

*“Lessons learned” in WWI: The German Army, Vimy Ridge and
the Elastic Defence in Depth in 1917*

Christian Stachelbeck

The Battle of Arras in the spring of 1917 marked the beginning of the major allied offensives on the western front. The attack by the British 1st Army (Horne) and 3rd Army (Allenby) was intended to divert attention from the French main offensive under General Robert Nivelle at the Chemin des Dames (Nivelle Offensive).¹ The French commander-in-chief wanted to force the decisive breakthrough in the west. Between 9 and 12 April, the British had succeeded in penetrating the front across a width of 18 kilometres and advancing around six kilometres, while the Canadian corps (Byng), deployed for the first time in closed formation, seized the ridge near Vimy, which had been fiercely contested since late 1914.² The success was paid for with the bloody loss of

¹ On the German side, the battles at Arras between 2 April and 20 May 1917 were officially referred to as *Schlacht bei Arras* (Battle of Arras). In Canada, the term Battle of Vimy Ridge is commonly used for the initial phase of the battle. The seizure of Vimy ridge was a central objective of the offensive and was intended to secure the protection of the northern flank of the 3rd Army.

² For detailed information on this, see: Jack Sheldon, *The German Army on Vimy Ridge 1914-1917* (Barnsley: Pen&Sword Military, 2008), p. 8. Sheldon's book, however, is basically a largely indiscriminate succession of extensive quotes from regimental histories, diaries and force files from the Bavarian War Archive (*Kriegsarchiv*) in Munich. The Reichs Archive (*Reichsarchiv*) published two volumes on the Easter battle at Arras entitled *Osterschlacht bei Arras 1917* as part of the popular series edited by George Soldan, *Schlachten*

more than 10,000 troops (3,600 of whom were killed), but inspired a myth of the foundation of a nation in Canada - "I witnessed the birth of a nation", declared a Canadian general after the war.³ Nevertheless, the troops of the German 6th Army (Falkenhausen, from 28 April Below) were able to prevent an operational breakthrough in the Arras area in the subsequent days and weeks. Launched on 16 April in the sector of the army group under the German Crown Prince Wilhelm, the Nivelle Offensive collapsed after a short time amid heavy losses. It was followed by extensive mutinies in the French Army. A key reason for the allied failures was the application of the elastic defence in depth by the Germans. This was an innovative defence tactic that had been rudimentarily developed in the German Army as early as in 1916, primarily in response to the British attempts to achieve a breakthrough at the Somme. It was basically mobile warfare with reserves. But the elastic defence in depth was a controversial issue for the German command from the very beginning, being initially only applied at Vimy/Arras, and then inadequately. It took the more recent experiences of battle in the spring of 1917 to further optimize the modern doctrine of defensive warfare. This article will explore how this learning process took place in the German Army as an organization.⁴

des Weltkrieges (Battles of the World War): Franz Behrmann, *Die Osterschlacht bei Arras 1. und 2. Teil*, (Oldenburg/Berlin: Stalling, 1929). In addition, there are individual descriptions by former participants in the battle. See, for instance: Joseph Ahlhaus, *Die 79. Reservedivision in der Osterschlacht bei Arras. Der Kampf um die Vimy-Höhe*. Vom 28. Februar bis 12. April 1917, (Mannheim: Gremm in Kommission, 1938).

³ <http://www.thecanadianencyclopedia.ca/en/article/vimy-ridge-and-the-birth-of-a-nation/>; see also http://www.warmuseum.ca/cwm/exhibitions/vimy/index_e.shtml.

⁴ Research of an extremely wide range of academic disciplines shows that there is no doubt that organizations learn and that thus the military also learns as an organization. In simplified terms, it can be said that organizational learning is the adaptation of a complex system to its environment, with learning processes being aimed at acquiring or expanding knowledge. Cf. Helmut Wilke, *Einführung in das systemische Wissensmanagement*, 3rd edition, (Heidelberg: Carl-Auer-Verlag, 2011), p. 59. Cf. on this as a basis Chris Argyris/Donald A. Schön, *Organizational Learning II. Theory, method and practice* (Reading: Addison Wesley, 1996). So far, research into military history has revealed that there is organizational learning at the different learning levels of adaptation and innovation. However, it is still quite unclear how the military learned in concrete terms. Cf. Robert T. Foley, 'Dumb donkeys or cunning foxes? Learning in the British and German Armies during the Great War'. In: *International Affairs* 90/2 (2014), pp. 279-298, here pp. 279-281.

"Withdrawal means defeat" - The mental problem of elastic defence in depth

"The possession of Vimy Ridge was of dubious value for the Germans. Such so-called 'dominating hills' proved to be advantageous in the world war insofar as they yielded good observation points, but they could by no means be considered favourable battle positions for the infantry. [...] The position lacked the depth certainly required for a defence since the ridge fell away rather sharply towards the plain. [...] The Germans placed great value on the retention of Vimy Ridge. They believed that if it was held by the enemy, the entire plain to the rear as far as Douai would be controlled from there and so would be no longer retainable. The course of the battle proves that this was an error."⁵

These ideas are to be found in *Der Weltkrieg 1914-1918*, written by Hermann von Kuhl, a general and historian, and published in 1929. At the time of the Battle of Vimy Ridge/Arras, he was the Chief of the General Staff of the Army Group of Crown Prince Rupprecht of Bavaria. Joining battle on the ridge on 9 April 1917 was, as Kuhl implied in his work in retrospect, a first serious error of judgment on the part of the German command. This first major battle on the western front in the spring of 1917 would never have taken place if the third Oberste Heeresleitung (OHL- the German supreme command)⁶ under Generalfeldmarschall (General Field Marshal) Paul von Hindenburg and General der Infanterie (General of the Infantry) Erich Ludendorff had, from the outset, consistently applied and enforced an important principle of elastic defence in depth that they had newly developed on the basis of the lessons learned from the battles of materiel of 1916. It would have meant abandoning tactically unfavourable ground if necessary in order to be able to maintain mobility and operate from the depth of the area with reserves. The main purpose of defence was no longer to rigidly hold every inch of ground in efforts that were tactically often pointless and entailed heavy losses to boot. This had been the guideline of the second OHL - General der Infanterie (General of the Infantry) Erich von Falkenhayn.⁷

⁵ Hermann von Kuhl, *Der Weltkrieg 1914-1918*, vol. 2, (Berlin: Verlag Tradition Wilhelm Kolk, 1929), pp. 83-84.

⁶ OHL was a synonym for the Chief of the General Staff of the Field Army.

⁷ *Der Weltkrieg 1914-1918. Die militärischen Operationen zu Lande*, 14 vols, auxiliary volumes, edited in the Reichsarchiv (et.al.) (Berlin: Ernst Siegfried Mittler und Sohn, 1925-1944), here vol. 5, p. 585. On 16 November 1914. for instance, Falkenhayn wrote to Colmar von der Goltz: "Halte was du hast, und gib nie

The new OHL focused on using the transition to strategic defence on the western front in early 1917 to save forces and maintain combat power. Its objective was to reduce its own losses while increasing those of the enemy in order to buy time for launching decisive attacks. The operational thinking of the OHL remained centred on deciding the war by means of offensive action.⁸ On the advice of the naval command, the offensive was first to be conducted with unrestricted submarine warfare activity at sea aimed at forcing Great Britain to its knees by cutting the country off from sea trade.⁹ This is known to have provoked the USA into entering the war in early April 1917 and to be the crucial turning point that led to Germany's defeat. Key prerequisites for elastic defence were the dispersal of forces in depth in a defence zone of up to ten kilometres in depth along the front (previously 1-2 kilometres) and close interaction between all the service branches, including air forces, in battle. New regulations, in particular the *Grundsätze für die Führung der Abwehrschlacht im Stellungskrieg* (Principles of Leadership in the Defensive Battle in Position Warfare) issued on 1 December 1916, had specified the innovative doctrine, while further battle experience acquired in mid-December at Verdun had underlined its importance.¹⁰ The revised second edition of the defence regulation, issued on 1 March 1917, emphasized: "The higher command does

einen Fußbreit von dem auf, was du gewannst" ("Hold what you have and don't give up an inch of what you have gained.") An initial good overview of the development of elastic defence in depth in the OHL is still provided in the not so recent study by Timothy T. Lupfer, *The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War*, Leavenworth Papers No. 4, (Leavenworth: United States Government Printing, 1981), pp. 1-36. Lupfer's work, however, is based on an extremely small source basis, primarily on tendentially apologetic memoirs. For information on this, cf. Markus Pöhlmann, *Kriegsgeschichte und Geschichtspolitik: Der Erste Weltkrieg. Die amtliche deutsche Militärgeschichtsschreibung 1914-1956*, (Paderborn [et.al]: Ferdinand Schöningh, 2002), p. 169.

⁸ Cf. Gerhard P. Gross, *Mythos und Wirklichkeit. Geschichte des operativen Denkens im deutschen Heer von Moltke d.Ä. bis Heusinger*, (Paderborn [et. al.]: Ferdinand Schöningh, 2012).

⁹ Cf. Erich Ludendorff, *Meine Kriegserinnerungen 1914-1918*, (Berlin, Ernst Siegfried Mittler und Sohn, 1919), pp. 250-251.

¹⁰ *Grundsätze für die Führung der Abwehrschlacht im Stellungskrieg*, Berlin, December 1916, March and September 1917 (=Sammelheft der Vorschriften für den Stellungskrieg, 8). For information on the differences between the individual editions: *Grundsätze für die Führung der Abwehrschlacht*, undated manuscript by Lieutenant Colonel Engelmann, Bundesarchiv/Militärarchiv Freiburg im Breisgau (BArch) RH 61/291; Chef des Generalstabes des Feldheeres II/Ia Nr. 22728 „Betr. Erfahrungen aus den letzten Verdun Schlachten“, 25 December 1916, BArch PH 3/407.

not have to rigidly hold on to ground. It is to conduct defensive operations in such a way that its forces gain the favourable ground and the attacker the unfavourable."¹¹

Following a trip to the front in the Arras sector on 27 March 1917, Captain Hermann Geyer, a member of the Operations Division of the OHL and the author of the new defence regulation, consequently suggested that battle be joined in the most forward positions, but also that consideration be given to and preparations be made for a fighting withdrawal. A premature complete evacuation of the positions on Vimy Ridge was just as much out of the question, despite their being caked in mud, shot to pieces and known to the enemy, as was a withdrawal to the entirely ill-prepared "WOTAN" position. But the Army Group and the Sixth Army (Armeeoberkommando, AOK 6) responsible for this sector of the front objected to even a step-by-step retreat. The idea of mounting a defence in open terrain without a system of fortified positions, which a withdrawal would have entailed, was considered wayward.¹²

A much more important reason for the objection was the mental barrier in the minds of the German generals: The widely held view was that a withdrawal was a sign of weakness and meant defeat. Hermann Geyer later spoke of "sticking to the ground" in general, an outdated belief that was stubbornly upheld until 1918 and had repeatedly had a negative influence on the application of the tactic of elastic defence in depth. He indeed saw it as the "most serious fundamental mistake of our whole trench warfare activity from 1914 to 1918, especially in the west."¹³ A reserve officer from the 183rd Infantry Division who had been in the Lens area with his unit in December 1916 to

¹¹ *Wesentliche Änderungen der Abwehrschlacht*, Chef des Generalstabes des Feldheeres II Nr. 47870, 20 February 1917, Bayerisches Hauptstaatsarchiv /Kriegsarchiv Munich (BHStA/KA), 11. Bayerische Infanteriedivision, Bund 96.

¹² *Der Weltkrieg 1914-1918* (cf. note 7), vol. 12, pp. 188-189, 276. In addition to this, manuscripts by Hellmuth von Wienskowski on volume 12 *Der Weltkrieg 1914-1918*, "Gründe des deutschen Misserfolges" and "Betrachtungen", 1938, BArch RH 61/1884. Parts of the manuscripts were published in volume 12. Cf. Nachlass (NL) Hermann Geyer, „Betr. Ansichten über Wotan und Abwehrschlacht“, 27 March 1917, Blatt 42, BArch RH 61/924.

¹³ Hermann Geyer, 'Einige Gedanken über Verteidigung, Ausweichen und dergleichen', *Militärwissenschaftliche Mitteilungen*, Berlin, November issue 1921 (The article does not have page numbers); NL Hermann Geyer, Blatt 261-262, BArch RH 61/924; *Stellungnahme Hermann Geyers zu einem Entwurf der Vorschrift Stellungskrieg und Kampf um ständige Befestigungen*, 15 November 1935, p. 5, BArch N 221/12. Similarly: Joachim von Stülpnagel, *75 Jahre meines Lebens*, manuscript written in 1955 (Bibliothek der Führungsakademie der Bundeswehr Hamburg), pp. 130-131. Cf. also Matthias Strohn, *The German Army and the Defence of the Reich. Military Doctrine and the Conduct of the Defence Battle 1918-1939*, (Cambridge: University Press, 2011), p. 55.

work on the Vimy Ridge positions made a similar entry in his diary-like book in which he wrote down his memories of the war: "But at the time, 1 metre of French soil was rated even higher than a regiment of soldiers. And some commanders had a weird idea of what a soldier's honour was. Bitter experiences and heavy casualties later and maybe too late gave a healthier meaning to such ideas. Our opinion on this carried no weight. We just did what we were ordered to do."¹⁴ The critics of elastic defence in depth spoke disparagingly of a "withdrawal bacillus" that had infested the German Army.¹⁵ Even Ludendorff and Hindenburg were unable to free themselves of it. In order to shorten the front and gain forces for defensive action, the OHL had reluctantly decided in early February 1917 to withdraw the German troops between Arras and Laon to the Hindenburg Line, which was planned to be further fortified ("Operation Alberich"). Twenty-nine divisions withdrew between 16 and 19 March 1917. It was felt that further rearward movements could not be advocated to the people and the forces for reasons of morale and prestige.¹⁶

The fatal consequences were borne by the German soldiers on the narrow Vimy Ridge on 9 April 1917, most of whom were in forward slope positions and much too densely massed in the forward lines. Continuing to be well visible to the enemy, they fell victim to what was probably the hitherto most intensive artillery fire of the war. The Canadians and British fired some 2.7 million shells, that is to say, around a million more than they had fired on the German positions at the Somme.¹⁷ It took the loss of the ridge

¹⁴ Gottfried Rinker, *Heldengräber. Aus meinem Soldaten- und Kriegserleben im 1. Weltkrieg*, edited by Meike Hermann, (Borsdorf: winterwork Borsdorf, 2011), p. 208. According to Rinker, the position should have been prepared on the ridge east of the Lens-Arras road, i.e., the road into the area in which the German troops had retreated after they had lost the ridge on 9 April 1917. Unfortunately, it remains unclear whether he had adhered to this position as early as in December 1916.

¹⁵ Geyer, *Einige Gedanken über Verteidigung* (cf. note 13).

¹⁶ *Der Weltkrieg 1914-1918* (cf. note 7), vol. 12, pp. 119-146, 276 as well as vol. 13, pp. 338-339.

¹⁷ Hew Strachan, *Der Erste Weltkrieg, Eine neue illustrierte Geschichte* (Munich: Wilhelm Goldmann, 2014), p. 297. Cf. Paul Harris/Sanders Marble, 'The Step-by-Step Approach: British Military Thought and Operational Method on the Western Front, 1915-1917'. In: *War in History*, 15 (2008), pp. 17-42, here p. 36; cf. Graeme C. Wynne, *If Germany Attacks. The Battle in Depth in the West*, (London: Faber and Faber Limited, 1940), pp. 165-183. According to that, two thirds of the trench division troops were deployed to a defense zone of 2,500 metres in depth or to the forward slope of the ridge. The bulk of the infantry remained in deep dugouts which turned into "human traps" for the defenders during the attack. The surviving German soldiers were simply unable to get out of them in time after the surprisingly short preparatory barrage and the creeping barrage of the artillery to repel the immediately assaulting

for the German command to decide on 11 April to withdraw the remaining troops to the little fortified III position 5 kilometres away and use the reserves that had hurried to reach the area to occupy a defence zone that, in accordance with the new defence regulation, was 5 to 6 kilometres in depth. This defence zone stretched across undulating terrain to the "WOTAN" position. Later, the OHL defence expert, Oberst (Colonel) Fritz von Lossberg, who had been appointed Chief of the General Staff of the Sixth Army by Ludendorff that same day, was to write:

I therefore came to the conclusion that the advanced combat zone should remain occupied with only weak forces and that the bulk of the infantry should be deployed in depth in preparation for offensive defence operations. In order to ensure strong support from our artillery, it was necessary to move our artillery positions so far rearwards that it could deliver heavy annihilating fire and intense barrage fire forward of our advance infantry battle line and additionally support our counterstrokes (Gegenstöße) and counterattacks (Gegenangriffe) with fire that was easy to observe.¹⁸

These are the words of an officer who only a short time before had still fiercely opposed any kind of withdrawal to the rear and, instead of elastic defence in depth, favoured the traditional tactic of having the bulk of the front-line infantry fight statically: "Every man had to fight where he was positioned. The enemy could only advance over his dead body," Lossberg had declared a few weeks earlier in his lessons learned report as Chief of the General Staff of the First Army on the Battle of the Somme of 1916.¹⁹ But Lossberg was both experienced and capable enough of learning to also take an innovative path in battle, if necessary, after the setback of 9 April - I would call him a pragmatic compromising tactician.²⁰ This pragmatism was based on mission command (Auftragstaktik), a leadership culture that had gained acceptance in the

Canadian infantry. In addition to this, manuscripts by Hellmuth von Wienskowski on volume 12 *Der Weltkrieg 1914-1918, "Gründe des deutschen Misserfolges"* and *"Betrachtungen"*, 1938, BArch RH 61/1884.

¹⁸ Fritz von Lossberg, *Meine Tätigkeit im Weltkriege* (Berlin: Ernst Siegfried Mittler und Sohn, 1939), p. 283. Cf. personal war diary of General von Kuhl, Entry of 11 April 1917, BArch RH 61/970 and *Der Weltkrieg 1914-1918* (cf. Note 7), vol. 12, p. 230. The final decision to withdraw was made in the evening of 11 April after Falkenhausen, Lossberg and Kuhl had discussed the matter at AOK 6 in Tournai. Ludendorff and Hindenburg afterwards agreed only reluctantly since they feared negative repercussions for morale.

¹⁹ *Erfahrungen der 1. Armee aus der Sommeschlacht 24.6.-26.11.1916*, I. Taktischer Teil, 12, BArch RH 61/1784.

²⁰ Cf. on Lossberg Lupfer, *The Dynamics* (cf. note 7), p. 29-30.

German Army at the turn of the century.²¹ It required mental flexibility and independent action on the part of commanders in battle and entailed the strict refusal of tactical schematization and too close adherence to regulations: "In seeking to counter any kind of schematization, the German regulations provided the commanders of all ranks very broad room for manoeuvre in training as in the application of the principles and forms of battle. Their regulations were not recipes and safeguarded against instructions being given for all eventualities."²² Even the *Leitfaden für den Unterricht in der Taktik auf den königlichen Kriegsschulen* of 1912 (Guide for Instruction in Tactics at the Royal War Schools) emphasized that it was always necessary, for example, "for action as appropriate to the circumstances to be taken in war."²³

German officers were already encouraged to be independent, creative and flexible in the estimate of the situation during their basic and advanced tactics training. They were also required to take a critical look at tactical decisions and share their views with each other. This was a result not least of the applicatory method of teaching by which examples drawn from military history were also used in tactics lessons at war schools and the war academy: "The method of teaching applied must appropriately connect what is considered to be an essential, systematic presentation with the developing discussion and permanent practice on the part of the audience in the use of their mental capacities and the correct oral and written expression of their thoughts. The developing discussion should force the students to be productive in their independence [...]."²⁴

²¹ On mission command in great detail most recently: Marco Sigg, *Der Unterführer als Moltke im Taschenformat – Theorie und Praxis der Auftrags-taktik im deutschen Heer 1869 bis 1945*, (Paderborn: Ferdinand Schöningh, 2014).

²² Hans von Seeckt, *Aus meinem Leben 1866-1917*, edited by Friedrich von Rabenau, (Leipzig: v. Hase und Koehler, 1938), p. 88. Cf. *Grundzüge der taktischen Arbeiten des grossen Generalstabes*, Berlin in January 1873, BArch PH 3/442 as well as *Grundzüge der höheren Truppenführung* of 1 January 1910, 1* as well as *Felddienstordnung*, Berlin 1908, Vorwort.

²³ *Leitfaden für den Unterricht in der Taktik auf den königlichen Kriegsschulen*, 17th edition, Berlin 1912, p. 2. For information on this understanding of tactics, see also Friedrich Immanuel, *Handbuch der Taktik*, first part, 2nd edition (Berlin: Ernst Siegfried Mittler und Sohn 1910), Vorwort.

²⁴ *Vorschrift über die Methode, den Umfang und die Einteilung des Unterrichts auf den Königlichen Kriegsschulen*, Berlin 1884, pp. 11-13, quoted in Hans H. Driftmann, *Grundzüge des militärischen Erziehungs- und Ausbildungswesens in der Zeit 1871-1939* (Regensburg: Walhalla und Praetoria, 1980), p. 65; for information on the War Academy, see also Erich Ludendorff, *Mein militärischer Werdegang. Blätter der Erinnerung an unser stolzes Heer*, (Munich: Ludendorffs Verlag, 1934), pp. 105-109; cf. Robert T. Foley, 'A case study in

Use of this method, which was essentially developed by Julius Verdy du Vernois, a Prussian officer, after the war of 1870/71, continued in the so-called war games.²⁵ They ranged from the general staff rides of the Great General Staff at the strategic level (army command) and operational level (army corps including divisions) to regimental war games at the tactical level. Here, too, the prime principle was "that the war game was intended to be a free exchange of opinions between the officer conducting the game and the participants in the form of stimulating instruction where the former conveys his knowledge to the listener by means of enthralling situations and develops their tactical judgment and decision-making capability [...]." ²⁶ Warfare was considered an "art" that had to be comprehended and learned: "It is an art for the commander-in-chief to make his ideas and intentions understandable to subordinate commanders, and it is an art for subordinate commanders to grasp the general situation in a war, to understand the intentions of the commander-in-chief and implement them as appropriate. These arts must be learned. One way of achieving this is by offering such war games."²⁷

The tactical field service exercises in the practical troop training of the regiments that officers regularly had to complete in the field with exercising forces were based on a similar idea. Tactical tasks were used to train them in estimating the situation, in making decisions and in issuing orders. The exercising officers had to prepare written combat reports (Gefechtsberichte) with sketches, so-called krokis. Their superiors reviewed the tactical decisions that had been made and the way in which command and control had been exercised, and the results were then communicated to the exercising

Horizontal Military Innovation: The German Army, 1916-1918,' in *The Journal of Strategic Studies*, 35/6 (2012), pp. 799-827, here p. 815; Sven Lange, *Hans Delbrück und der Strategiestreit. Kriegführung und Kriegsgeschichte in der Kontroverse 1879-1914*, (Freiburg im Breisgau: Rombach, 1995), pp. 44-48; for information on this, see Jörg Muth, *Command Culture. Officer Education in the U.S. Army and the German Armed Forces, 1901-1940 and the Consequences for World War II*, (Denton: University of North Texas Press, 2011).

²⁵ Martin Raschke, *Der politisierende Generalstab. Die friderizianischen Kriege in der amtlichen deutschen Militärgeschichtsschreibung 1890-1914*, (Freiburg im Breisgau: Rombach, 1993), pp. 36-37; Julius von Verdy du Vernois, *Beitrag zum Kriegsspiel*, (Berlin: Ernst Siegfried Mittler und Sohn, 1876).

²⁶ Friedrich Immanuel, *Anleitung zum Regimentskriegsspiel*, (Berlin: Ernst Siegfried Mittler und Sohn, 1903), p. 8.

²⁷ Generaloberst Alfred von Schlieffen, *Schlussbesprechung Kriegsspiel des Grossen Generalstabes November/Dezember 1905*, BArch PH 3/646. Cf. Gerhard P. Gross, 'There was a Schlieffen-Plan. New sources on the History of German Military Planning'. In: *The Schlieffen-Plan. International Perspectives On The German Strategy For World War I*, ed. by Hans Ehlert, Gerhard P. Gross and Michael Epkenhans, (Lexington: University Press of Kentucky, 2014), pp. 85-136, here, pp. 98-101.

personnel.²⁸ Superiors were even allowed to demand combat reports in addition to the daily post-exercise briefings "to supplement the impressions gained" during the annual large-scale military manoeuvres up to the Emperor's manoeuvre (Kaisermanöver). Specific lessons-learned reports (Erfahrungsberichte) included tactical recommendations. These also broached questions of materiel and logistics. Reports and individual lessons learned were communicated through official channels.²⁹

While command and control was to be exercised calmly and deftly, the primary demand was for independent, vigorous and "strong-willed" action to be taken, as the principle of *Auftragstaktik* required. The indicative assessment in a field service exercise in 1910 was that "every commander should keep in mind the old principle that 'even a mistake in the choice of means is still better than doing 'nothing'.'"³⁰ On the downside, there was the biased emphasis on the attack, the view being that consideration for losses was on no account allowed to impair resolute action on the part of the commander: "Dread of losses must never deter from the implementation of a decision that has been seen to be correct."³¹ This, in turn, required a certain bias in tactical thinking, which hardly considered defensive action before 1914: "Defence is inferior to an attack. It demands accepting disadvantages that the attacker is spared."³² It is obvious that in addition to this, the permanent call for independence and conscious granting of room for manoeuvre in tactics also posed a certain danger of commanders

²⁸ For numerous examples of field service exercises/combat reports (incl. comments) in the pre-war period, see: BArch PH 10 II 103 and PH 10 II 580. Cf. Julius Hoppenstedt, *Offizier-Felddienstübungen in Beispielen auf kriegsgeschichtlicher Grundlage*, (Berlin: Ernst Siegfried Mittler und Sohn, 1898); *Felddienstordnung*, Berlin 1908, pp. 11-12; Terence Zuber, *The Mons Myth. A Reassessment of the Battle*, (Stroud: The History Press, 2010), pp. 59-60.

²⁹ Erich Ludendorff, *Brigade und Divisionsmanöver in Anlage und Leitung mit einem Beispiel aus der Praxis*, 2nd edition, (Berlin: Ernst Siegfried Mittler und Sohn, 1912), pp. 91, 165; *Felddienstordnung*, Berlin 1908, Nr. 72-37; General-Inspektion der Fußartillerie Abt. IV Nr. 4986/14, *Erfahrungen der schweren Artillerie aus den letzten Übungen*, 31 July 1914, BArch PH 9 II9; 2. Fußartillerieinspektion Nr. 622.09 Abt. II, *Einige Erfahrungen betr. sA (=foot artillery) aus den Manövern 1908*, 1 September 1909, Hauptstaatsarchiv Stuttgart (HStAS), M 33/1 Bü 8; Preußisches Kriegsministerium Nr. 658/1.09 A.7., 30 March 1909, HStAS M 33/1 Bü 8.

³⁰ *Kommentar des Hauptmanns Breithaupt zur Felddienstübung des Leutnants Krönke Infanterieregiment Nr. 77*, 22 November 1910, BArch PH 10 II 103.

³¹ Chef des Generalstabes der Armee Nr. 18090, 5 December 1912, HStAS M 33/1 Bü 8.

³² Immanuel, *Handbuch der Taktik* (cf. note 22), 259. Cf. Geyer, *Einige Gedanken über Verteidigung* (cf. Note 13).

being stuck in old views.³³ "The Army is a very conservative body. It was so in peace time, and war made no difference."³⁴ Erich Ludendorff did not write these words in his war memories in 1919 by chance. What he assumed about others equally applied to him.

Lessons and learning from Vimy Ridge/Arras

British and Canadian historians have spoken in recent years of a learning curve in the British Expeditionary Force during the war. Similar words can be said about the German forces.³⁵ Stubborn adherence to traditional ideas alternated constantly with an open-mindedness for innovations if they were necessary or, in the parlance of German officers, "appropriate" or "purposeful".³⁶ Oscillating ambivalently between these two poles, tactical learning was by no means linear, but took place in phases and in the form of a discursive exchange of complex experiences between command echelons and units in the German Army. This was consistent with the leadership culture embodied in *Auftragstaktik*. Failure and success were equal driving forces behind learning. As a result, there was step-by-step updates of regulations like the *Grundsätze für die Führung der Abwehrschlacht im Stellungskrieg* and these were then distributed and conveyed throughout the Army by the OHL via an intensified training and course programme so as to soon become known as "common Army knowledge".³⁷

The Battle of Vimy Ridge can be easily included in this often contradictory learning process within the German Army. In the course of this process - in connection with the lessons learned from the Nivelle Offensive by the Aisne - it was an important

³³ For information on this, see Dieter Storz, *Kriegsbild und Rüstung vor 1914. Europäische Landstreitkräfte vor dem Ersten Weltkrieg*, (Herford [et.al.]: Ernst Siegfried Mittler und Sohn, 1992), p. 167.

³⁴ Ludendorff, *Meine Kriegserinnerungen* (cf. note 9), p. 209.

³⁵ Cf. Foley, *Dumb donkeys or cunning foxes?* (cf. note 4), pp. 279-298.

³⁶ This was also true for the level of contemporary operational and strategic thinking where reference to Moltke the Elder was made, on this see for instance Rudolf von Borries, *'Operative Kriegführung'*. In: *Die militärischen Lehren des Grossen Krieges*, edited by Max Schwarte, 2nd edition, (Berlin: Ernst Siegfried Mittler und Sohn, 1923), pp. 1-22, here p. 4. Cf. Gross, *Mythos* (cf. note 8).

³⁷ Most recently on this, Christian Stachelbeck, „Was an Eisen eingesetzt wurde, konnte an Blut gespart werden“. *Taktisches Lernen im deutschen Heer im Kontext der Materialschlachten des Jahres 1916.* In: *Materialschlachten 1916. Ereignis, Bedeutung, Erinnerung*, edited by Christian Stachelbeck, (Paderborn: Ferdinand Schöningh, 2017), pp. 105-118.

element for the further development of elastic defence in depth in the second half of the war. Despite all the scepticism of its critics, it proved the most promising response to the enemy's attempts to achieve a breakthrough.³⁸ In the end, this was confirmed by the course of the Battle of Vimy Ridge. Despite initial gains in ground, the decisive operational breakthrough between Souchez and Quéant in the direction of Cambrai did not finally come about. As regards the daily loss of personnel, Vimy Ridge was indeed the bloodiest battle in this war for the British Army.³⁹ Nevertheless, the strategic purpose of the offensive, which was to tie up German reserves in order to divert attention from the French main attack at the Aisne, was accomplished. It is common knowledge that General Nivelle was unable to capitalize on this.⁴⁰

How did the Germans learn from the fighting at Vimy Ridge/Arras in order to optimize their elastic defence in depth for the subsequent defensive operations in 1917? It must first be pointed out that contrary to all one-sided imputations of blame against the Sixth Army that had arisen in the course of an investigation initiated by Ludendorff, the German "disaster" of 9 April was the result of a second collective error of judgment on the part of the German command.⁴¹ Even the official German military historiography later made it clear that the OHL, Army Group and Sixth Army did not "estimate the situation correctly" and were therefore "surprised" by the offensive. The OHL, for example, did not believe that an attack was imminent even in late March, after the withdrawal to the Hindenburg Line, and the Sixth Army had reckoned on preparatory artillery fire being delivered for a considerably longer period. As a consequence, the requirements for elastic defence in depth were not met, as the troops were not dispersed in depth, the positions were not fortified as planned and the

³⁸ Cf. *Die Entwicklung des Stellungskrieges von Ende 1914 bis zum Sommer 1917. Die Erfahrungen der Frühjahrsschlachten 1917*, manuscript by Wilhelm Solger 1938, BArch RH 61/1852.

³⁹ Cf. Gary Sheffield, *The Somme* (London: Cassell, 2004), p. 152; Matthew Hughes, 'Edmund Allenby'. In: *Haig's Generals*. Ed. by Ian F.W. Beckett /Steven J. Corvi, (Barnsley: Pen&Sword Military, 2006), pp. 12-32, here p. 21.

⁴⁰ Cf. Hew Strachan, *Der Erste Weltkrieg* (cf. note 17), pp. 298-304.

⁴¹ The 9 April and the subsequent days were considered not only a "setback" but a "great defeat" for the German army, cf. the manuscripts by Hellmuth von Wienskowski on volume 12 *Der Weltkrieg 1914-1918, "Gründe des deutschen Misserfolges" and "Betrachtungen"*, 1938, BArch RH 61/1884. Volume 12 of the World War works was less dramatic and referred only to a "severe setback", cf. *Der Weltkrieg 1914-1918*, vol. 12 (cf. note 7), p. 277.

artillery was not supplied with sufficient ammunition.⁴² "The whole issue of ammunition was dreadful, [...] from 3 April I reported daily that we had much too little artillery ammunition here. Eventually, it was promised, but did not arrive on time. [...] therefore, a lot of the batteries did not even have anything to fire on the 9th morning," wrote Oberstleutnant (Lieutenant Colonel) Albrecht von Thaer, Chief of the General Staff of the Group Arras, in his diary on 19 April.

The fatal error of judgment, however, concerned the late use of reserves. Probably due to a certain heedlessness towards events, the Sixth Army kept the reserves of the trench divisions and the 2nd-line divisions much too far away from the front. Added to that was the fact that the tactical employment of the 2nd-line divisions for an immediate counterstroke or counterattack was not a common procedure at the time. OHL, Army Group and the Sixth Army had always spoken of relief-divisions (Ablöse-Divisionen). It had been assumed that, as in the Battle of the Somme of 1916, the trench divisions would do battle with their own reserves and the 2nd-line divisions would primarily relieve them. The OHL, however, reacted to the setback of 9 April promptly. It immediately shared the lessons learned from and experience gained in Arras with the Army Group of the German Crown Prince Wilhelm, which was preparing to mount a defence against the Nivelle Offensive. It also made clear that the 2nd-line divisions were to be earmarked for timely counterattacks. This army group, however, had been planning to proceed in this way for quite some time, and there was already talk of "counterattack divisions" (Eingreifdivisionen). This designation was later included in the revised defence regulations. The system of trench divisions and Eingreifdivisionen

⁴² The OHL and Army Group largely blamed the command of the Sixth Army. Later, officials refrained from accusing the force of "failure" (*Versagen*), as Hermann Geyer had clearly expressed in an internal paper - "failure" due to units being "watered down" as a result of the heavy losses and constant regrouping. The OHL not only arranged for the chief of the general staff of the Sixth Army to be replaced, but also for the transfer of the commander-in-chief, *Generaloberst* Ludwig von Falkenhausen, who had been furious about the accusations. He succeeded *Generaloberst* Moritz von Bissing, who had died on 18 April 1917 as governor-general in Belgium. Cf. *Der Weltkrieg 1914-1918*, vol. 12 (cf. note 7), pp. 234-239; personal war diary of General von Kuhl, entries of 11 to 27 April 1917, BArch RH 61/970 as well as Oberkommando Heeresgruppe Kronprinz Rupprecht Ia/c Nr. 2835, 19 April 1917, BArch RH 61/1890; NL Hermann Geyer, Blatt 33, BArch RH 61/924.

positioned to their rear proved its worth in the further battles of the Sixth Army around Arras.⁴³

This was also true for the defence in depth of the trench divisions after the withdrawal movement, with the open terrain and the general lack of field fortifications helping the innovative elastic method of fighting to prevail. Divided into small combat groups, the forces evaded the enemy's air and ground observation and thus the targeted Anglo-Canadian artillery fire by dispersing. The infantry and artillery fought by means of fire and manoeuvre, while local reserves provided permanent support by conducting counterstrokes. This had been called crater fighting (*Trichterkampf*) during the Battle of the Somme of 1916: "The defence was thus based on a purely offensive procedure. The enemy, overrunning the thin security line, came under flanking MG (machine gun) fire from all sides, had to divide up his forces and was hit by the support and standby forces that automatically pressed ahead in a counterstroke," wrote the 3rd Bavarian Infantry Division of the Arras Group in a lessons learned report of 28 April 1917.⁴⁴

Multiple such tactical lessons learned reports were written by the troops involved in the course of the battle.⁴⁵ They analyzed their own tactics and those of the enemy and suggested changes. The preparation of tactical combat and lessons learned reports, an activity that was common in manoeuvres in peacetime, was continued in the war.⁴⁶ During the strength-sapping long battles of materiel of 1916, the number of lessons learned reports from the front had soared due to the attempt to quickly provide the many divisions employed in the battle with the latest information and intelligence on the fighting. Robert T. Foley has rightly pointed out that a veritable lessons learned system was established in the German Army. With the battles in the spring of 1917, the OHL and army groups involved intensified the use of this system significantly and also

⁴³ Cf. *Der Weltkrieg 1914-1918*, vol. 12 (cf. note 7), pp. 235, 291, 405; *Die Entwicklung des Stellungskrieges von Ende 1914 bis zum Sommer 1917. Die Erfahrungen der Frühjahrsschlachten 1917*, manuscript by Wilhelm Solger 1938, BArch RH 61/1852 ; Wynne, *If Germany attacks*, (cf. note 17), pp. 210-213.

⁴⁴ Gruppe Arras Ia No. 6051, *Erfahrungen der 3. Bayr. Inf.-Div.*, 28 April 1917, BArch PH 6 VI/39.

⁴⁵ Cf., for instance, the experiences of 221 I.D. in the Spring Battle of Arras (25 April - 9 May 1917), BArch PH 8 I/475.

⁴⁶ Cf. numerous examples ongoing since the beginning of the war. BArch PH 9 II/ 9, PH 5 II/536 as well as PH 6 I/355. For information on this, see Christian Stachelbeck, *Militärische Effektivität im Ersten Weltkrieg. Die 11. Bayerische Infanteriedivision 1915 bis 1918*, (Paderborn [et.al.]: Ferdinand Schöningh, 2010), chapters III.3 and III.4

improved the coordination of command and control.⁴⁷ The horizontal and vertical exchange of tactical knowledge gathered great momentum. The objective of the Germans was to quickly adapt their defence tactics to the procedures applied by the enemy. He had, of course, also learned from the experiences of the preceding years and continuously optimized his attack tactics.⁴⁸ The battles of 1917 on the western front increasingly reflected a direct tactical game of cat and mouse between what for their day were three high-tech armies.

The Army Group of Crown Prince Rupprecht of Bavaria documented the lessons learned from the battles of Arras continuously in several reports, beginning on 21 April. The first impressions were conveyed by general staff officers who were sent to the divisions and major unit commanders. The army group also instructed the armies under its command to gather the lessons learned by the divisions and submit them for evaluation.⁴⁹ Similar work was done during the Nivelle Offensive by the Army Group of the German Crown Prince Wilhelm, which even demanded lessons learned reports from battalion and regiment commanders.⁵⁰ Certain reports were used by the army groups in the training their troops permanently underwent. The principle was this: "The following lessons learned are to be made known to the companies before employment and be made the subject of detailed briefings of all officers and subordinate leaders."⁵¹ An important function in the communication of the new knowledge was assumed by the general staff officers on account of their being the commanders' key staff assistants:

⁴⁷ Robert T. Foley, A case study (cf. note 24), pp. 814-815.

⁴⁸ For information on this. see recently Aimée Fox Godden, *'Putting Knowledge in Power': Learning and Innovation in the British Army of the First World War*, (University of Birmingham, Ph.D. thesis, 2015); Jonathan Boff, 'Vorsprung durch Taktik? Das britische Heer und die Materialschlacht 1916'. In: *Materialschlachten 1916* (cf. note 37), pp. 91-104.

⁴⁹ Heeresgruppe Kronprinz Rupprecht, Oberkommando, Ia Nr. 2853, *Betreff: Erfahrungen und Folgerungen aus den Kämpfen bei Arras am 9.4.1917*, 21 April 1917, as well as Chef des Generalstabes des Feldheeres, Ia 2996, 29 April 1917, BArch PH 5 I/11; Heeresgruppe Kronprinz Rupprecht, Oberkommando Ic Nr. 3023, *Betr: Weitere Erfahrungen aus den Kämpfe bei Arras*, 13 May 1917, BArch PH 8 I/ 475; Heeresgruppe Kronprinz Rupprecht Ic Nr. 2881, 25 April 1917, HStAS, M 39/2 Bü 25.

⁵⁰ 11. Bayerische Infanteriedivision Nr. 1453/Ia, *An Gruppe Liesse Betreff: Fragebogen der Heeresgruppe Deutscher Kronprinz Ia/Ic* Nr. 2671, 19 June 1917, BHStA/KA, 11. Bayerische Infanteriedivision, Bund 40; Oberkommando Deutscher Kronprinz Ic Nr. 2932, 8 June 1917, as well as 7. Armee Oberkommando, Ia Nr. 116, 9 May 1917, BHStA/KA, 11. Bayerische Infanteriedivision, Bund. 96.

⁵¹ Gruppe Arras Ia No. 6051, *Erfahrungen der 3. Bayr.Inf.-Div.*, 28 April 1917, BArch PH 6 VI/39.

Frequent discussions of these lessons by army and corps commanders with everyone, especially the division general staff officers, are necessary. An effort must be made in these discussions to disseminate what has been discussed and to especially ensure that the aides of the infantry, artillery and engineer commanders, air force and intelligence officers are informed.⁵²

Hermann Geyer can be endorsed for later writing this about the lessons learned system in the German Army: "Military lessons learned become known and are put to the test through talks and discussions, through presentations and papers of all kinds, through tests and exercises."⁵³

The OHL in turn directed the learning process by distributing specific army group lessons learned reports throughout the army and by issuing its own supplementary tactical instructions, though essentially by relatively prompt changes to the defence regulation. As early as in June, the OHL issued a special regulation-like booklet based on the lessons learned from the defence conducted against the Anglo-French spring offensives, with the 3rd reprint of the defence regulation being published in September.⁵⁴ In parallel, the attack and defence procedures of the enemy were summarized in special booklets and made known throughout the army.⁵⁵ In the end, it was also due to the OHL that the tactical lessons learned were used to further improve the organization, armament and equipment of the army for mobile elastic defence in

⁵² Chef des Generalstabes der Heeresgruppe Deutscher Kronprinz Ia/Ic Nr. 3260, *Vorbemerkungen zu Merkblatt für Besprechungen mit den Generalstabsoffizieren*, 9 July 1917, BHStA/KA, 11. Bayerische Infanteriedivision, Bund 96.

⁵³ Hermann Geyer, *Sammlung und Verwertung militärischer Erfahrungen während des Krieges*, offprint of *Wissen und Wehr*, 1 (1940), pp. 8-20, here p. 10, BArch N 229/61.

⁵⁴ Cf. note 6 as well as *Sonderheft zum Sammelheft der Vorschriften für den Stellungskrieg vom 10. Juni 1917*. Zusammengestellt auf Grund der Erfahrungen bei der Abwehr der englisch-französischen Offensive im Frühjahr 1917, BArch PH 3/1929; Chef des Generalstabes des Feldheeres Ia Nr 2996, 29 April 1917, BArch PH 9II/9; Chef des Generalstabes des Feldheeres Ia/II Nr. 2926, 22 April 1917, BHStA/KA, 11. Bayerische Infanteriedivision, Bund 100; for information on the dissemination of lessons learned, see also BArch RH 61/ 1904.

⁵⁵ For instance *Das französische Angriffs- und Verteidigungsverfahren*, Dezember 1916 or *Das englische Angriffsverfahren in den Schlachten 1916/17*, February 1918, manuscript by Wilhelm Solger *Die Entwicklung des deutschen Angriffsverfahrens bis zur grossen Schlacht in Frankreich*, 1940, BArch RH 61/1168, p. 8.

depth.⁵⁶ A key aspect was the fact that many infantry units still had a completely inadequate number of 08/15 light machine guns in the spring of 1917.⁵⁷ This weapon became increasingly important in the mobile defence battle of the infantry after it was divided into small combat teams: "In addition to the established procedure of the counterstroke from the depth zone, it is necessary to continue to thwart the enemy attack with infantry means forward of our advanced line. Machine guns, especially the 08/15 light MGs, are excellent tried and tested weapons for achieving this objective with few people. The more light machine guns there are, the greater the use will be of the infantry machine guns released on the advanced line."⁵⁸

Conclusion

Summing up, it can be said that the lessons learned system, based as it was on a horizontal and vertical exchange of lessons learned, confirmed the "appropriateness" of elastic defence in depth. Altogether, it was an "improvement and supplement, and an emphasis of already expressed principles".⁵⁹ The close mobile interaction of the infantry, artillery and air forces and the inclusion of Eingreifdivisionen were beyond dispute.⁶⁰ Nevertheless, the lessons learned reports also continued to contain critical remarks on elastic defence in depth and alleged disadvantages were openly addressed. In its report of 13 May 1917, the Army Group of Crown Prince Rupprecht of Bavaria specifically

⁵⁶ Cf. for information on the role of the OHL under Falkenhayn and Hindenburg/Ludendorff in this function during the war Geyer, *Sammlung und Verwertung* (cf. note 53), pp. 15-20 as well as Stachelbeck, "Was an Eisen eingesetzt wurde, konnte an Blut gespart werden" (cf. note 37).

⁵⁷ See, for example, Gruppe Arras Ia Nr. 6051, *Erfahrungen der 3. Bayr.Inf.-Div.*, 28 April 1917, BArch PH 6 VI/39.

⁵⁸ *Erfahrungen der 221. I.D. in der Frühjahrsschlacht von Arras (25.4.-9.5.17)*, BArch PH 8 I/475. On role of light machine gun cf. *Die organisatorische Entwicklung des deutschen Heeres im Weltkriege 1914/18*, manuscript by Wilhelm Dieckmann, 1940, pp. 7-12, BArch RH 61/1153. The infantry companies were gradually equipped with the 08/15 light machine gun. By the spring of 1918, each company usually had 6 08/15 light machine guns. As a consequence, it was possible to reduce the effective strength of the infantry battalions. Cf. also Hermann Cron, *Geschichte des Deutschen Heeres im Weltkriege* (Berlin: Militärverlag Karl Siegismund, 1937), pp. 117-119.

⁵⁹ Cf. *Die Entwicklung des Stellungskrieges von Ende 1914 bis zum Sommer 1917. Die Erfahrungen der Frühjahrsschlachten 1917*, manuscript by Wilhelm Solger 1938, 1, BArch RH 61/1852.

⁶⁰ Cf. William Balck, 'Infanterie. - Verbundene Waffen'. In: *Die Militärischen Lehren* (cf. note 36), pp. 23-69. In the subsequent defence battles of 1917, the depth zone in the defence was expanded by a glaxis of up to 1000 m in depth.

pointed out, for instance, that it was not possible to transfer this now "proven fighting technique" to any kind of terrain and situation in common trench warfare and that it required a "battle-hardened and well-trained force."⁶¹ There were still strong reservations about the troops having too much freedom to take independent evasive action. Ludendorff himself was one of many commanders who continued to object to the most important principle of elastic defence in depth: He remained opposed to voluntarily giving up tactically unfavourable ground as, contrary to the defence regulation, he considered it to be detrimental to morale.⁶² Holding ground was still considered to be more important than saving forces. While the German Army successfully repelled all the allies' other attempts to achieve breakthroughs in the subsequent defensive operations of 1917 with an improved elastic defence in depth, its losses continued to be disproportionately high. In 1921, Hermann Geyer, too, stated: "We fought and won Pyrrhic victories."⁶³ This assessment carries even more weight when consideration is given to the fact that it was first and foremost the lack of men that accelerated Germany's defeat in 1918. And even as late as in 1942, the official German military historiography stated: "All in all, the impression is that some losses could have been avoided and free reserves could have been increased in the situation of the summer and autumn of 1917 if the principle of holding ground had been adhered to less rigidly in the west. The outcome could then have been a more secure overall situation."⁶⁴ It is probably an irony of history that, at the same time, a First World War veteran by the name of Adolf Hitler forbade any kind of retreat by the Wehrmacht in Russia and demanded fanatic resistance from the troops for every inch of ground.⁶⁵

⁶¹ Heeresgruppe Kronprinz Rupprecht, Oberkommando Ic Nr. 3023, *Betr: Weitere Erfahrungen aus den Kämpfen bei Arras*, 13 May 1917, BArch PH 8 I/475.

⁶² *Der Weltkrieg 1914-1918*, vol. 13 (cf. note 7), pp. 338 -339 as well as personal war diary of General von Kuhl, entry of 8 October 1917, BArch RH 61/970.

⁶³ Geyer, *Einige Gedanken über Verteidigung* (cf. note 13).

⁶⁴ *Der Weltkrieg 1914-1918*, vol. 13 (cf. note 7), p. 339.

⁶⁵ For information on this, see Johannes Hürter, *Hitlers Heerführer. Die deutschen Oberbefehlshaber im Krieg gegen die Sowjetunion 1941/42*, (Munich: Oldenbourg, 2007), p. 326; cf. Gerhard P. Gross, 'Das Dogma der Beweglichkeit. Zur Genese der deutschen Heerestaktik im Zeitalter der Weltkriege'. In: *Erster Weltkrieg-Zweiter Weltkrieg. Ein Vergleich*, edited by Bruno Thoss and Hans-Erich Volkmann, (Paderborn [et.al]: Ferdinand Schöningh, 2002), pp. 143-166, here p. 162.