



## 10. Conclusion: The Artilleryman's Place

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Success can consist of meeting targets, even if meeting them falls short of absolute success. Few would say the First World War was an absolute success, and most of the blame has been pinned on the "donkeys"—the generals. The time absorbed by arraigining culprits has largely precluded consideration of the lesser definitions of success. Artillery is often brought in to debates over how the war should have been fought, debates that implicitly assume it was fought the wrong way and that the ultimate victory of 1918-19 was tainted. Yet imposing this view on the evidence will automatically distort the results, for it takes little account of the views of the participants, the people who actually made the decisions. How well did the artillery meet the goals set for it at the time, bearing in mind that those goals changed over time?

At the time, the British army divided itself into three categories: first, the combat arms; second, those who supported the combat arms in battle (combat support); and (a distant) third, various non-combatant (support) organizations. Infantry and cavalry were naturally combat arms, and it was equally clear that the Royal Army Veterinary Corps and Army Pay Department were support organizations. For the Royal Engineers and Royal Artillery the situation was murkier. Engineers used their specialized equipment and knowledge to help all parts of the army, but would fight when needed. Their attachment to combat units also emphasized that they were a combat support rather than a combat arm. The case of the artillery was rather different. Their specialist tools were weapons. Yet at the same time, artillerymen were seldom in the front line, and thus did not come to grips with the enemy. There was no question that gunners were fighting, but were they a combat arm? If they were a supporting arm, how should they best provide that support? Who should take the lead in planning, and who should make the final decisions?

The views of artillery officers on the artillery's role in the army are the critical starting point for judging what they should have done. Before and during World War I, artillerymen senior enough to affect policy almost unanimously believed that artillery should support the combat arms but that it was not itself one. This answer was reached not philosophically but practically: by itself, artillery fire neither gained nor held ground; its firepower might (as in the nineteenth century) occasionally win battles, but certainly not wars. The army-wide position was that the assault "*is made possible by superiority of fire,*" but that firepower was not itself decisive. <sup>1</sup> Artillerymen agreed. The assumption was so common, it was generally unspoken during the war, but it had been thoroughly discussed beforehand when adopting new equipment and developing doctrine to match it. The corollary was that artillery should do whatever it could to help the troops in contact with the enemy, doing what the combat troops wanted even if the artillerymen thought they had a better idea.

This was the combined product of pre-war theory and practice. Artillerymen had closely examined their performance in South Africa to learn lessons for a European war. The Boer War offered lessons, but it was not the only influence. The deliberations changed back when the new quick-firing guns created a reversal of the South African experience, where infantry and cavalry had been separated from artillery on the battlefield. Separation had bad results in South Africa, and the artillery were right to try to improve, but were wrong to assume that gunshields a few millimeters thick obviated the need for better communications. Communications were neglected in favor of voice command and proximity—batteries would surely, and brigades would probably, be under their commander's eye. Foreign experiences and ideas were not ignored. British observers watched the Russo-Japanese War closely, and French artillery doctrine heavily influenced the Royal Artillery. All this, but especially the new technology, combined to allow a return to the old style of operations, with guns dispersed and placed forward in close support of infantry and cavalry. In doing so another opportunity was lost, since nothing could be done if these predictions proved wrong. The system was overly decentralized, and also lacked the means to centralize. It would be years before the authority was granted to centralize, let

alone means to implement it were developed.

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The idea of subordination was not universal, and the exceptions ought to be re-examined. Before the war, the only challenge to this view came from from Manchurian experiences, but they only percolated slowly through the British forces. <sup>2</sup> The great bulk of the army, and artillery, accepted *FAT's* flat statement:

*Artillery cannot ensure decisive success in battle by its own destructive action. It is the advance of the infantry that alone is capable of producing this result. ... To help the infantry to maintain its mobility and offensive power by all the means at its disposal should be the underlying principle of all artillery tactics.* <sup>3</sup>

Disagreement first cropped up early in 1915. Facing the novel conditions of trench warfare (of unknown duration but expected to be short), the BEF had to decide how to react. One option was to radically overhaul the whole army and change the priorities among its elements, which might have given the artillery a higher priority, along with other technical elements. Another option was to continue more or less as things stood, but to say that at times artillery would be the key element, either during some period of all battles, or for the whole of certain battles. Many senior generals mulled this over, wondering if trench warfare was an entirely new kind of fighting that called for the abandonment of previous military thinking. If they thought of serious changes, typically they envisioned large amounts of artillery pummeling an area before the infantry advanced, obliterating defenders, trenches, and machine-guns alike, an approach that would later be termed 'artillery conquering, infantry occupying.' Yet these grand schemes all foundered on the shortages of guns and shells at a time when even small battles were fought hand-to-mouth. Once discarded, the possibility of fundamentally altering the army's way of fighting was not readily re-examined, especially as the war developed a momentum of its own.

Even though the general principle had been rejected, exceptions to the old methods might still happen. There were calls for particular battles to be fought more by the artillery and less by the infantry. Yet most of these calls came not from artillery officers, but formation—army or corps—commanders. It was Rawlinson who wanted to limit the first attack on the Somme, not Birch or Budworth. Horne set limits on the advance up Vimy Ridge, and Currie chose to fight behind a curtain of shellfire at Hill 70. Rawlinson, Haig, and the commander of XV Corps all agreed that artillery was dominant in the coastal sector during Third Ypres. Naturally these generals had artillery advisors, but the final decision lay with them, not with the artillerymen.

In abstract terms, once artillerymen decided that their role was to support others, the next question was how best to do so. Artillerymen generally offered support however it was requested instead of conceding the principle but balking at the practice. Thus bombardments would be long or short as the overall formation commander wanted. He would set the priority for counter-battery fire, and he would set the pace for the creeping barrage. <sup>4</sup>

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Yet supporting as requested did not mean that the artillery—or the BEF in general—was stuck in the methods of 1914. New methods were developed, and they were spread around the army. This does not mean that everyone had to understand how the artillery performed its new tactics, but they did need to understand how those tactics could affect them. If infantry or tanks developments were not in step with the artillery, there might be a delay before something new from the artillery percolated through to combined operations. Thus predicted fire, a technique developed in mid-1917, was not widely used tactically until it was married with tanks in the Battle of Cambrai in late November. Furthermore, the preferences of the supported arm had to be humored, at least until new ideas had permeated sufficiently thoroughly to produce a new orthodoxy. As a result, there were frequent excessive bombardments in 1917, and the infantry were given the creeping barrages they craved throughout 1917 when, by later in the year, there were probably

better ways to provide support, and certainly other things for the guns to be doing. Not until late in the year was there much change from uniform creeping barrages, and even that change was partly reversed in 1918, because heavy casualties had weakened the infantry, who then needed maximum support. It might also be that the requests for support changed rapidly, as with tanks needing increasing protection against anti-tank guns.

Under the circumstances artillerymen had a choice: to do what was requested, after explaining their situation and suggestions, or to attempt to over-ride the views of the men facing combat. They chose the former. Had they not, memoirs and histories would have a very different slant. Birch himself felt this point keenly, relieving his frustrations in a letter: "I have never ceased rubbing it into the General Staff that higher commanders of formations must really study artillery tactics of the present war type." <sup>5</sup> Since artillery tactics did change, this meant that senior commanders were continually studying, and changing.

But Birch's lament does reveal that many commanders were more than willing to issue orders *without* such study. Rawlinson, when planning the battle of Neuve Chapelle, first disagreed with the ideas produced by a conference of artillery officers, then cajoled Haig into agreeing with his own ideas. <sup>6</sup> Rawlinson can be excused for not studying artillery tactics in detail, as there was hardly any precedent to study. Fifteen months later, Rawlinson planned the Somme offensive with his Chief of Staff and MGRA. <sup>7</sup> It so happens that the pair were both artillery officers, but they settled the matter amongst themselves and then left the juniors—who had more front line experience—only to fill in the details. <sup>8</sup> The next year Haig, for all the attention he paid to Birch, might still not grasp the full situation. Examining the thorny situation of the coastal sector around Nieuport, Haig came to the right decision but for the wrong reasons. <sup>9</sup> These examples could be multiplied to little purpose; senior officers underplaying technology is one point upon which almost all histories justifiably agree.

At the same time, it was not a question of the artillerymen allowing the infantry (or any other single interest) to dictate operations. Artillerymen had views, and did not shy away from presenting them. Hugh Tudor admitted (and perhaps boasted about) his subterfuges as CRA of the 9th Division, and his preferences strongly affected that division's barrages. <sup>10</sup> Birch despaired of infantrymen who depended on a "creeper ... [to] take them to Berlin." <sup>11</sup> Kirwan and Budworth played key roles in preventing heavy losses in the Nieuport area by obtaining an exemption from the BEF's ordinary vigorous counter-battery operations. <sup>12</sup> Nor did the infantry have things all their own way in planning. Complaints were rife that attacks were launched—and lives hazarded—without adequate preparations, without support, without rest, or in inclement weather. Higher commanders had to weigh these risks against other factors: domestic political pressure, alliance political pressures, weather prospects, and their own theories of military operations. Just as infantry preferences usually outweighed those of the artillery, these issues generally overbore infantry considerations. All this took place under circumstances of more uncertainty than those under which most historical analysis is written, and it is understandable, while still lamentable, that judgments were not perfect.

The BEF's first serious trench-warfare attack came before a key debate was over. The question was whether the present war overturned all previous military lessons, or whether adaptations of classic principles would be enough. Planning for the Neuve Chapelle bombardment took place in this milieu, and was a lucky stab rather than good planning. Bombardments varied over the subsequent years, depending not so much on the artillery as on the infantry and what they needed done. Artillerymen did what they could to help the infantry, even if that usually came up short. There were times when it was known that artillery would be inadequate, perhaps most obviously at Loos, but even then there were powerful reasons to attack, especially alliance pressures. Regardless, the decision lay with GHQ rather than with any artilleryman. The earliest hopes for bombardments were that the guns need only sweep away obstacles between the British and German infantry. This was

not enough—it almost never would be—and some destruction of defenses was necessary as well. The amount of destruction, and the relative importance of various target categories, would vary depending on the wishes of the British infantry (and of course on the German defenses, troops, and doctrine).

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When British infantry were judged to be so poor that tactics boiled down to lines steadily advancing, more destruction was obviously needed. The gunners did the best they could. As the British infantry improved, the Royal Artillery could shift to other tasks. Technical skills in the artillery improved too, over time allowing more sophisticated employment, yet because it was a supporting arm adoption of new artillery tactics generally waited upon other arms. Infantry skills and weaponry continued to improve through 1917, allowing a shift in use of artillery from blowing a hole for the infantry to fighting a deeper battle, even evolving away from bombardments into other facets of artillery work, especially counter-battery fire and the creeping barrage. In 1918, after the severe infantry losses from the German spring offensives, artillery compensated by partially reverting to heavier bombardments. Experienced formation commanders knew the strengths and weaknesses of their units and used infantry, artillery, tanks, cavalry, and aircraft more effectively and efficiently than they had in 1916. Thus the use of artillery bombardments had changed, a change not pushed primarily from within the artillery but by changes in the whole BEF.

Counter-battery fire changed as well. Originally it had been thought of as an artillery duel, with batteries firing at each other as if they were chess pieces canceling each other. If gunners wanted to move away from the strictures of FSR, they could have turned counter-battery work into a private war. In the early stages of the war the Germans had more and heavier guns, and protecting British troops was the primary counter-battery task. It never declined. Instead, as German defensive tactics changed to using more artillery (and firepower in general) and less infantry (manpower), the BEF put more and more effort into counter-battery work. It was so important that Haig checked planning details, and perhaps the apogee was the suggestion to blow the mines under Messines Ridge just to provoke the German artillery. Much of the effort that in earlier years had gone into bombardments was switched to counter-battery fire, a mark that the bombardments had been successful, since the Germans had to change their defensive tactics. Technical and organizational changes came thick and fast, but throughout the upheavals, and despite the autonomy of Counter-Battery Staff Officers, the purpose and practice of counter-battery work remained firmly directed toward protecting others.

Barrages of fire were developed during the war to support the infantry, a new method that replaced the older form of direct-fire support during an attack. They developed because support was still necessary; the hope that the British infantry needed only a bombardment to open the way was punctured almost with the first machine-gun burst. Experience showed that British infantry lacked enough intrinsic firepower even after the German defenders had been bombarded for days, so artillery was called upon for another service. Once there were enough heavy guns for bombardments, almost all field artillery was used for barrages. Meant as infantry support, barrages naturally developed in tandem with infantry tactics. They grew heavier and heavier as long as the infantry did not trust their own skills and demanded as much assistance as possible; German tactical changes also kept the infantry demanding everything possible. Considering the casualties sustained even when all went according to plan, the 'Poor Bloody Infantry' were justified in their requests. Yet barrages changed with circumstances. This might mean speeding them up in 1916 in anticipation of a breakthrough, thickening them in 1917 when the Germans reverted to manpower-intensive defenses during Third Ypres, or adjusting them between thick or thin in 1918 according to the specific conditions of the British (and German) lines. Because the whole purpose was to support them, the infantry would always be the over-riding factor behind barrages. But stereotyped barrages were not fired simply because the request was for the same as last time. Gunners would suggest what they thought the best overall support was, and the General Staff and formation commander would then decide. After the war, a gunner and former staff officer reflected that, "Barrages we were never able to dispense with; in fact they were so much in demand that it almost needed interference from the G[eneral] S[taff] to limit that demand." <sup>13</sup> Even when the artillery wanted to

switch to more productive targets, the decision was made as part of a combined-arms team that had to compromise together.

Defensive artillery work languished from 1915 to 1917, simply because the Germans seldom attacked. Defensive tactics therefore ossified to rigid resistance, firing artillery whenever and wherever the infantry demanded. After this hiatus, it is all the more creditable that defensive doctrine developed rapidly over the winter of 1917-18, although it was still based largely on the practices of ordinary trench warfare. Artillery fire was spread evenly, but everywhere it was spread too thin to prevent breakthroughs, and the rigid line broke. The response was immediate: the artillery was removed from infantry control. Instead, higher commanders—who (theoretically) had better information and could better judge how to juggle forces—directed artillery and infantry according to the needs of the whole battle. Some offensive tactics were applicable in defense, which only emphasized the continuity of fighting, rather than artificial divisions of attack and defense. Centralization, and hence consultation between the arms, came late to defensive fighting, but once in place combined-arms planning and fighting became the norm here as well.

If gunners had wanted to change the artillery's role within the army, they were handed the opportunity on a platter. World War I offered every reason to change almost everything about an army. Behind the lines, away from the pressures of battle, the artillery could have independently revised its doctrines, or the British Army as a whole could have retrained. Yet artillerymen did not take the chance they were offered.

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There was no attempt to re-shape training to place more emphasis on the artillery, nor to split it off from the rest of the army. The initial problem was turning enthusiastic volunteers into professional artillerymen, a process that took place in battles and lulls alike. It was actually the winters, free of major campaigns, that allowed training to be improved, since new officers could be spared to learn more of their trade than just daily routine. The powers that were took the opportunity to spread new techniques throughout the artillery, first overcoming the patchwork of units of differing abilities left over from 1915, then building on this foundation. Simultaneously, they raised the technical standard of gunnery and reminded artillerymen of their real purpose: altering the course of battles. Increasingly, artillery officers were taught tactics so that they could take part in, and thus influence, battle planning. As the war was winding down, possibly more a time for satisfaction than criticism, Birch wrote: "One of the great drawbacks in this war has been the want of any tactical knowledge or training ... of officers of the Garrison Artillery...." <sup>14</sup> This might be read as the revenge of a horse-gunner, but Birch never accepted the second-rate, technically or tactically. No stick in the mud, he worked artillery units into a condition where they could aid the troops in combat, delaying the development of ideas of fighting the war differently until he could persuade the infantry, cavalry, tanks, or whomever to also fight the war differently. By the time an Inspector General of Training was appointed in June 1918, it was too late for a radical restructuring, and anyway the most important publications were produced over the winters of 1916-17 and 1917-18. (Even so, the IGT was overhauling doctrine for a potential 1919 campaign, and artillery was a major element.) The publications gave first technical, then tactical, training. They never wavered from the view that artillery works with, and for, others.

When newer arms like the RFC/RAF and tanks were creating their own staffs and command channels, the gunners did not. There was a brief flirtation with the idea, but once the principles were explained—that it would tend to pull artillery away from their supporting role—the artillerymen consciously drew back. After the war, when the whole army's organization was examined, the artillery's position was revised, but not until then. <sup>15</sup> There were still substantial and vitally important changes made to the artillery chain of command, changes needed not just because of the failure (especially the lack of flexibility) of the pre-war organization. In 1914 and through 1915 ad hoc formations were created outside the proper organization because the original system could not cope with the realities of a new kind of war. These expedients were unsatisfactory in themselves and unsustainable across a growing BEF. In 1916 changes were made that solved the worst of the problems; from

that point on most of the changes were fine-tuning. Much of the improvement in various aspects of artillery work came from having a proper command and staff organization. Some of the minor adjustments gave the impression of empire-building, but the real step to independence was consciously rejected. Birch had wanted to sign his own letters, but this innocuous move would potentially have removed the artillery from the responsibility of the General Staff and undermined formation commanders. Whatever it is now fashionable to think of staff officers, Birch thought they were in a better position to handle matters than separate artillerymen and thus dropped his request. In comparison, the tanks and aircraft each had their own corps, with the RAF later leaving the army entirely. Even the Royal Engineers, the other combat-support arm, had Chief Engineers who in some areas had more autonomy than senior artillery officers. By contrast, the artillery stayed—consciously—in a supporting role, even while the 'support' it provided changed dramatically.

Some authors have suggested that the artillery worked especially with the infantry to form an infantry-artillery style of warfare, to the detriment of other arms and the army as a whole. After the war, Birch wrote: "... the Artillery ... [did] everything possible to support the infantry, which was of course their job." <sup>16</sup> Yet to take this at face value—that the artillery worked to support the infantry only—and leave out the rest of the BEF would be wrong. The Royal Artillery impartially helped infantry and non-infantry.

Seeing itself as a supporting arm, it was incumbent on the artillery to support any troops in contact with the enemy, whatever form that contact took. The case of the infantry (or dismounted cavalry) was simply the most likely, since these units made up the overwhelming bulk of the army. Yet in 1914 and 1918, mounted cavalry had its RHA batteries operating in close support. In order that this support be the best possible, to 'shake off the mud of the trenches,' during the middle months of 1918 the horse artillery was taken out of action and refreshed its mobile training. It is more difficult to identify specific artillery support provided to the engineers, since the sappers were diffused throughout the army, yet such targets as German gas cylinders or tunnel entrances were shelled. Again, there was relatively little the artillery could do to help the RFC/RAF to repay the assistance rendered by flying units. Essentially the only thing to do was to shell German anti-aircraft guns. The Royal Artillery did so as soon as the necessary technology—a compact wireless set—was available. In the summer of 1915, just as the Germans were improving their anti-aircraft defenses, the Royal Artillery started specifically targeting them, and the very first RFC communiqué related the collaboration of artillery and aeroplanes in deliberately attacking German anti-aircraft guns. <sup>17</sup> It would not be long before British aircraft would fly over German lines to provoke anti-aircraft fire so that the guns could be shelled, or to force balloons down so they could then be shelled. <sup>18</sup>

Artillery support to tanks was more direct and obvious. Months before the tanks lumbered into action, tank enthusiasts realized that the surprisingly fragile machines needed artillery support. <sup>19</sup> It was unstintingly given. The first notes for employment of tanks—published before their debut—continued to stress the importance of British counter-battery fire. <sup>20</sup> In the debut battle of Flers-Courcelette this was provided, as well as elaborate schemes to provide lanes through the creeping barrage so that no tank would be knocked out by British shellfire, another concern of the tactical handbooks. <sup>21</sup> As tanks improved, so did German anti-tank defenses, and the Tank Corps constantly asked for more artillery support. They were given not just pre-planned counterbattery fire, but special battery-aeroplane teams to detect and neutralize anti-tank guns. <sup>22</sup> Smoke shell also played an important part in hiding tanks from German fire, and it was used as much as supplies (and weather) permitted, but even it was not a panacea, for tanks could lose direction inside a smoke cloud. <sup>23</sup>

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Planning could not remove all the friction between the different branches, especially if the planning was faulty. Perhaps the most noted anti-tank action of the First World War was on Flesquières Ridge during the battle of Cambrai, where tanks cresting the ridge were destroyed by unsuppressed German guns on the reverse slope. <sup>24</sup> Yet there had been a

smoke barrage on the ridge during earlier phases of the battle to block German observation posts. Planners intended the smokescreen to disperse before the assault on Flesquières Ridge, for reasons lost in another cloud, the mists of time. Had a continued smokescreen been requested by the tanks (or infantry), there is no reason to doubt that the gunners would have provided it. Alternatively, had the German guns been recognized as a serious anti-tank problem, they would have been shelled. They were not, but that fault does not lie solely with the artillery. Later, by 1918, the BEF used tanks freely, but also used more and more assets to support them, including detailing new and powerful aircraft to spot anti-tank guns, bomb and strafe them, and then call in artillery batteries even onto lone anti-tank guns. <sup>25</sup> As the war drew to a close, the Tank Corps were asking the gunners to deal with "all anti-tank devices," which casts doubt on the tank as a war-winning weapon. <sup>26</sup>

All this shows that the artillery co-operated with anyone and everyone, not just the infantry. They backed others because it would help win the war, and because it was a faster way of winning the war than to try the approach of 'artillery conquering, infantry occupying.'

Technology and tactics stood in imbalance in 1914, and over the course of the next four years there were dramatic and inter-related changes in both. Aside from the new additions to warfare—for instance, gas and submarines—nothing was more transformed than artillery. Superficially it is easy to canvass the quantities of guns and shells, and deeper examination brings to light the changes within the artillery of improved technology, techniques, and tactics. To some, the quantity and quality of artillery makes the First World War an artillery war, but to the British artillerymen it was not just an artillery war. To them, artillery played a supporting role in a larger production.

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#### Notes:

**Note 1:** FSR 1909, 138; emphasis in original. [Back.](#)

**Note 2:** See PA Towle's PhD dissertation, *The Influence of the Russo-Japanese War on British Military and Naval Thought* (University of London, 1973) for details. [Back.](#)

**Note 3:** *FAT 1914*, p. 230; original emphasis. [Back.](#)

**Note 4:** It is significant that by late 1916, however often the infantry lost the barrage, they did not blame the artillery for failing in its role. [Back.](#)

**Note 5:** Birch to Furse (Director of Artillery, WO), mid-1917, quoted in *Anstey Galley Proofs*, 193. [Back.](#)

**Note 6:** Rawlinson Diaries, CCC, 3 and 5 March 1915. [Back.](#)

**Note 7:** The official title was Chief General Staff Officer [Back.](#)

**Note 8:** Rawlinson Diaries, CCC, 1 June 1916. [Back.](#)

**Note 9:** WO158/239, Fourth Army to GHQ 2 June 1917, with Haig's marginal notes. [Back.](#)

**Note 10:** Tudor diary, March-April 1917; see Griffith, *Battle Tactics*, 141, for details of some of the 9th Division's barrages. [Back.](#)

**Note 11:** *Anstey galley proofs*, 140. [Back.](#)

**Note 12:** Rawlinson diary, 25 May 1917; XV Corps diary (WO95/925), August-September 1917. [Back.](#)

**Note 13:** "F.W.", "Artillery and the General Staff," *Journal of the Royal United Services Institution* 64:455 (August 1919): 475, available as [Appendix 38](#). [Back](#).

**Note 14:** Birch to Horne, 21 October 1918, Anstey Papers, RAI. [Back](#).

**Note 15:** "Report of the Committee on Staff Organisation," 6 March 1919, J. H. Boraston Papers, IWM. Senior artillery officers were now to be both commanders (of artillery) and advisers (to formation commanders) with powers of inspection. but were emphatically not staff officers. Rights of correspondence were also clarified. [Back](#).

**Note 16:** Birch to Edmonds, 12 March 1936, CAB45/122. [Back](#).

**Note 17:** H. A. Jones, *The War in the Air: Being the Story of The part played in the Great War by the Royal Air Force*, vol. II, (Oxford: Clarendon Press, 1928), 169; No. 2 HARG (WO95/87), BM57, 5 August 1915; C. Cole, ed., *Royal Flying Corps Communiqués 1915-1916* (London: Tom Donovan, 1990), 18. It came on 26 July 1915. [Back](#).

**Note 18:** Ibid., VI Corps order, 21 August 1915, WO95/87. [Back](#).

**Note 19:** E. D. Swinton, "Notes on the Employment of 'Tanks'," February 1916 in Fourth Army Operations Papers, vol. 5, letter 6, which foresaw counter-battery fire, bombing aeroplanes, and gas supporting the tanks. [Back](#).

**Note 20:** "Preliminary Notes on Tactical Employment of Tanks (Provisional)," GHQ, August 1916 in Fourth Army Operations Papers, vol. 5 letter 80. [Back](#).

**Note 21:** XIV Corps BGRA diary (WO95/915), 12 and 13 September 1916. [Back](#).

**Note 22:** III Corps BGRA diary (WO95/693), Artillery Instruction No. 8, 17 November 1917; IV Corps BGRA diary (WO95/729), Artillery Instructions 76 and 80 (13 and 18 November 1917); VI Corps BGRA diary (WO95/783), 16 June 1918. [Back](#).

**Note 23:** V Corps BGRA diary (WO95/756), 1 November 1918, for extra smoke being used on account of tanks. [Back](#).

**Note 24:** See *OH 1917*, vol. 3. [Back](#).

**Note 25:** IV Corps BGRA diary (WO95/730), 19 August 1918. [Back](#).

**Note 26:** WO158/855 "Co-operation of Tanks with other Arms," n.d., but very late 1918. [Back](#).

["The Infantry cannot do with a gun less": The Place of the Artillery in the British Expeditionary Force, 1914-1918](#)