

Artillery at the Battle of Cambrai, 20 November - 7 December 1917

Notes on presentation for Artillery Firepower Series, November 2017

By Jean Bou¹

Introduction

The following notes are provided to accompany the presentation (and slides) made at the Firepower Series event held at ADFA in November 2017. It outlines the role of artillery and other fire support at the Battle of Cambrai in November–December 1917.

Slide 3 - Learning and adaptation - a three (or more) way affair

There is a tendency to examine the experiences of war, including the First World War, through national prisms. While there are many good sources that seek to break these strictures and take a wider view, the tendency remains a persistent one. Even those that do take a wider view are still bound by the limits of language in historical research, and to find a single source that is able to break down this barrier is rare. Hence, while we can find many multinational studies of British Empire troops in the First World War (where the experiences, while sometimes differing markedly in degree, are not that different in kind), to find something that examines, say, the British and French together, certainly below the strategic or operational level, is so scarce I doubt the genre even exists.

Hence, before examining Cambrai, it is useful to point out that each of the major combatant armies on the Western Front, British Empire, French and German (and later United States) went through a process of learning and adaptation between 1914 and 1918. What is clear to those who study the war, but which is rarely set down on paper (because I suspect nobody has yet done the research to fully investigate it, though the French influence on the US Army's approach is fairly well set out) is that these armies were learning as much from each other as from themselves. The French and British exchanged information, had liaison officers that observed and submitted reports and built upon each other's technical advances. Similarly they observed what the Germans were doing, translated their documents when they came into their possession and sometimes copied their approaches to fighting.

Slide 4 - (Some) Key British artillery developments, 1917

If 1916 was the year that all the armies on the Western Front got access to, and started to use, the amount of firepower they thought they needed in order to gain superiority, 1917 was the year that they started to apply some skill to its employment. With the wartime economies now able to produce the guns and

¹ Dr Jean Bou is a senior lecturer at the Strategic and Defence Studies Centre, at the Australian National University.

ammunition in sufficient quantities, and able to draw on the (grievously costly) experiences of 1916 at Verdun and the Somme, gunners were developing new techniques, training regimes and doctrine to more effectively influence the battles that were to be fought. In this they are also helped by a range of technological developments. These changes were evident in Britain's Royal Artillery in various ways.

Firstly, command and control was being refined, the defining characteristic of which was the continued elevation of artillery command arrangements to the highest practical levels. Whereas artillery had largely been controlled at the divisional level early in the war, by 1917 it was mostly controlled at corps level by the General Officer Commanding Royal Artillery (GOCRA). In part his efforts were supported by the role of the Counter Battery Staff Officer (CBSO), whose small staff gathered the available information about the location of enemy guns (by aerial observation, sound ranging, flash spotting and other means), to develop increasingly sophisticated intelligence appraisals about the location and strength of the German artillery opposing them. This information contributed to the decisions about the use of the firepower available, either in day-to-day engagements or when planning a major offensive, when silencing the enemy's guns was paramount. To this end artillery was often concentrated in centrally commanded artillery groups which were tasked as required, an approach that was greatly facilitated by thinning out the establishments of the divisional artillery to free up what became known as 'army' artillery brigades and batteries. These units were at the army commander's disposal and were moved about as needed.

Secondly, the use of the guns was greatly enhanced by a series of technical advances. Things that modern gunners take for granted, compensating for meteorology, surveying gun positions, gun calibration and firing tables, were all new or recent innovations in 1917, but their introduction made the application of effective fire easier and more productive. In the same vein, and as mentioned above, detecting and locating enemy guns via sound ranging became increasingly precise (an accuracy of 25 yards became the norm), which was further enhanced by flash-spotting and aerial reconnaissance. After several years of muddling through with a variety of not very good mortars, the new 6-inch Newton mortar was a welcome replacement. Smoke shells were a new and welcome development, though it took some time to work out how to best employ it, and gas became increasingly ubiquitous and was used as a matter of course.

Finally, these changes were harnessed to new tactical approaches, which were encapsulated in new publications such as SS139/4 Artillery in Offensive Operations. This shift saw the abandonment of long 1916-style preparatory bombardments, which gave away any element of surprise, churned up the ground the infantry would soon have to advance over, and which proved incapable of completely destroying the enemy in any case. Instead the emphasis changed from destruction (which was what long barrages were geared to do) towards neutralisation, which was less damaging to the ground and supported the infantry at the moment that they needed it most. The co-ordination of infantry and artillery was improved so that they worked more clearly in combination as the guns, though usually firing dense concentrations, were used to help the infantry, whose own command was

increasingly devolved, to fight their way forward using their own tactics and integral firepower.

The role of destruction did not disappear, but was increasingly left to the heavy guns, which were used for counter-battery fire and destroying deep earth-works. The field artillery, usually placed well forward to make the most of their limited range, was typically allocated to supporting the infantry by using creeping, lifting, standing or box barrages. Also new was the technique of superimposition, which overlaid the fire of batteries, enabling an artillery commander to reallocate one such superimposed battery to a new target without significantly diminishing the original fire planning.

Slide 5 - (Some) key German artillery developments, 1917

The German Army, like its opponents, was also developing its tactical approaches in light of its experiences of 1916 at Verdun, on the Somme, as well as on the Eastern Front against the Russians. Indeed this last theatre became something of a 'battle lab' where many of its tactical refinements were tried out and developed. They contributed to German successes there, though whether they were as easily transferrable to the Western Front in 1918 as the German Army thought might be usefully debated.

Like the British and French, German artillery developments reflected a desire to make effective use of their artillery. Which, in this case, also reflected its poorer material resources, particularly as the naval blockade became more effective through 1917.

In regards to command and control the Germans also centralised more, though in their case this occurred at army and divisional levels rather than within corps headquarters. This proved problematic at the divisional level where the smaller staffs were sometimes overworked during periods of intense artillery activity. Like the British though, their fire planning was increasingly intricate in order to get the most out of the fire they could produce.

In some regards the Germans matched the Allied technical developments, in others they did not. Meteorological understanding was improved and applied, as was the calibration of guns to adjust for barrel wear, and gun tables were produced to enhance their use. An important area where the Germans lagged however, was in counter-battery fire, where they lacked the technical sophistication of their opponents. Whereas the British, by 1917, employed arrays of specially developed microphones which, via specialist equipment, had their outputs recorded on photographic film, the Germans used ear horns, stop watches, and workings on paper. It did work, but its relative inefficiency was perhaps best highlighted by the German shift to a system similar to the British late in the war.

Tactically, the Germans had never been enthusiasts for long preparatory bombardments. Their preference for short intense bombardments was refined by aiming to deliver ferocious 'hurricane' artillery attacks that were delivered in depth with the intention of hitting not just the enemy in their trenches, but also headquarters, gun positions and lines of communication. The approach, named in the German fashion after one of its key proponents, became known as Bruchmüller

tactics after General Georg Bruchmüller. As the British and French were also doing, the Germans increasingly emphasised surprise and sought to saliently register their guns whenever possible. They also used creeping barrages to support advancing infantry, who were increasingly using light wheeled infantry guns and light *Minenwerfers* to deal with targets as they fought their way forward.

Slide 6 - Cambrai, the British artillery plan

With the attack at Cambrai occurring at the end of 1917, the British planning took into account not just the lessons of 1916, but also those learned in 1917 at Arras, Messines and the Third Battle of Ypres (Passchendaele). Like most plans the one for Arras went through various permutations, but the final scheme was to use two infantry corps, a very large number of tanks and heavy artillery concentrations, all using the latest combined arms techniques to attack the Germans Hindenburg Line defences at Cambrai. The Germans defences here, while strong, were manned by run-of-the-mill troops, there were few reserves and they had limited artillery in support. Moreover this had been a quiet sector, so the ground was in good condition, which would make it easier for the attackers.

There was also considerable emphasis on surprise, something that was increasingly possible because of British technical advances. The ability to silently register the guns by via precise surveying and gun calibration meant that the large artillery concentration was not betrayed by the usual forms of preparatory firing – they could fire for effect ‘off the map’ at Zero Hour. There was also no need to prepare the advance by firing for prolonged periods at the enemy barbed wire as tanks could be used to clear paths through, in which role they were supported by field guns firing high explosive shells fitted with the sensitive No 106 fuze.

At Zero Hour (0630) on 20 November just over 1000 British guns opened fire on the German defences. A large proportion of the heavy guns were allocated to counter-battery fire based on sound ranging that had been done in the lead up. Just as the Germans were focused in firing in depth, so too did the British at Cambrai aim to disrupt enemy headquarters and communications by shelling relevant targets. The infantry assault was supported by the field artillery firing both creeping barrages and more traditional lifting barrages which targeted just the enemy’s trenches and strongpoints.

The combined arms effect of artillery, tanks and infantry was highly effective, though the number of tanks gradually declined each subsequent day as break-downs and enemy action reduced their number. Along some parts of the line the Germans proved quite adept at using guns as anti-tank weapons, which they had trained for, particularly as some of the defenders had endured French tank assaults earlier in the year.

Slide 7 - The German counter-attack, 30 November

The British attack on 20 November was, in broad terms, very successful, though like most battles on the Western Front its gains slowed or were reversed in the coming days. The British eventually gained a toe hold on their objective of

Bourlon Ridge. Not surprisingly the Germans soon counter-attacked and in doing so used their most recent tactics.

The Germans prepared for their assault by exploiting the poor weather and the consequent lack of British observation aircraft to move up its artillery and infantry. Their objective was to 'pinch out' the British salient by attacking it from both sides – the north and south. While British tactical competence had been on display in their attack, they underestimated the capacity of the German ability to respond by assuming that it would take them some time to prepare. The Germans were highly efficient, however, and were able to commence their attack on 30 November.

The Germans commenced with a heavy hurricane bombardment (*Trommelfeuer* – drum fire in German) which was focused on the southern end of the British salient, where the main effort was to be. The usually impressive British counter-battery capacity was undermined by the fact that they had not yet fully deployed their sound ranging apparatus, which meant the German guns were able to deliver their fire largely unmolested. This failure was compounded by the fact that most of the British guns on the southern part of the front were facing northwards where they had been providing fire support to the front there.

Using the latest 'Hutier' stormtrooper infantry tactics, the German assaults, like the British a week or so earlier, were very successful at certain parts of the line (Hutier tactics were named after General Oscar Hutier, the troops thus trained were *Stosstruppen*). The British resisted stoutly on Bourlon Ridge, however, as well as on some other parts of the line. German successes in the southern part of the front eventually forced the British to withdraw along the line, however, abandoning the ridge while holding on to some of the territory that they had gained early in their attack.

Slide 8 – What did it all mean?

In the broadest terms the battle had fit into the pattern of many Western Front battles up this point of the war in that a well planned and executed attack had gained some ground, following which the enemy had rushed in reinforcements, stemmed the tide and stabilised the line. This happened to both the British attack and the German counter attack. What both sides could take heart from was the success of their latest tactics. For the British artillery secretive predictive fire had been highly successful and it was to remain an important method for the rest of the war. Moreover, when they did open fire, the combination of counter-battery fire to disrupt the enemy guns, and heavy neutralising field artillery fire in support of the assault waves was highly effective. This artillery activity was fully geared to supporting the assault, where the use of large numbers of tanks, together with infantry using the latest devolved style of fire and movement tactics were similarly effective. When coupled with the material superiority the Allies had by late 1917-18, and General Ferdinand Foch's approach to fighting successive battles from the summer of 1918, it would prove a combination that the Germans would have no answer to in the last months of the war.

In the meantime, the Germans could also take heart in their tactical successes, particularly in combination with the successful Caporetto Offensive in Italy in October-November 1917. The German army remained potent and the tactics it had developed mostly on the Eastern Front had seemingly been successfully transferred to the Western Front. Bruschi's artillery, and Hutier's infantry tactics had both worked, which boded well for the coming great offensive they would attempt in the spring of 1918. What was less evident was the Germans were harnessing their hopes almost solely to tactical prowess, which was not enough in itself to win an attritional industrial war.