British Journal for Military History

Volume 5, Issue 2, October 2019

Cover photo: French Saint-Chamond tanks passing through the village of Conde-sur-Aisne. Photograph probably taken during the 1918 German Spring Offensive. Dr Tim Gale considers the development of French tank doctrine during the war in his article in this issue. Photo © Imperial War Museum (Q 56410)

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BRITISH JOURNAL FOR MILITARY HISTORY

Founding Editor (2014–18): Dr Matthew Ford, University of Sussex, UK

Volume 5, Issue 2 October 2019

Special Issue: Transforming War, 1914-1918

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The Introduction of New German Defensive Tactics in 1916–1917

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ABSTRACT
Responding to the crisis posed by the battle of the Somme, in late 1916 the German army introduced new defensive tactics. It has been suggested that formal, top-down doctrine was a less important driver of this change than the bottom-up system of after-action reports, and that once initial resistance was overcome the new tactics were successfully adopted throughout the army. This article draws on little-studied archival material to reveal how doctrine evolved by stages in a complex combination of action, after-action reports, personalities and the high command's desire to impose greater top-down control. Throughout this period, doctrine remained key to tactical change, but its implementation was patchier than the German army's reputation suggests.

Introduction

The crisis of the battle of the Somme forced the German army to introduce new tactics.[1] By the start of the battle, German defensive methods had moved away from the pre-war system of establishing and holding one strong line. Doctrine issued in October 1915 called for the construction of at least two positions, far enough apart to force the enemy to mount a separate operation to attack each.[2] Experience at Verdun had indicated that manning the front thinly reduced casualties. However,

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DOI: 10.25602/GOLD.bjmh.v5i2.1314
[1]This section draws heavily on Robert T. Foley, 'Learning War's Lessons: The German Army and the Battle of the Somme 1916', *Journal of Military History*, 75/2 (2011), pp. 471-504. For a recent account of German tactical development, see Anthony Cowan, 'Genius for War? German Operational Command on the Western Front in Early 1917', Ph.D. thesis (King's College London, 2016), Chap. 7.
[2]Bundesarchiv-Militärarchiv (BA/MA), PHD7/1, OHL circular, '*Gesichtspunkte für den Stellungskrieg*', Nr. 7563 r., October 1915, pp. 2-3.

General Fritz von Below, commanding the main Army fighting the battle of the Somme, insisted on defending the front line to the death if need be, and on counterattacking to regain any ground lost.[3] With these tactics the Germans indeed prevented an Entente breakthrough, but at great cost. Some senior officers complained that the casualties incurred were out of all proportion to the successful defence or recapture of the ground concerned.[4] The German army was able partially to reverse the initial Entente superiority in the artillery–infantry–aviation combined-arms battle, but problems remained.

The stress of the battle led to changes at the operational (as we would now call it) and tactical levels. On average, infantry divisions had to be relieved after two weeks of fighting. In late August a self-standing Army Group Rupprecht was established, mainly to handle the flow of reserves needed for these reliefs. The constant movement of divisions also led to changes in the control of the battle. The German army had gone to war with the corps, a formation of two divisions, as its main battle unit. The frequent divisional reliefs made this system unworkable, and the fixed link between corps and divisions was broken. Corps headquarters increasingly became static controllers of *Gruppen* [Groups] through which divisions rotated. Divisions became responsible for the close and short-term battle. But they could not handle the deep battle, or the long-term co-ordination of the defensive structure needed for their sectors. *Gruppen* provided continuity in space and time by running the local framework of fixed defences, supporting arms – especially extra artillery and aviation forces – and supply networks into which the divisions fitted.

Tactical changes included the gradual shift from prepared defences, which were too easily located and destroyed, to improvised shell-hole positions. Most units welcomed this change as restoring their initiative and saving casualties. Others disliked it because it complicated artillery support, co-ordination with neighbouring units and control. As the battle continued, increased emphasis was placed on thinning the front-line garrison, defence in depth and retaining sufficient strength for counterattacks. An immediate counterattack [*Gegenstoß*] was to be made by any troops available before the enemy had consolidated after their initial assault. If this failed, a prepared counterattack [*Gegenangriff*] should be made. It proved necessary to reissue 1915 guidance that a *Gegenangriff* should only be undertaken if the ground lost was tactically important; and that enough time must be allocated for proper preparation.

[3]Hauptstaatsarchiv Stuttgart (HSAS), M660/038 Bü 16, Second Army order, Ia Nr. 575 geh., 3 July 1916 and First Army order, Ia Nr. 1438 geh., 22 October 1916.
[4]Jakob Jung, *Max von Gallwitz (1854–1937): General und Politiker* (Osnabrück: Biblio Verlag, 1995), pp. 74-5, quoting senior Bavarian officers.

Operational and tactical adaptation enabled the German army to survive the Entente offensive on the Somme, but by the end of 1916 it was in a bad way. It had suffered some 1.2 million casualties during the year and a total of nearly four million since the beginning of the war. Following a number of failures by divisions, OHL [*Oberste Heeresleitung*, Supreme Army Command] became concerned about the army's declining quality: in November it called for regular assessments of the battle-worthiness of every division.[5]

Developing and Implementing New Doctrine

Robert T. Foley has suggested that circulation of unit after-action reports [*Erfahrungsberichte*] was the main driver of tactical change at this period.[6] The German army had originally developed this system in peacetime to draw lessons from manoeuvres.[7] Given the advantages of speed and immediacy, the system developed extensively, and during the battle of the Somme it was indeed the main means of making relevant experience broadly available. There was, however, an obvious drawback. As we saw, divisions might have different views on an issue. Circulating these views made a wide range of experience available, but also risked sowing confusion and complicating co-ordination of the battle. The declining level of expertise in divisional staffs aggravated this problem.

One partial solution was mediation of such differences by the various levels of command above the division. Although no longer responsible for direct control of the battle, *Gruppe* commanders did oversee training of divisions in their areas. First Army, handling the most active part of the Somme front, issued incoming divisions with folders containing standing orders on tactics and administration; each order had a reference number and could easily be replaced by an updated version. The Army commander or chief of staff supplemented these orders with oral briefing on arrival.[8] General Max von Gallwitz, an army group commander on the Somme in July and August, passed on the experience he had just gained from several months at Verdun.[9]

[5]Cowan, 'Genius for War?', pp. 44-46.
[6]Foley, 'Learning War's Lessons', p. 504.
[7]Christian Stachelbeck, '"Lessons learned" in WWI: The German Army, Vimy Ridge and the Elastic Defence in Depth in 1917', *Journal of Military and Strategic Studies*, 18/2 (2017), p. 127.
[8]Generallandesarchiv Karlsruhe (GLAK), 456 F1/525, First Army report, '*Erfahrungen der 1. Armee in der Sommeschlacht 1916. I: Taktischer Teil*', 10 (hereafter '*Erfahrungen der 1. Armee*'). HSAS, M660/038 Bü 16 has examples of the Army's orders.
[9]Foley, 'Learning War's Lessons', p. 481, n. 32.

But despite such efforts disagreements on tactics continued. Some of them, especially on a less rigid form of defence, emerged at an important conference of senior staff officers held by Hindenburg and Ludendorff in early September, shortly after they took command at OHL. Later in the month, OHL issued interim instructions as a temporary measure to bridge the differences of opinion. These stressed holding the front thinly and defending it by counterattack and defence in depth. They also emphasised the need for counter-battery work, while avoiding the linked but thorny question of control of heavy artillery. Army Group Rupprecht reported in late September that First and Second Armies had different approaches to this, the former centralising heavy artillery control on *Gruppen*, the latter devolving it to divisions. Views differed too on how to handle defence in depth and the two forms of counterattack.[10]

In order to eliminate the damaging friction caused by these continuing disagreements and to ensure uniform training of commanders and units, OHL pushed forward a large-scale revision of defensive doctrine. This did not emerge from a vacuum. Even before Hindenburg and Ludendorff arrived, OHL had begun to supplement and update the doctrine issued in October 1915 with a new series of manuals entitled 'Regulations for trench warfare for all arms' [*Vorschriften für den Stellungskrieg für alle Waffen*]. Under Hindenburg and Ludendorff, OHL expanded the series. It was intended to contain all the information needed to understand the different arms of service and all-arms co-operation. By the start of the spring battles in April 1917, manuals had been published or updated covering command in trench warfare, construction of field defences, infantry and artillery co-operation with aircraft, communications, trench mortars and close combat weapons.[11]

The most important of these manuals were Part 8 in the series, 'Principles for the conduct of the defensive battle in trench warfare' [*Grundsätze für die Führung in der Abwehrschlacht im Stellungskrieg*, hereafter 'Defensive battle'], issued on 1 December 1916; and to a lesser extent Part 1a, 'General principles of field fortifications' [*Allgemeines über Stellungsbau*] of 13 November, a revision of an earlier manual. Three further editions of 'Defensive battle' were issued, in March and September 1917 and again in September 1918, as well as a 'Special manual' [*Sonderheft*] in June 1917 and numerous other amendments. 'Field fortifications' was updated in August 1917 and August 1918.

[10]Reichsarchiv, *Der Weltkrieg 1914 bis 1918: Die militärischen Operationen zu Lande*, Vol. XII: *Die Kriegführung im Frühjahr 1917* (Berlin: E.S. Mittler, 1939), pp. 29 and 32-37.

[11]*Weltkrieg*, XII, pp. 38-39; BA/MA, PH3/28, folio [f.] 22, OHL to Third Army, II Nr. 38642 op., 3 November 1916 and Bauer to Army Group Crown Prince, 13 November 1916.

The issuing of successive editions of 'Defensive battle' is important, because scholars have not always sufficiently recognised the major differences between them. This has tended to give the impression of tactical development which after initial resistance was smoother and more uniformly accepted in the army than was actually the case. It also blurs the gap between doctrine and what happened in reality. For instance, G. C. Wynne cited many specialised defensive terms in the opening discussion of the new tactics in his influential *If Germany Attacks*, but very few appear in the first or second edition of 'Defensive battle'.[12]

Tactical experts and historians regard 'Defensive battle' as a turning point, so it is odd that none have worked on the actual first edition of December 1916. The officer who produced a research paper comparing different editions of 'Defensive battle' for the central German military history organisation, the *Reichsarchiv*, was unable to find a copy of the first edition. He relied instead on a draft written by General Maximilian Ritter von Höhn, one of the officers involved in drawing up the new doctrine. The German official history '*Weltkrieg*' based its description of 'Defensive battle' on the second edition of March 1917.[13] Anglophone scholars have relied on this edition too as it was the first to be captured and translated by the British.[14]

At least one copy of the first edition does in fact exist.[15] By comparing this with the *Reichsarchiv* research paper and the second edition, we can examine the evolution of doctrine in some detail. Work on the first edition began in September 1916 under the direction of *Oberstleutnant* [Lieutenant-Colonel] Max Bauer of OHL. '*Weltkrieg*' gives most of the credit for producing the final draft to his subordinate *Hauptmann* [Captain] Hermann Geyer, adding that Höhn had played a temporary role as a consultant. Bauer himself accorded Höhn a larger role since he had written the text which provided the basis for the final document.[16]

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[12]G. C. Wynne, *If Germany Attacks: the Battle in Depth in the West* (Brighton: Tom Donovan, 2008; first edition London: Faber, 1940), pp. 102-109.

[13]BA/MA, RH61/291, Oberstleutnant Engelmann unpublished research paper, '*Grundsätze für die Führung in der Abwehrschlacht im Stellungskriege*', n.d., p. 1 (hereafter 'Engelmann paper'); *Weltkrieg*, XII, p. 38.

[14]General Staff (Intelligence), *SS. 561: The Principles of Command in the Defensive Battle in Position Warfare* (Army Printing and Stationery Service, 1917).

[15]HSAS, M660/037 Bü 44, Chef des Generalstabes des Feldheeres, *Vorschriften für den Stellungskrieg für alle Waffen. Teil 8: Grundsätze für die Führung in der Abwehrschlacht im Stellungskriege. Vom 1. Dezember 1916*, (hereafter '*Abwehrschlacht*', December 1916).

[16]*Weltkrieg*, XII, p. 32 fn. 2; Oberst Bauer, *Der große Krieg in Feld und Heimat*, 3rd edition, (Tübingen: Osiander'sche Buchhandlung, 1922), pp. 118-119.

Höhn's involvement is important in understanding the dynamics of the drafting process. He was a field artillery officer in the Bavarian army, with experience of commanding heavy artillery. Having trained as a general staff officer, he was posted twice to the Great General Staff in Berlin. He commanded 6th Bavarian Infantry Division from 1913 to early 1915 and then became Third Army Chief of Staff. He was well thought of, and had an ability to process and apply lessons learned. He was removed from his Third Army post in September 1915 after recommending withdrawal in the initial stages of the French offensive. The Army commander thought he had been scapegoated.[17] Höhn's next appointment, as commander of 2nd Guard Infantry Division, bears this out: for a Bavarian to command a Prussian Guard division was a unique distinction.[18] In summer 1916 he took command of 6th Bavarian Infantry Division again and led it through both Verdun and the Somme. The division was heavily engaged when on 25 September Höhn was urgently summoned to OHL, initially simply to discuss artillery–air force co-operation.[19]

Höhn's secondment to OHL at this critical moment is one sign of the importance attached to drafting the new manual. His experience and strengths clearly qualified him for this work. OHL presumably hoped he would lend credibility to the process. Bauer and Geyer had little combat experience, and there was a danger that the manual would be seen as mere theory; there would shortly be mutterings about the young theoreticians around Ludendorff and the excessive paperwork they caused.[20] The German army prided itself on its practical approach to problem-solving: 'Situations which arise in war are so varied and change so quickly that it is impossible to lay down binding rules… Formulas fail'.[21] OHL may well have seen Höhn's up-to-date experience commanding a division as a way of selling the new doctrine to other senior officers.

Although we do not have a copy of Höhn's draft, we can deduce its overall thrust from the *Reichsarchiv* study. The draft contained all the basics of what we now know variously as mobile defence, elastic defence or defence in depth (though these terms

[17]Generaloberst von Einem, *Erinnerungen eines Soldaten 1854–1933* (Leipzig: K.F. Koehler, 1933), pp. 182 and 185.
[18]Fritz von Loßberg, *Meine Tätigkeit im Weltkriege 1914–1918* (Berlin: E.S. Mittler, 1939), p. 167.
[19]Bayerische Hauptstaatsarchiv Abteilung IV: Kriegsarchiv, München (KAM), HGr. Rupprecht neue Nr. 31, OHL to Army Group Rupprecht, 2 No. 35708 op., 25 September 1917.
[20]Max von Gallwitz, *Erleben im Westen, 1914–1918* (Berlin: E.S. Mittler, 1932), p. 158.
[21]Kriegsministerium, *D.V.E. Nr. 53. Grundzüge der höheren Truppenführung vom 1. Januar 1910* (Berlin: Reichsdruckerei, 1913), p. 9.

do not occur in the first two editions of 'Defensive battle'). The main points were that the division assumed tactical control of the all-arms battle, which was to be fought around rather than in the front line. The forward lines were to be thinly manned, and defence was to be in depth. Temporary withdrawal from the forward lines was permissible provided that by the end of the battle the original positions had been recaptured. If positions had been lost, commanders should consider whether recapturing them was worth the cost in men and matériel. The divisional artillery commander assumed control of all artillery allocated to the division.

The finalised first edition of 'Defensive battle' included all these points but added further explanation. It also gave more explicit instructions on conducting the infantry battle and on artillery fire. Importantly, unlike Höhn's draft it described in detail the role and operations of the air force; it added new sections on training, railways and roads; and it gave a fuller description of logistics. Two significant points emerge from this analysis. First, whereas Höhn's draft was in effect a traditional operational manual, the finalised edition was an instruction on how to conduct modern defensive battle. Second, although commentators at the time and present-day writers describe the resulting tactics as new, both Höhn's draft and 'Defensive battle' show much continuity with what had gone before. The October 1915 instructions had begun the stress on deployment in depth.[22] Above all, ideas on mobile battle and artillery organisation had evolved steadily during the Somme. 'Defensive battle' was new doctrine in the sense that there had been no agreed principles on how to conduct such a battle. We should therefore see it as codification of existing practice rather than a radically new departure. It was also new in that its focus was on the all-arms battle at divisional level. The pre-war army was well aware of the principle of all-arms battle, but no specific regulations on it had been issued nor had it been adequately instilled by training.[23]

Units were soon referring to 'Defensive battle' to explain, simplify and supplement their orders.[24] However there was also resistance to the new tactics. Hindenburg later explained the risk in making tactical changes during war. There was the usual problem of overcoming conservatism and misunderstanding which made even peacetime changes problematic; in addition the more flexible tactics placed heavier demands on the courage and skill of the troops, at a time when the quality of the

[22]BA/MA, PHD7/1, OHL circular, '*Erfahrungen aus den letzten Kämpfen*', Nr. 17411 Op., [n.d.], p. 26.
[23]Hew Strachan, *The First World War*, Vol. I: *To Arms* (Oxford: Oxford University Press, 2003), pp. 238-239.
[24]GLAK, 456 F1/374, Seventh Army to its Gruppen, '*Vorbereitungen für die Abwehrschlacht*', Ia Nr. 155/Dez. 16, 28 December 1916.

army had declined.[25] Ludendorff described a furious controversy in OHL over precisely this point. When he visited Western Front headquarters in mid-January 1917, he found that in general 'Defensive battle' was warmly welcomed but that the section on withdrawal was disputed. Resistance by senior officers to the more mobile infantry defence was significant enough to be mentioned in '*Weltkrieg*'.[26]

Two of the main resisters were Fritz von Below and *Oberst* [Colonel] Fritz von Loßberg. As commander and chief of staff of First Army, which had been in the most active area of the Somme battle, they had the latest army-level experience of defensive battle. Their views could therefore not be ignored, and OHL circulated their after-action report in January 1917. Much of it agreed with 'Defensive battle'. But in the important area of temporary withdrawal from the front line, the two documents directly contradicted each other, with First Army repeating its Somme order that defenders must resist to the death if need be.[27] Furthermore, the new regulations on infantry training issued in February 1917 also insisted that infantry squads were to hold out to the last man.[28]

So a major report and a new piece of doctrine both contradicted an important part of 'Defensive battle'. This contradiction has been seen as deliberate testing of 'Defensive battle' at Ludendorff's request, and a sign of the intellectual flexibility of the German army.[29] Just possibly it reflects the different levels of the two doctrinal manuals – 'Defensive battle' was for all-arms commanders at divisional level, the infantry regulations for that arm alone up to regimental level. By the end of the year, OHL was instructing that giving up ground where necessary was a concept for commanders only; troops should simply be told to prepare to hold it.[30] But in wartime circumstances when simplification of methods was a priority, the differences between 'Defensive battle', First Army's report and the infantry regulations were a

[25] Marshal von Hindenburg, *Out of my Life* (trans. F. A. Holt) (London: Cassell, 1920), pp. 262-263.
[26]General Erich Ludendorff, *My War Memories 1914–1918* (London: Hutchinson, 1919), p. 387; BA/MA, Geyer papers, RH61/924, f. 32, OHL memorandum, '*Gesamteindrücke der Westreise*', 21 January 1917; *Weltkrieg*, XII, p. 32.
[27]'*Erfahrungen der 1. Armee*', p. 63.
[28]Kriegsministerium, *Ausbildungsvorschrift für die Fußtruppen im Kriege (A.V.F.)* (Berlin: Reichsdruckerei, 1917), pp. 178 and 226.
[29]Foley, 'Learning War's Lessons', p. 503; Wynne, *If Germany Attacks*, p. 111.
[30]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), p. 167.

potential source of doubt and confusion. Geyer later wrote that First Army's line on rigid defence had seriously impeded the German conduct of war.[31]

The other significant area of dispute was the devolution of control of the battle from corps to divisions, including the main responsibility for artillery. We know that among the resisters on artillery devolution were *Major* Georg Wetzell, head of OHL's operations section, and the commanders of Seventh Army and XIV Corps.[32] We do not know which other corps commanders resisted this devolution, but we can see striking personnel changes at this period. When Hindenburg and Ludendorff took over OHL in August 1916, 18 of the 40 corps commanders in place at the outbreak of war still held their original jobs. Between then and the opening of the Entente spring offensive in April 1917, 13 of them – one-third of the corps commanders on the Western Front – moved to other jobs or were sacked. We cannot tell if this was a deliberate clear-out, but the removal of so many of the original corps commanders was certainly convenient in terms of breaking any resistance to the new tactics.[33]

OHL knew that to make the new doctrine reality, it needed to be inculcated by training. Shortly after 'Defensive battle' was issued, OHL ordered the establishment of courses to test the tactics and to train the division-level officers who would implement them.[34] The first course was piloted by Army Group Rupprecht in February 1917. Soon after, a similar course was introduced in Army Group Crown Prince. Courses lasted for a week and consisted of classroom explanation with practical demonstrations on an exercise ground. 60–100 officers attended each course. They were mainly divisional and brigade-level commanders and staff officers from Western Front units; but officers from the Eastern Front, OHL, Ministry of War, the Navy and allied armies also attended.[35] The courses acted as a link between current practice and doctrine. Students were expressly encouraged to discuss their experiences and make proposals about the new tactics. Courses were adapted as experience accumulated. In particular, at about the time they started, the Germans captured a French order explaining the tactics of the forthcoming offensive. Teaching

[31]Matthias Strohn, *The German Army and the Defence of the Reich: Military Doctrine and the Conduct of the Defensive Battle, 1914–1939* (Cambridge: Cambridge University Press, 2011), p. 55.

[32]Bauer, *Der große Krieg*, p. 119; GLAK, 456 F1/374, Seventh Army to OHL, Ia Nr. 61, 10 December 1916; Gallwitz, *Erleben im Westen*, p. 152.

[33]Figures calculated from author's database.

[34]Otto von Moser, *Feldzugsaufzeichnungen 1914–1918 als Brigade-, Divisionskommandeur und als kommandierender General*, 3rd edition, (Stuttgart: Belser, 1928), p. 266.

[35]*Weltkrieg*, XII, p. 59; Moser, *Feldzugsaufzeichnungen*, pp. 271-276.

students how to defeat these then became the main subject on the course. OHL students, including Geyer, could keep up to date with best practice as they were developing doctrine.[36]

It is clear that these courses were important to OHL. In Army Group Rupprecht, a reinforced infantry division demonstrated the tactics. The choice of the first course leader, General Otto von Moser, was also significant. From his pre-war and wartime career, he had experience in explaining theory, commanding troops of different qualities in different situations and winning a recent defensive action on the Somme. Like Höhn he added credibility to the new doctrine and was soon given a corps command, a sign of high-level approval of his work.

Four courses had been held in the Army Group Rupprecht school by the opening of the Battle of Arras, and three in Army Group Crown Prince by the start of the Nivelle Offensive. 500–600 officers may have been trained by mid-April 1917. This output was impressive, but two questions arise about the practical effect of these courses by the time the Entente offensive began. First, the subject matter was complex and the courses short. Moser commented that the new defensive tactics placed much higher demands on divisional commanders, because they now carried the main responsibility for the battle. Many of them had only recently assumed command. They had previously led single-arm brigades, which tended to instil a certain narrowness of vision. Moser stressed during the courses that divisional commanders must constantly concern themselves with all-arms co-operation and training.[37] They were aided by their general staff officers, but there were concerns as to their lack of experience too.[38]

This leads to the second question: even assuming the students absorbed the course content, to what extent were they able to make use of their new knowledge in the short time before the Entente offensive began? The first course ended on 16

[36]HSAS, GU117 Bü 362, General Karl Ritter von Wenninger, '*Französisches Durchbruchs-Verfahren*', lecture to the fourth divisional command course in Valenciennes, 28 March–3 April 1917, p. 7, and '*Einleitender Vortrag des Kursleiters*', lecture to the fifth divisional command course in Valenciennes, 14–16 April 1917 (hereafter '*Einleitender Vortrag*'), pp. 2-4.

[37]Moser, *Feldzugsaufzeichnungen*, pp. 270-271. Christian Stachelbeck, *Militärische Effektivität im Ersten Weltkrieg: Die 11. Bayerische Infanteriedivision 1915 bis 1918* (Paderborn: Schöningh, 2010), p. 182 quotes a divisional commander and his general staff officer commenting that the material on the Army Group Crown Prince course was actually rather simple.

[38]Hermann von Kuhl, *Der deutsche Generalstab in Vorbereitung und Durchführung des Weltkrieges*, 2nd edition (Berlin: E.S. Mittler, 1920), p. 187.

February, and the bombardment for the battle of Arras began on 4 April, only seven weeks later. Subsequent courses had even less time before battle. Nor were they taking place in a vacuum. Fighting continued on the Somme in February. Even more important, preparation for and implementation of the withdrawal to the Hindenburg Line took up a great deal of mental energy and time until it was successfully completed on 18 March. Evidence from later in 1917 suggests that months after the courses began the new tactics were still not being completely implemented.

It was clear that the army would require considerable training if it was to adopt the new tactics successfully. OHL and army groups attempted to ensure that divisions got at least three weeks' training time.[39] But the same events which took up the attention of commanders as well as assignments to labour on defences and the severity of the winter all disrupted the programme. 50th Reserve Division reported that its training for the new tactics had been undesirably limited. 17th Reserve Division was still issuing orders based on the old tactics as late as 28 March, just two weeks before it faced the British attack at Arras.[40] At the other end of the scale, 3rd Bavarian Infantry Division had been practising automatic counterattacks for months. Three divisions had acted as demonstration units for the command courses, and a fourth had just started.[41] These stints were generally short but at least gave the divisions a practical understanding of the new tactics which they would shortly employ in battle. The official verdict was that a considerable number of divisions on the Western Front and a few of those arriving from the east did receive a block of three weeks for rest and training.[42] But there were clearly substantial differences between divisions.

On 1 March 1917, OHL issued an updated version of 'Defensive battle'. Its title called it a reprint of the December edition. But it included important changes and considerable extra detail, and was therefore actually a second edition. Input for its drafting came from teams of experienced officers and from Moser's command course. Moser's point about the inexperience of many divisional staffs in all-arms warfare may explain the extra length of the new edition. Much of this comprised added clarification of the principles involved. The edition included more guidance on how artillery and infantry should conduct the defence, with greater emphasis on immediate counterattacks. It was couched more in the form of orders than the

[39] *Weltkrieg*, XII, p. 55.
[40] KAM, AOK 6 Bd. 419, 50th Reserve Division, I Nr. 1764/17, 8 June 1917; BA/MA, PH10-II/97, 76th Reserve Infantry Regiment order, I/1444, 10 March 1917 and 17th Reserve Division, Abt. I Nr. 815 geh. and 816 geheim, 28 March 1917.
[41] '*Einleitender Vortrag*', p. 2.
[42] *Weltkrieg*, XII, pp. 55-56.

recommendations in Höhn's original draft – possibly reflecting greater confidence that the principles it was expounding were correct.[43]

Given the resistance to the new tactics, the most important changes in content related to control of artillery and withdrawal. The second edition confirmed the subordination of most artillery to divisions by further restricting corps control and the role of senior corps artillery officers. On withdrawal, both first and second editions authorised moving to the side, rear or forwards to escape enemy fire or attack, provided the original position was subsequently reoccupied. The second edition expressed a strong preference for moving forward, with detailed reasons, and stressed that higher-level commanders were not to hold ground rigidly. On deciding whether to evacuate a position permanently, the first edition had placed the responsibility on division, or in urgent cases brigade or regiment commanders. The second edition moved the responsibility upwards, to army or corps; and divisions could decide only in the most urgent cases. This shift illustrates trench warfare's erosion of the traditional mission command, in which commanders explained their intention and allocated missions but left subordinates free to decide how to execute the mission. And we should probably see changes to both forms of withdrawal as a means of placating resistance to the new tactics.[44]

The Test of Battle and Further Development of Doctrine

The Anglo-French Entente spring offensive of 1917 began with a serious German defeat at Arras, but that was its high point. Subsequent British and French tactical gains and captures of men and matériel bore no relationship to the plans for a breakthrough, the hopes of the soldiers or the casualties suffered. The German high command was naturally delighted by this success. Seventh Army, facing the French assault, wrote that 'Defensive battle' had made an outstanding contribution to victory. In particular, it had guaranteed a uniform approach before and during the battle, without restricting commanders' freedom of action. 50th Infantry Division, which had made an only partly successful counterattack on 16 April, commented

[43]Stachelbeck, *Militärische Effektivität*, p. 164 fn. 564; Moser, *Feldzugsaufzeichnungen*, pp. 271-272; Engelmann paper, pp. 1-2.

[44]'*Abwehrschlacht*', December 1916, 15; Chef des Generalstabes des Feldheeres, *Vorschriften für den Stellungskrieg für alle Waffen. Teil 8: Grundsätze für die Führung in der Abwehrschlacht im Stellungskriege. Vom 1. Dezember 1916. Neudruck vom 1. März 1917* (Berlin: Reichsdruckerei, 1916), 6b, 15 and 24; '*Einleitender Vortrag*', pp. 20-21. Definition of mission command from Colonel Balck, *Tactics*, 2 vols (trans. Walter Krueger) (Fort Leavenworth, Kansas: U.S. Cavalry Association, 1915), I, *Introduction and Formal Tactics of Infantry*, p. 41. Modern British doctrine defines mission command as 'centralised intent and decentralised execution': Ministry of Defence, *Army Doctrine Publication: Operations* (London: Ministry of Defence, 2010), para 0621.

that commanders and men felt themselves absolutely the superior of the enemy, even if the objectives had not been completely reached; the feeling of having a certain freedom of movement in tactical procedures also cheered everyone up. Many other units were equally positive.[45]

It is worth looking in more detail at one action during the Entente spring offensive, by 3rd Bavarian Infantry Division, since Army Group Rupprecht and OHL viewed it as a model application of the new tactics. The division was deployed for 15 days at Arras. Its commander, General Karl Ritter von Wenninger, had replaced Moser as head of Army Group Rupprecht's divisional command course. He therefore had at least a theoretical understanding of the new tactics when his own division went into action on 11 April in the chaotic circumstances, including lack of fixed defences, caused by the British success when the battle started.[46]

Wenninger initially ordered the construction of a traditional continuous front-line trench, backed by machine-gun nests with all-round barbed wire protection. His subordinates protested that this would be too visible from the air and could be easily destroyed. Wenninger let himself be persuaded to fight instead using the shell-hole positions created by the bombardment, and he later conceded that his subordinates had been right. He commented that the division in effect fought a defensive battle in the open field and on the basis of the new doctrine. A key element of the defence was the deep zone [*Tiefenzone*] between the thinly held front line and the second or main combat line [*Hauptkampflinie*] some 500–1000 metres behind it. In this zone were concealed the immediate supports and reserves as well as most of the machine guns and trench mortars. The zone was backed by a third line two kilometres to the rear, the whole forming the 'first position' [*I. Stellung*]. The *Wotan-Stellung* (called the Drocourt–Quéant Switch by the British), still under construction, would form a second position three to four kilometres further back.

As the British artillery could not easily identify the important points of resistance, it was forced to divide its fire and it could often not directly support its infantry. The immediate counterattacks which 3rd Bavarian Infantry Division had practised were extremely effective against the British infantry, which often surrendered freely. The

[45]GLAK, 456 F1/523, Army Group Crown Prince to OHL, '*Zusammenstellung einiger Lehren aus der Doppelschlacht Aisne-Champagne*', Ic Nr. 2880, 8 June 1917; 50th Infantry Division report, '*Erfahrungen der 50. Inf. Div. aus dem Angriff der Franzosen am 16. April 17*', [no reference or date]. GLAK, 456 F1/523 is the main collection of Seventh Army after-action reports on the Nivelle Offensive. KAM, AOK 6 Bd. 419 has the Sixth Army reports on Arras.

[46]This account is from 3rd Bavarian Infantry Division's after-action report, KAM, AOK 6 Bd. 419, '*Erfahrungen aus den Kaempfen bei Arras*', 6 May 1917.

defence was aided by the British infantry's lack of skill, and by the rigid nature of British artillery fire which could usually be avoided. Despite the huge volume of British shelling, the division's casualties were little more than a third of what it had suffered on the Somme. Summing up, Wenninger believed that the new tactics saved lives and raised morale.

Of course not everything had gone as well as this. The disaster on the first day of the Battle of Arras had sparked near panic in the German command followed by a search for the alleged culprits and, more productively, for lessons learned.[47] OHL deduced and promulgated the initial lessons from Arras by 12 April. There were three: divisions whose combat capability had already suffered had not been replaced in time; the artillery had not been active enough during the British bombardment; and in particular reserves had been kept too far behind the front. Army Group Crown Prince, about to face the French assault, began to apply these lessons immediately.[48]

Circulation of lessons learned continued during the offensive. 3rd Bavarian Infantry Division's action was used as an example of best practice. On Army Group Rupprecht's orders, in early May Wenninger gave a talk on 'mobile offensive defence' followed by a demonstration on the ground. About 1500 officers attended, including both army and most corps and divisional commanders from Second and Sixth Armies.[49] The talk aroused wider interest, and the printed version was requested by, among others, Fritz von Below, still commanding First Army and now facing the French on the Aisne.[50] In his talk, Wenninger stressed that he was describing the experiences of only one division in one set of circumstances; this could not be generalised to cover all situations. However, Army Group Rupprecht had the bit between its teeth. It submitted a report describing the division's experiences in detail and recommending further development of tactics. Even the 'Defensive battle' principle of conducting the fight around rather than in the front line did not go far enough given the new power of the enemy artillery. The battle should be fought in a

[47]Jonathan Boff, *Haig's Enemy: Crown Prince Rupprecht and Germany's War on the Western Front* (Oxford: Oxford University Press, 2018), pp. 159-161 argues that the lessons-learned process after the initial defeat at Arras lacked objectivity and sought to throw blame on individuals rather than the new defensive tactics. See also Jack Sheldon, *The German Army on Vimy Ridge, 1914–1917* (Barnsley: Pen & Sword Military, 2008), Chap. 8.

[48]*Weltkrieg*, XII, p. 291.

[49]BA/MA, Otto von Below papers, N87/61, Otto von Below unpublished manuscript, '*Lebenserinnerungen. V: Frankreich*', 7 May 1917.

[50]KAM, AOK 6 Bd. 419, Sixth Army to Wenninger, Ia Nr. 32877, 9 July 1917.

still more mobile fashion, over a greater depth; more use should be made of shell-hole positions and less of properly constructed defences.[51]

This is a clear example of the bottom-up influence of experience on doctrine: 3rd Bavarian Infantry Division's regiments had persuaded it to change its procedures, and the resulting success persuaded the army group too. However, what happened next shows the limitations of this process. Asked for its views on Army Group Rupprecht's proposals, Army Group Crown Prince commented maliciously that the initial defeat at Arras had forced the defenders back into open and unfortified terrain. The more mobile method of fighting then adopted made sense in those circumstances but should not be seen as generally valid. If Army Group Crown Prince had used the same method, it would have had to abandon the two crucial positions in its area. The defensive battle must be for possession of the forward position, not least because units must know what ground they were to hold.[52]

Despite the efficiency with which lessons were deduced from the initial defeat at Arras and then applied, there were concerns about the after-action reporting system and throughout 1917 steps were taken to tighten it up. On 25 April, Army Group Rupprecht complained that some reporting on the initial defeat at Arras had still not arrived. By then the second phase of the battle had taken place, and the army group ordered that once relieved divisions were to report quickly and concisely on points which it specified in detail.[53] Later in the month, OHL commented that units were protesting about being swamped with material. After-action reports should only be directly circulated if necessitated by urgent or local circumstances. OHL would summarise and issue reports worth broad circulation. This would also avoid units having to adapt to new tactical orders, some contradicting regulations, each time they changed sector.[54]

Over the summer, OHL moved to synthesise lessons learned from the spring offensive, issuing four doctrinal documents of ascending weight. It began with short instructions in early May while the battle was still in progress, followed a month later by a substantial 'Special manual'. This departed from the traditional German approach to doctrine, which was understood as less rigid and more open to the

[51]GLAK, 456 F1/523, OHL to Western Front army groups and armies, I. Nr. 54446 geh. op., 6 May 1917.
[52]GLAK, 456 F1/523, Army Group Crown Prince to OHL, Ia/Ib Nr. 2605, 8 May 1917.
[53]KAM, AOK 6 Bd. 419, Army Group Rupprecht to its armies, Ic No. 2881 geh., 25 April 1917.
[54]HSAS, M660/038 Bü 17, f. 45, OHL circular, II Nr. 57804 op., 16 June 1917.

exercise of judgement than in the British army.[55] OHL now insisted that to ensure uniformity the manual was to be regarded as binding. Together, these two documents stated that the defeat of the spring offensive had proved the principles in 'Defensive battle' and 'Field fortifications'; however, the principles had not yet become second nature to the army and various points needed improving.

OHL adopted a middle position between the two army groups' views on how to develop tactics. The defence should generally be mobile and aggressive. Only in very rare cases did the front line have to be held under all circumstances. Thin manning of the front and deployment in depth were correct but must be backed by reserves and, when needed, counterattack divisions [*Eingreifdivisionen* – the first use of this term in official doctrine]. These divisions must be close enough to intervene quickly but not so close that they became fought out from excessive casualties. Forward lines should usually be treated as advanced positions [*Vorstellungen*]. But it was impossible to renounce all defensive construction and fight a purely fluid battle. Fixed defences, especially to the rear, were important for economising on manpower in ordinary trench warfare and were crucial to proper command and supply arrangements in major battle; also, they forced the enemy to make time-consuming preparations to deal with them.[56]

The final step in updating doctrine was the publication of new editions of 'Field fortifications' in August and 'Defensive battle' in September. The latter was a major re-write, half as long again as its March predecessor. The section on artillery still occupied about a third of the total. The biggest changes related to the infantry and air force. The infantry section included important new instructions on the establishment of a lightly-held forward zone [*Vorfeldzone*], and in particular the difficult question of how toughly it was to be defended. More stress was laid on the need to fight a mobile battle in the whole depth of the defensive position. Other new content covered counterattack divisions, the increasing role of communications and the light-machine gun, introduced much more widely in the army since the spring battles. The section on the air force more than doubled in length and now included instructions on gaining air superiority. Finally, greater emphasis was put on training as the cornerstone of a unit's quality.[57]

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[55]Strohn, *Defence of the Reich,* p. 14.

[56]HSAS, M660/038 Bü 17, f. 38, OHL circular, II Nr. 54472 op. , 5 May 1917; Chef des Generalstabes des Feldheeres, *Sonderheft zum Sammelheft der Vorschriften für den Stellungskrieg. Vom 10. Juni 1917* (GHQ: Druckerei des Chefs des Generalstabes des Feldheeres, 1917).

[57]Chef des Generalstabes des Feldheeres, *Vorschriften für den Stellungskrieg für alle Waffen. Teil 8: Grundsätze für die Führung der Abwehrschlacht im Stellungskriege. Vom 1. September 1917* (Berlin: Reichsdruckerei, 1917) (hereafter '*Abwehrschlacht*',

The Germans won another important defensive victory at Third Ypres in autumn 1917. The new tactics have been viewed, especially in the older historiography, as a prime reason for German defensive successes in 1917. There seems little doubt that despite some continuing dissent (see below), they were broadly welcomed as helping to reduce casualties and raise morale. The Entente were impressed too: the British official history commented favourably on the German army's management of battle, especially the constant flow of reserves, and skilfully conducted counterattacks.[58]

There are two objections to this view of the new tactics as the decisive factor in these German successes. First, they were only part of the story. Western Front battles were complex, operational-level actions and many factors explain their outcomes, including effective logistics and intelligence. Equally significant was enemy performance: French and British operational and tactical abilities were clearly not adequate to achieve a breakthrough.[59] Second, the new tactics were no panacea, and there was almost no way of preventing the success of properly conducted Entente 'bite and hold' attacks with limited objectives. This was not a new problem, but it became increasingly difficult as the Entente adapted to German tactics in the continuous Western Front process of introducing or reacting to tactical and technical innovation.

Between June and November the Germans suffered six heavy local defeats.[60] At each of these battles there were problems relating to some of the core elements of mobile defence, especially withdrawal and counterattacks. The obvious remedy to Entente tactics was to withdraw before the assault. The withdrawal to the Hindenburg Line was a successful example at the strategic level which pre-empted part of the Entente spring offensive. 'Defensive battle' allowed for withdrawal rather than attempting to retain unfavourable positions, and indeed Sixth Army evacuated the untenable Lens salient in June.[61] But withdrawal had been considered and ruled out before three of the six defeats mentioned, Messines, Verdun and Malmaison. One common factor was mission command: the two army groups concerned had

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September 1917). Engelmann compares the March and September editions of 'Defensive battle' in detail.

[58]Captain Cyril Falls, *Military Operations: France and Belgium, 1917*, Vol. I: *The German Retreat to the Hindenburg Line and the Battles of Arras* (London: Macmillan, 1940), pp. 553-5.

[59]Cowan, 'Genius for War?', pp. 259-61.

[60]Messines (June), Verdun (August), Menin Road (September), Polygon Wood (September), Broodseinde (October) and Malmaison (October). Cambrai (November) is excluded as a special case.

[61]'*Abwehrschlacht*', March 1917, 6b; Below, '*Lebenserinnerungen*', 19 and 21 June 1917.

advocated pre-emptive withdrawal but let themselves be convinced by local objections based on a variety of practical and emotional reasons.[62] The two army groups' failure simply to issue orders for withdrawal shows how mission command could become weakness of command.

A linked problem was the question whether to hold or abandon the Forward Zone. The September edition of 'Defensive battle' stated clearly that temporary evacuation of positions was allowed, as long as they were completely recaptured by the end of the battle. However, it also stated, rather less clearly, that local commanders had to decide in every case how toughly to defend the Forward Zone; this was recognised to be a particularly difficult decision.[63] Some senior officers continued to oppose the whole idea of flexible defence. General Gerhard Tappen, a divisional commander at Third Ypres, commented that the new tactics caused what he bitterly called the 'victorious retreats' of 1917–1918. They showed the troops that enemy fire could be escaped by withdrawal. Also, if the Forward Zone was given up it either had to be recaptured, often with heavy casualties, or established further back to regain the defensive depth lost by the withdrawal.[64]

An integral part of mobile defence was counterattack to recapture ground temporarily lost or given up. In the spring fighting, automatic counterattacks from the rear had often worked, and throughout 1917 local efforts could be very successful. But as Entente barrages became thicker and longer, large-scale counterattacks from the rear became increasingly difficult to mount: this was a concern to Army Group Crown Prince as early as 24 April.[65] At Verdun in August and at Third Ypres in the autumn, counterattacks from the rear arrived late and suffered heavy casualties. The alternatives were to avoid the enemy barrage by moving the counterattack units forward before it started, or by reverting to the older tactic of holding the front line more thickly. But both these methods led to the premature exhaustion of the counterattack troops as well as heavy casualties; and the front positions were overrun anyway.[66]

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[62]Hermann von Kuhl, *Der Weltkrieg 1914–1918*, 2 vols (Berlin: Wilhelm Kolk, 1929), II, pp. 113-114; BA/MA, N58/1, Graf Friedrich von der Schulenburg-Tressow unpublished manuscript, '*Erlebnisse*', p. 160.

[63]'*Abwehrschlacht*', September 1917, 6c and 39.

[64]BA/MA, RH 61/986, Gerhard Tappen unpublished manuscript, '*Meine Kriegserinnerungen*', p. 62. See also Stachelbeck, 'Lessons learned', pp. 134–135.

[65]GLAK, 456 F1/249, Army Group Crown Prince to Seventh Army, Ia 2431, 24 April 1917.

[66]Nick Lloyd, *Passchendaele: A New History* (London: Viking, 2017), Chaps. 10-12.

Conclusion

Although contemporaries referred to the 'new' German tactics of 1916–1917, most of the constituent parts had evolved gradually from the beginning of trench warfare and especially during the battle of the Somme.[67] The tactics were new in the sense that there was a new codification of existing best practice into doctrine, rather than the introduction of something radically different from what had gone before. The doctrine was promulgated by the publication of manuals such as 'Defensive battle' which explained to the army what actually constituted best practice. After-action reports, though important, were no substitute. Wenninger was not alone in commenting that his division's action represented one experience in one particular situation. Standardisation of procedures throughout the army was crucial to all-arms co-operation, and this could only be achieved by doctrine. Doctrine was anyway ultimately based on experience, including after-action reports. It was not necessarily particularly behind events, as manuals could quickly be supplemented by interim amendments and special instructions which were then incorporated into subsequent editions.

Doctrine was therefore more than a static paper exercise. There was a continuous cycle of action, after-action reports, discussion, synthesis into and promulgation of doctrine, followed by training at different levels and then the beginning of the next cycle.[68] Throughout 1917 OHL increasingly took control of this process, by ending broad circulation of after-action reports and by insisting on the binding nature of doctrine. This contributed to limitations on mission command, which were partly a consequence of trench warfare and partly the result of increasing micro-management by Ludendorff at OHL. Nevertheless, there was still plenty of scope for human factors to play a role. Officers such as Höhn and Moser who drafted doctrine and led training on it were carefully selected to lend credibility to the process. However, as a fallible human organisation, the German army's record in implementing doctrine was patchy. Enemy adaptation was one reason for this, but another was forgetting lessons already learned: indeed, some tactical mistakes which the army had cured in 1917 recurred during the final campaign of the war in 1918.[69] So doctrine was key to German performance but could never be perfect or perfectly implemented.

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[67]Ralf Raths, *Vom Massensturm zur Stoßtrupptaktik. Die deutsche Landkriegtaktik im Spiegel von Dienstvorschriften und Publizistik 1906 bis 1918* (Freiburg: Rombach, 2009), pp. 203-18 suggests that many of the changes stemmed from pre-war thinking.

[68]For parallels and differences with the British army's learning processes, see Aimée Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914–1918* (Cambridge: Cambridge University Press, 2018).

[69]Boff, *Winning and Losing*, Chaps. 6 and 8 and pp. 246-7.