1961.

engaged in frequent attacks against colonial forces, and had begun forcibly recruiting civilians.⁴⁴ Even the French—typically adverse to interference in their colonies—were sending repeated requests for increased assistance, the execution of additional offensive operations, and the re-exertion of territorial control prior to British decolonization.⁴⁵ Rather than commit more troops and follow their own battalion’s recommendations, however, the government at decided to withdraw, leaving the insurgent problem to France and the soon-to-be-independent nation of Cameroon.⁴⁶ Regardless of this fundamentally political choice, and despite the ultimate failure of adaptation in this case, the British did recognize their failings and engage in the first step of the adaptive process—and they were able to do so because of the institutionalized feedback loops that were well developed within this particular British battalion.

The British Army on the Western Front

Contemporary historians hold the British Expeditionary Force (BEF) up as a leading example of a wartime learning organization.⁴⁷ Over the course of the First World War, it undertook a range of profound doctrinal changes. One such adaptation involved the evolution of infantry assault tactics. With the onset of trench warfare in late 1914, British combat units were

⁴⁴ WO 208/4385 67A, “Despatch No: Personal 13 from Commissioner SC to Iain Maclood, MP,” July 19, 1961; WO 208/4386 69A, “Perintrep 4/61,” July 16 - August 4, 1961; WO 208/4386 75A, “MILO Report No. 18,” August 27 - September 10, 1961.

⁴⁵ WO 208/4385 67A, “Despatch No: Personal 13 from Commissioner SC to Iain Maclood, MP,” July 19, 1961.

⁴⁶ Harkness and Hunzeker, ‘Military Maladaptation,’ pp. 793-795.

⁴⁷ Griffith, *Battle Tactics*; Jonathan Boff, *Winning and Losing on the Western Front: The British Third Army and the Defeat of Germany in 1918* (Cambridge: Cambridge University Press, 2012); Jonathan Boff, *Haig’s Enemy: Crown Prince Rupprecht and Germany’s War on the Western Front* (Oxford: Oxford University Press, 2018); Gary Sheffield, *Forgotten Victory: The First World War: Myths and Realities* (London: Sharpe Books, 2018); Fox, *Learning to Fight*.

quick to experiment using novel tactics, techniques and procedures to cross ‘No Man’s Land.’ However, by mid-1915 the BEF began to converge on a standardized approach to attacking that revolved around sending assault units ‘over the top’ in successive waves of stereotyped, linear formations. Such tactics defined how British infantry attacked on the Western Front until at least 1917.⁴⁸ To be sure, this approach was a logical response to the BEF’s decision to emphasize artillery firepower in the form of intricate and increasingly powerful preassault bombardments and creeping barrages; as well as limited ‘bite and hold’ operations designed to grab and consolidate portions of a defensive position before German reserves could counterattack. Unfortunately, these tactics resulted in heavy casualties and made it hard for assault units to press the attack in the absence of artillery support, as evidenced by the army’s losses during the Somme Offensive.

As early as mid-1916, some BEF divisions and corps began to diverge from this practice by experimenting with new ways of attacking across No Man’s Land. However, stereotyped, linear formations of riflemen remained the norm. It was not until early 1917 that GHQ seems to have recognized the need for a theater-wide shift in infantry unit assault tactics and began explicitly endorsing the alternative methods of attack that frontline units had been working on for some time. We suggest that this recognition was made possible, at least in part, because of GHQ’s decision to adopt an institutionalized feedback loop in the form of Training Branch.

The unit of analysis

Within the overarching British army, which included garrison units as well as those serving in other theaters of war (such as Gallipoli, Salonika, Mesopotamia, Italy and Palestine),

⁴⁸ Griffith, *Battle Tactics*, 53.

the BEF was the highest operational command tasked with defeating the German army on the Western Front. It grew rapidly over the first two years of the war, from an initial commitment of four infantry and one cavalry divisions totaling 150,000 soldiers in August 1914, to a peak size of 1.8 million soldiers in all theaters by mid-1916. Despite this radical expansion and transformation, the BEF was remarkably consistent in its top leadership. It had only two Commanders-in-Chief: Field Marshal Sir John French, who led the BEF from August 1914 until December 1915, and Field Marshal Sir Douglas Haig, who remained in command until the end of the war. The BEF had its own headquarters (GHQ).

The BEF thus constitutes the most appropriate unit of analysis for evaluating adaptation on the Western Front. Lower level units surely recognized the costs associated with flawed assault tactics. However, individual units—even relatively large ones like divisions, corps and armies—could not decisively influence events across the entire front. More important, until the BEF's top leaders, particularly those in charge of writing and promulgating official training manuals, acknowledged that existing infantry tactics, techniques and procedures were failing to produce the desired results at an acceptable price, then the majority of units fighting on the Western Front would continue to operate as they always had. Again, ad hoc detection might be analytically interesting, but it is pragmatically irrelevant. The Western Front was a war of attrition waged by mass armies. Isolated incidents of adaptation occurred throughout the conflict. Given the millions of men involved on both sides of the front, it would be surprising to discover otherwise. But until those in charge recognized that their tactics were failing, military effectiveness would remain poor and victory either elusive or unnecessarily costly.

Strategic and operational imperatives

Britain's overarching war aim was to eject German forces from Belgium and France. British politicians fiercely debated the best way to realize this goal. Some favored a direct approach, attacking German units along the Western Front. Others, including Churchill, wanted to attack Germany's allies so as to pressure the German High Command to divert forces away from that theater. Either way, the BEF played a consistent role in both grand strategies: its objective was to continuously attack German lines on the Western Front until a decisive breakthrough was achieved or the German army bled to death, whichever came first.⁴⁹

At the same time, the BEF had to navigate two important constraints as it endeavored to accomplish its primary mission. Both may have plausibly impacted its ability to adapt. First, because Britain chose to fight the First World War as part of a coalition, the BEF was consigned to play the role of junior partner to the French army until near the end of the conflict.⁵⁰ This imperative compelled the BEF's commanders to send their men into action sooner, and less prepared, than they might have otherwise preferred.⁵¹ Second, Britain, to paraphrase Strachan's pithy formulation, decided wage a continental war without first bothering to build a continental-sized army.⁵² The BEF therefore needed nearly two years to come to full strength. In fact,

⁴⁹ Douglas Haig, *The Private Papers of Douglas Haig, 1914-1919; Being Selections from the Private Diary and Correspondence of Field-Marshal the Earl Haig of Bemersyde*, Robert Blake, ed. (London: Eyre and Spottiswoode, 1952), pg. 86.

⁵⁰ Sheffield, *Forgotten Victory*, 110.

⁵¹ The term 'New Army' refers to the volunteer divisions raised by Field Marshal Lord Horatio Herbert Kitchener in addition to those of the Regular Army and the Territorial Force. See Charles Messenger, *Call to Arms: The British Army 1914-18* (London: Weidenfeld and Nicolson, 2015), ch. 4.

⁵² Hew Strachan, *The First World War, Volume 1: To Arms* (Oxford: Oxford University Press, 2001), 200.

British commanders did not expect to achieve a decisive breakthrough until 1916 at the earliest.⁵³ Rather, the British high command sought to generate manpower and materiel until such a time that its allies and adversaries were exhausted, allowing the British army to enter the war in decisive force so as to set the terms for peace.⁵⁴

In operational terms, the BEF began to shift toward an artillery-centric approach in its offensives by the spring of 1915. Crudely speaking, the goal was to rely on artillery firepower so as to conserve infantry manpower. As Paddy Griffith describes it, British infantry's primarily advanced in "a series of more or less successive linear waves, moving forward by alternate rushes covered by fire where possible, or simply moving forward directly if the enemy had already been suppressed by artillery."⁵⁵ In essence, commanders relied upon increasingly powerful artillery bombardments and intricate fire support plans (e.g. 'creeping' barrages) to destroy German defenses and suppress German infantry before sending waves of infantry across No Man's Land to occupy the objective and "mop up" pockets of resistance.

Tactically, the state of communications technology in 1915 made it hard to coordinate the artillery and infantry operations. Thus, infantry tactics needed to correspond to strict artillery timelines. The result was that units moved across the battlefield in waves of linear formations. They no longer attempted independent maneuver. And they were primarily comprised of riflemen augmented with bombers (soldiers carrying satchels of hand grenades).

Unfortunately, these infantry assault tactics came at a price. Linear formations were vulnerable to enfilading fire, particularly from machine gun positions that invariably survived the

⁵³ Bidwell and Graham, *Fire-power*, pp. 70 & 80.

⁵⁴ Sheffield, *Forgotten Victory*, 109.

⁵⁵ Griffith, *Battle Tactics*, 53-54.

artillery bombardment. The relative absence of small unit maneuver made it difficult to take advantage of terrain or weak points in the defensive line. And because most infantrymen still carried rifles, they found it hard to generate high volumes of firepower if they found themselves without artillery support.

Infantry losses quickly mounted. It took British assault troops roughly 10 days to advance one kilometer at Festubert in May 1915. Later that fall, at the Battle of Loos, the BEF lost 43,000 men, gaining almost no ground and suffering nearly four times as many casualties as the Germans.⁵⁶ And, of course, the BEF suffered nearly 58,000 casualties on the first day of the Somme offensive in July 1916. To be sure, individual units began to once again experiment with more flexible assault tactics in the wake of the debacle on July 1st.⁵⁷ Ironically, some of these experiments resembled assault tactics used by some BEF units in 1914 and early 1915, before the shift to ‘bite and hold’ offensive operations.⁵⁸ GHQ, however, did not yet undertake a systematic attempt to change how British infantry units maneuvered across No Man’s Land. In fact, the main lesson that GHQ seemed to learn from the Somme debacle was that planning needed to be even more meticulous and that assaults needed to be even more methodical.⁵⁹ The fact that existing assault tactics were resulting in unnecessarily high casualties and preventing infantry units from exploiting terrain, gaps in German defenses or pressing on even in the absence of artillery support does not appear to be something GHQ seriously contemplated. Instead, losses

⁵⁶ G.C. Wynne, *If Germany Attacks: The Battle in Depth in the West* (London: Faber and Faber, 1940), pp. 72–77.

⁵⁷ Griffith, *Battle Tactics* 57; Simon Robbins, *British Generalship on the Western Front 1914-1918: Defeat into Victory* (London and New York: Routledge, 2006), pp. 99-100.

⁵⁸ G.C. Wynne, *If Germany Attacks: The Battle in Depth in the West* (London: Faber and Faber, 1940), pp. 42; Samuels, *Command or Control?*, 104-105; 109; John Strawson, *Gentlemen in Khaki and Camouflage: The British Army 1890-2008* (Barnsley, UK: Pen & Sword Military, 2009), 113.

⁵⁹ Ramsay, *Command and Cohesion*, pg.181.

mounted as most British infantrymen continued to attack in the same way as they had, depending on mass, momentum and artillery firepower to produce the desired results.

An incomplete feedback loop

Why did GHQ not discern the need to revise and update the BEF's assault tactics? The merits of its 'bite and hold' artillery-centric approach notwithstanding, large infantry units lumbering across the battlefield in unwieldy, stereotyped formations and without access to organic firepower absorbed high losses. Not only had BEF units used more flexible assault tactics earlier in the war, we now also know the German high command had been facilitating experimentation with so-called 'storm troop' tactics since early 1915.⁶⁰

We suggest that part of the explanation revolves around the BEF's feedback system. Prior to early 1917, it lacked a well-institutionalized feedback loop, which integrated front-line personnel into doctrinal analysis and provided optimal filtration of information.⁶¹ The absence of such a mechanism made it harder for senior commanders to develop an adequate understanding of why existing assault tactics were not producing the desired results at the desired price.

At least three structural factors appear to have impeded the BEF's efforts to collect, analyze, and transmit feedback. First, the British army suffered from a staff officer shortage at war's start. For a variety of reasons, Britain had long preferred a small, long-serving professional

⁶⁰ See Lupfer, *The Dynamics of Doctrine* and Gudmundsson, *Stormtroop Tactics*.

⁶¹ Williamson Murray suggests that the British high command struggled to incorporate the combat experiences of frontline combat units into its training programs for new recruits because of "the general absence of a lessons-learned process that would have ensured that training in Britain remained in touch with what was happening in France." Murray, *Military Adaptation in War*, 94-95.

army instead of the mass conscription model used in Germany and France.⁶² The army's colonial mission meant that units deployed independently for long periods of time, further reducing the need for centralized staff work. As a result, the British General Staff had fewer than 450 officers to support an active duty force of 247,432 in August 1914.⁶³ By comparison, the German army had 3,000 officers supporting mobilization and analysis for an active duty force of roughly 761,000.⁶⁴ Numbers also tell only part of the story. The British General Staff, which only came into being in 1906, was much younger than its German counterpart, which had been in continual existence since 1814. German staff officers also represented an elite within the German officer corps. They were selected on a largely meritocratic basis and their education was qualitatively and quantitatively superior to that received by British staff officers.⁶⁵ Nor did many British officers consider attending the staff college or serving on the General Staff necessary for promotion, which often depended heavily on patronage and personal connections.⁶⁶

Second, the British General Staff was immediately overwhelmed with the daunting challenge of expanding the BEF.⁶⁷ It grew from six to 70 divisions between August 1914 and December 1916.⁶⁸ The demands of recruiting (and later drafting), equipping, training, and

⁶² Hew Strachan, *Wellington's Legacy: The Reform of the British Army, 1830-54* (Manchester: Manchester University Press, 1984), pg. 268.

⁶³ Foley, "Dumb Donkeys or Cunning Foxes?," 286.

⁶⁴ Bidwell and Graham, *Fire-power*, pg. 3.

⁶⁵ Foley, "Dumb Donkeys or Cunning Foxes?," 286-287.

⁶⁶ Hew Strachan, "The British Army, Its General Staff and the Continental Commitment, 1904-14," in *British General Staff: Reform and Innovation*, ed. David French and Brian Holden Reid, 1st ed. (London: Routledge, 2002), 202; Timothy Bowman and Mark Connelly, *The Edwardian Army: Manning, Training, and Deploying the British Army, 1902-1914* (Oxford: Oxford University Press, 2012), 75s.

⁶⁷ In contrast, planning to mobilize a mass army for continental warfare was the German General Staff's *raison d'etre*.

⁶⁸ Griffith, *Battle Tactics of the Western Front*, pg. 17.

deploying the largest military force in British history undoubtedly competed for intellectual bandwidth with the need for tactical, operational and doctrinal analysis.⁶⁹ Moreover, regular staff officers did not trust their New Army counterparts, whom the long-serving professionals regarded as having been promoted too rapidly.⁷⁰ Staffs at every level of command reacted to such conditions by centralizing control and compartmentalizing information.

Third, the BEF's staff procedures remained suboptimal early in the war. Every division and corps staff used a different set of reporting forms and practices, hindering the flow of information and ideas.⁷¹ Inefficient staff processes were compounded by the fact that the BEF constantly rotated divisions through corps and corps through armies, which prevented staffs from learning—let alone synchronizing—their respective procedures and practices. For example, 12 different divisions rotated through IV Corps over the course of 1916. Perhaps most problematic in terms of integrating front line perspectives into doctrinal analysis, the BEF's GHQ stopped rotating its senior staff officers through the front lines, because it worried that too many of them were getting killed.⁷²

This is not to say the army completely ignored after action reporting. As early as October 1914, the War Office's *Central Distribution Section (CDS)* began producing a series of pamphlets, entitled *Notes from the Front*, on an ad hoc basis.⁷³ In November 1915, such updates

⁶⁹ Robbins, *British Generalship on the Western Front*, pg. 34.

⁷⁰ Hall, 'The British Army,' pg. 1011.

⁷¹ *Ibid*, 20-26.

⁷² Tim Travers, 'A Particular Style of Command: Haig and GHQ, 1916-18,' *Journal of Strategic Studies* 10:3 (1987), pg. 366.

⁷³ Stephen Bull, 'The Early Years of the War,' in *War on the Western Front*, ed. G. D. Sheffield (Oxford and New York: Osprey, 2007), pg. 203.

were disseminated via the more systematic *Stationary Service (SS)* manuals.⁷⁴ But the highest operational command in theater, GHQ, was not formally looped into the process of vetting, writing and disseminating these pamphlets. Moreover, instead of reflecting genuine filtration, it appears that these reports tended to pass along ideas that seemed to have worked without deep assessment or analysis. Tim Travers argues that as late as 1916, GHQ still had not “instituted any method for analyzing lessons learned or for a meaningful discussion of tactics. There was, in fact, a serious lack of liaison between GHQ and the rest of the army.”⁷⁵

Cumulatively, the result was that the BEF lacked the sort of institutionalized feedback loop that we hypothesize might have otherwise helped it detect the problems with its assault tactics. Despite attempts to transmit lessons learned and best practices through the *Notes from the Front* and other pamphlets, these documents tended to convey unfiltered information and ideas that had not received rigorous vetting. Meanwhile, staff officers struggled to manage the army’s massive growth amidst suboptimal practices and the absence of formal conduits for transmitting and processing lessons learned, created disconnect between senior commanders and the front lines.

Building a better feedback loop: GHQ creates Training Branch

We contend that an improved institutionalized feedback loop played an important causal role in helping the BEF recognize the inherent shortcomings of attacking in successive waves

⁷⁴ Fox, *Learning to Fight*, pg. 79.

⁷⁵ Tim Travers, ‘Learning and Decision-Making on the Western Front, 1915-1916: The British Example,’ *The Canadian Journal of History*, 18:1, pp. 95-96.

and in initiating a systematic search for alternatives.⁷⁶ From February 1917, the BEF took an important step towards formalizing how it processed and analyzed information. The single most important change involved GHQ's decision to create a new directorate, Training Branch, to coordinate training and doctrinal analysis. While GHQ produced doctrinal publications before 1917, Training Branch filled an important gap by serving as a dedicated focal point for assessment and by rationalizing the process by which GHQ wrote and disseminated doctrine.⁷⁷

First, it improved GHQ's ability to collect, analyze, and distribute lessons learned to tactical commanders across the Western Front—even those that were not engaged in active sectors. While historians debate the degree to which Training Branch formalized and harmonized doctrine within the British army,⁷⁸ it is clear that the production of doctrinal publications meaningfully increased after Training Branch took over responsibility for producing and disseminating the aforementioned S.S. manuals in February 1917.⁷⁹ Moreover, compared to previous versions, these new manuals demonstrated sound critical analysis and did not hesitate to identify important gaps and shortcomings in existing practices. With the benefit of hindsight, we

⁷⁶ Certainly, strategic and operational factors were not responsible for this outcome. Although Britain's war aims had expanded since the start of the war, the BEF's strategic objectives remained largely consistent. Operationally, BEF commanders continued to organize its offensives around its artillery firepower. In fact, the pre-assault bombardments of 1917 would prove to be some of the largest of the war. Before the Battles of Messines, British artillery units fired three million shells in seven days (Wynne, *If Germany Attacks*, pp. 277 & 299). Two months later the BEF used 3,168 guns to fire 4.3 million shells over 13 days at Passchendaele (David T. Zabecki, *The German 1918 Offensives: A Case Study in the Operational Level of War* (New York, NY: Routledge, 2006), section 1473, Kindle.)

⁷⁷ Robbins, *British Generalship on the Western Front*, pp. 94–95. According to Jim Beach, before Training Branch, “the production of doctrine seems to have been just another task for the busy operations staff at GHQ. It would appear that they assigned a writer or simply convened committees on an ad hoc basis whenever a doctrinal need was identified.” Jim Beach, “Issued by the General Staff,” pg. 490.

⁷⁸ Beach suggests that by 1918 Training Branch made significant strides towards harmonizing and codifying doctrine within the BEF. See Beach, “Issued by the General Staff,” 464–491. For an alternative perspective, see Gary Sheffield maintains that doctrine remained Gary Sheffield, ‘British High Command in the First World War: An Overview’, in Gary Sheffield and Geoffrey Till, eds, *The Challenges of High Command: The British Experience* (London: Palgrave Macmillan, 2003).

⁷⁹ Beach, “Issued by the General Staff,” pp. 469–472.

also know that many of the tactical precepts espoused were, indeed, the “right” way to fight on the Western Front.⁸⁰

Second, as a permanent organization responsible for managing the doctrinal assessment and dissemination across the BEF, Training Branch integrated specialists with frontline, combat-experienced commanders. Particularly in 1917, Training Branch tended to generate lessons learned by convening working groups of staff officers and commanders to assess and suggest doctrinal updates. This practice ensured that the resulting doctrine “would reflect what was actually happening at the front and would thereby allow the dissemination of experience across the BEF.”⁸¹ More important, because it was a stable unit with an explicit mandate, Training Branch would have turned its staff officers into doctrine specialists over time, regardless of an officer’s previous background or experience.

With this new feedback mechanism, GHQ’s attitude towards the BEF’s assault tactics began to shift. By spring of 1917, GHQ was both actively seeking out lessons learned from subordinate units and distributing them across the BEF as official pamphlets. S.S. 158, for example, described tactical experiments used by the First, Third, Fourth, and Fifth armies involving the use of combat engineers, small unit fire and movement, and providing assault forces with more lightweight automatic firepower.⁸² Other updates discussed work on flexible formations and maneuver by sub-platoon sized units.⁸³

⁸⁰ Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton: Princeton University Press, 2004), pp. 14-27.

⁸¹ Beach, “Issued by the General Staff,” 471.

⁸² General Staff, “Notes on Recent Operations on the Front of First, Third, Fourth and Fifth Armies,” May 1917, 2–3, Z357, Joint Services Command and Staff College Archives, Shrivenham.

⁸³ General Staff, “S.S. 143, The Organization of an Infantry Battalion and the Normal Formation for the Attack,” April 1917.

Moreover, GHQ started to formally endorse changes to infantry assault tactics. Of particular importance was its publication and endorsement of *SS 143, Instructions for the Training of Platoons for Offensive Action* in February 1917.⁸⁴ This pamphlet directed every unit to ensure companies were divided into platoons.⁸⁵ Platoons were to “constitute a unit for fighting and training, and should consist of a homogenous combination of all the weapons with which the infantry is now armed.”⁸⁶ GHQ also sought to make sure platoons had sufficient lightweight infantry weapons, such as Lewis light machine guns, and rifle grenades.⁸⁷

These changes set the foundation for a transformation in British assault tactics. By 1918, Griffith argues that the BEF’s infantry tactics were as dynamic and sophisticated as those used by the German army. Others, including Bidwell, Graham, Strachan, and Boff are more circumspect, but agree that the BEF’s tactics were far more flexible and advanced than they had been at the beginning of the war.

In summary, the BEF did not fully recognize the shortcomings associated with its infantry assault practices between early 1915 and 1916. The situation changed rapidly during the second half of the war when the BEF not only perceived the need for serious changes, but began experimenting with new tactics and procedures. Although we cannot solely attribute this turnaround to Training Branch, there is compelling evidence that it played an important causal

⁸⁴ Griffith, *Battle Tactics*, pg. 77.

⁸⁵ General Staff, *SS 143, Instructions for the Training of Platoons for Offensive Action*, February 1917, 3, Z854, Joint Services Command and Staff College Archives, Shrivenham.

⁸⁶ General Staff, *SS 600 The Organization of an Infantry Battalion and the Normal Formation for the Attack*, April 1917, 3.

⁸⁷ General Staff, *SS 143*, 6.

role in the outcome by helping GHQ establish an institutionalized mechanism for filtering analysis and facilitating the widespread distribution of lessons learned.

What if materiel—not tactical doctrine—represented the BEF’s primary obstacle?

Our argument is based on the assumption that the BEF struggled to identify the problems with its infantry assault tactics until it began to develop an institutionalized feedback loop. However, some military historians might disagree with this assumption, contending instead that the primary obstacle facing the BEF was one of materiel: that it wanted for adequate artillery and ammunition until at least 1916, and that no change in infantry tactics would have made a difference until solutions to these materiel problems were found. If this view is correct, it means that our approach unfairly criticizes the BEF for failing to solve a problem that did not exist.

We acknowledge that the BEF faced a serious material shortage, but nevertheless see at least two glaring problems with the view that it could not—and should not—have addressed its tactical deficiencies until it had enough guns, bullets, and shells. First, the BEF was locked in a war of attrition on the Western Front. Better assault tactics were essential, because they offered a better way to both conserve manpower and inflict heavier casualties on the German army. Second, materiel was, at most, a necessary but not sufficient part of the solution to deadlock. Ammunition and artillery alone would not have allowed the BEF to prevail on the battlefield, as evidenced by the fact that their French ally started the war in a far better material situation—and indeed, adopted a far more artillery-centric approach for part of the conflict—and yet still found itself stymied on the Western Front. If materiel solutions were both necessary and sufficient to explain the BEF’s victory on the Western Front, then it becomes puzzling why the BEF

nonetheless saw it necessary to transform its warfighting doctrine, especially over the course of the war's final two years. Nor does it make sense that the BEF had to wait for more shells and guns before it could identify and begin to solve problems with its infantry tactics. In the final analysis, there is a rich literature in both American security studies and in the military historiography of the Western Front, which convincingly demonstrates that all three armies on the Western Front needed better tactics—not more materiel—to overcome deadlock.⁸⁸

Conclusion

Adaptation is critical to military success, in both conventional and counterinsurgency wars. In trying to understand why some militaries are better at adapting than others, we break adaptation down into its constituent steps and address the first one: recognizing failure. Under battlefield stress and overwhelmed by information, it is in fact very difficult for soldiers and their leaders to understand when they are tactically failing—and yet they must do so for any change to occur.

We have argued that institutionalized feedback loops allow militaries to recognize failure when they exhibit two core characteristics: they must helpfully filter information and integrate tactical commanders into the dissemination of findings. Moreover, effective filtration requires an analytic process that creates protected spaces for dissent and includes both front line personnel and specialists. We illustrated this theory using the case from which it was developed, British

⁸⁸ See, for example, Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, NJ: Princeton University Press, 2006), 28-51; Jonathan B. A. Bailey, "The First World War and the Birth of Modern Warfare," MacGregor Knox and Williamson Murray eds., *The Dynamics of Military Revolution: 1300-2050* (Cambridge: Cambridge University Press, 2009), 132-153; Murray, *Military Adaptation in War*, 62-63 & 74-118; Michel Goya, *Flesh and Steel During the Great War: The Transformation of the French Army and the Invention of Modern Warfare* Andrew Uffindell trans. (Barnsley, UK: Pen and Sword, 2018), 240.

counterinsurgency operations in the Southern Cameroons, and then tested it against a case study of conventional warfare, using the within case variation of the BEF on the Western Front for added leverage. When the British military, long held as adept learners, possessed such institutionalized feedback loops they were able to recognize their failures and begin the process of adaptation. At the beginning of WWI, however, prior to institutionalizing a proper feedback mechanism, they remained ignorant of their shortcomings.

Our findings should be considered a first step in better understanding a rich and complex *process* of learning. Future research should test our model of identifying failure against a wide variety of case studies, across different types of military organizations but also war fighting contexts. Military adaptation researchers can also build on our findings by theorizing the next phases of learning—and begin to understand and build bridges between the phases.

For militaries keen to become better learning organizations, our findings suggest two key lessons: First, nothing substitutes for valuing dissent. If no protected space exists for challenging current strategic and tactical doctrines, then their failures will go unremarked. Second, some type of institutionalized filtration process needs to digest raw data and intelligence and distribute the findings. Simply circulating after action reports or other sources of experience and intelligence to all commanders will only bury everyone in unvalued information, undermining the seriousness with which such reports are prepared in the first place.