FRENCH ARTILLERY AT THE BATTLE OF VERDUN
'THE KINGDOM OF THE GUNS'[1]

On 21 January, French Général de Corps d'Armée Paul Chrétien arrived to take command of XXX Corps, part of the garrison of the *Région Fortifiée de Verdun or* RFV (Fortified Region of Verdun). He was appalled by the state of the defences on the 65 kilometre front: artillery batteries were not dug in, telephone wires not buried, and barbed wire obstacles were flimsy to non-existent. Surprisingly, the forts that ostensibly were the principal defences of the entire zone were not under his command: perhaps just as well for his state of mind as they were undermanned with poor quality reservists and had been stripped of many of their guns. Chrétien took little comfort from, and did not share, the views of his Commander-in-Chief, General Joffre, that the Verdun region was a strategic backwater, unlikely to be the target of a major German attack as it was of little strategic value to the Germans.

On 21 February 1916, General Chrétien was proved right to be worried. A German artillery barrage of unprecedented volume and intensity began at 0715 and continued until 1600hrs,[2] heralding the attack by three German Corps against the single understrength French XXX Corps, along the twelve kilometre northern and eastern part of the front: two Corps attacking two understrength French Divisions, the 51st and the 72nd. The Germans had amassed over nine hundred heavy guns and over six hundred field guns for the attack. Given they were attacking a known fortified position, the Germans had included a number of 'super heavy' guns, designed from the start to eliminate fortresses: seventeen 305mm and thirteen 420mm howitzers and three 380 mm guns for long range counter-battery and interdiction work. (French intelligence failed to notice their arrival in the area!) Ammunition supply would not be an issue as the Germans had stockpiled over two and a half million shells and planned to expend half of that in the first nine hours of the barrage. The French were outgunned almost four to one and the problem was to be exacerbated when the German's over-ran some of the immobile French heavy guns in the initial advances.[3]

There is much heated debate between historians about (the German Commander) Erich von Falkenhayn's intended strategy at Verdun but many believe he planned a largely attritional battle in which the numerically and technically superior German artillery was to keep killing French infantrymen until the French Army was broken.[4] If so, then Verdun was

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[1] Paul Strong and Sanders Marble, *Artillery in the Great War* (Barnsley: Pen & Sword, 2011) p. 87.

[2] The initial barrage began at 0400 but was limited to long range artillery searching for the Meuse bridges and the Verdun railway station.

[3] Robert Doughty, *Pyrrhic Victory: French Strategy and Operations in the Great War* (Cambridge, Massachusetts: Belknap Press, 2005) p. 267.

[4] Compelling evidence for this is the failure of the German artillery and air force to interdict the single supply line into Verdun. It would have been easily achieved, would have rendered further defence impossible yet it was not done. Either German planners were incompetent or the idea was to allow the French to continue funnelling troops into the killing zone.

one of the few battles designed specifically around the killing power of artillery: arguably the antecedent of the air power theorists of today.

Initially, the German attack was devastating. The rate of fire was so great it added a new word to the military lexicon: *trommelfeuer* (drumfire) where the sounds of individual guns and separate exploding shells were lost in one overwhelming noise. Leading the assault were assault pioneers, armed with flamethrowers in addition to their usual weapons. Supporting the theory that the objective was the French Army rather than territorial gain, the attack didn't involve all available troops: many of the line infantry units remained in their own defences. However, the French defenders in the forward trenches were often simply obliterated by the ferocity of the artillery and the Germans had little trouble capturing their original objectives.

Unfortunately for them, however, that familiar problem for artillery of both sides in this war – poor and unreliable communications - meant rigid attack timetables had to be followed, leaving little room for initiative and exploitation. The French, faced with impending disaster, quickly adapted new techniques. Instead of occupying predictable defensive lines, their infantry spread out to occupy shell holes or folds in the ground, making them more difficult to kill or neutralise by artillery alone. The defence gradually thickened and, while France paid a huge price for it, after six months on the defensive, they began to drive the enemy back. Eventually, in October, the symbol of Verdun, Fort Douaumont, was recaptured and by December the enemy were back to their February start line.

Although both sides made the usual extravagant claims of success, the battle could best be described as a draw. Initial German success could not be maintained and German tactical mistakes provided sufficient breathing room for the French Army to completely rethink its tactical doctrine, especially on defence and counter-attack, and to develop a new organisational structure more suited to the type of warfare it faced. While the story of Verdun resonates with stories of French infantry heroism and indeed of German gallantry, it was not just the modern-day *poilu* who eventually defeated the attack. A rejuvenated French artillery, utilising new techniques, old and new technology weapons in innovative ways and buoyed by the promises of new, modern weapons, also played a part.

The French started the battle at a huge disadvantage in artillery: some of this was due to decisions early in the war but the more significant reasons had their origins pre-war. As is well known, the pre-war period was one where the tactics of é*lan* and *attaque à outrance* predominated in all armies but was adopted with almost religious fervour by the French Army (and indeed the French Government). For the artillery, this meant a heavy focus on mobile field artillery: guns that could keep up with a rapidly changing battlespace. The technical limitations of the day, both in steel quality and transport systems, meant that for larger calibre guns to function, they had to be very heavy which then meant they were simply too heavy for horse or oxen to move quickly or efficiently. The heaviest guns that could be moved tactically were limited to about 150mm or smaller. As all sides anticipated a war of manoeuvre, large calibre guns lagged in both production and development: the notable exception being the German specialised heavy howitzers intended to overcome

French and Belgian forts - and even the Germans believed that once they had achieved that purpose, they would be relegated to a static defensive role. The Germans discovered, however, that in the changed nature of warfare when the trench system prevented mobility, these large calibre weapons provided effective means of overcoming an entrenched enemy. Although aware that the Germans had, before the war, developed 105 and 150mm field pieces,[5] practically everyone in France was surprised by the tactical versatility of these larger, more capable artillery pieces.[6]

Two other factors combined to ensure that, when war broke out, France was much less well prepared to deploy and employ larger calibre artillery than the Germans. In 1897, in a major technical advance, the French Army introduced a radically new field gun – the famous *Mademoiselle soixante-quinze* or 75mm fast firing field gun. Light, and equipped with an advanced recoil system, the 75 seemed to fit every artillery role the strategists and tacticians could think of for artillery in a field army. Consequently, there was little appetite within the Army or within French Government to invest in larger calibre guns. Even when German developments with their larger calibre field guns suggested the 75 might need larger calibre support, squabbling over designs and suppliers between the Army technical branches, Army Headquarters, the Government and the various industry groups offering solutions meant the French went to war with only 544 guns heavier than the 75, and the most modern of these was a 155mm howitzer designed and built in 1904! Practically all the heavier pieces were relegated to fortress duties.

Nor was the 75 as perfect as the French believed. Limited elevation and light shell weight proved to be severe handicaps, especially after trench warfare replaced manoeuvre. Instead of immediately looking to develop larger calibres as a solution for the 75's shortcomings,[7] the French invested an inordinate amount of scientific and engineering effort early in the war into improving the 75's shells to correct its problems. This was perhaps understandable, given there were over four thousand 75s in service in 1914 and the number rapidly escalated, reaching twenty-one thousand by the end of the war. These improvements did help but after two years of war, the French were forced to acknowledge the limitations of a light gun and institute a crash program to develop and produce heavier calibres of guns. Their enthusiastic adoption of mortars of differing calibres also augmented the venerable 75. Somewhat unexpectedly, the 75 did prove very versatile, being quickly adapted as an effective anti-aircraft gun and ending the war as France's premier platform for delivering gas: where explosive weight was arguably less of an issue than volume of fire.

By the time the war came to Verdun, another problem arose for its defenders. Joffre, who was later criticised for this move, had recognised that fortresses were 'death traps' in

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[5] French strategy was to overwhelm these larger calibres with the high rate of fire of their own field guns.

[6] Paul-Marie de la Gorce, *The French Army - A military-political history* (London: Weidenfeld and Nicolson, 1963) p. 102.

[7] To be fair also, in capturing the mining and industrial areas of northern France, especially around Lille, the Germans severely degraded the French armaments industry and its ability even to produce replacements for battlefield losses, let alone begin the complex task of designing and manufacturing entirely new types of weapon systems.

the face of modern artillery. Having observed the fate of fortresses in both Belgium and on the eastern front, he abandoned fixed fortifications as the core of his defence strategy, preferring trenches and barbed wire. Nor did he consider heavy-calibre guns tied up in fortresses a useful employment of these weapons, so removed most of them to support his field armies.[8] (54 artillery batteries and 128,000 rounds of ammunition were removed from Verdun alone after August 1915.) Given the Germans had, in 1914, achieved artillery domination in the field, this was both reasonable and probably essential to avoid defeat. It did, however, severely reduce the defensive value of the Verdun fortresses. The whole point of a fortress was to provide the artillery with superior protection from infantry attack while positioning the guns to dominate the surrounding areas: even the much-maligned Maginot Line in World War Two did dreadful execution among German troops trying to capture sections of it. Without guns, even old-fashioned slow-firing ones, Verdun had little hope of resisting a determined German attack. But many of the guns, especially the better ones, had been removed in late 1914.

In addition to the valour of the infantry, Verdun was saved for the French by the complete reappraisal of their artillery tactics and a complete about-face on the priority afforded the development and production of heavy guns.[9] French General Henri Philippe Pétain, who had opposed the prevailing pre-war French cult of the offensive and argued for heavy artillery to the point of ruining his career,[10] was appointed Commander of the RFV on 26 February. Having an infantryman with a deep appreciation of how to employ artillery in command dramatically improved the French position and Pétain quickly instituted several critical modifications of organisation and doctrine. Divisions received additional medium howitzers while the 155s and larger guns, together with the heavy mortars, were grouped at Corps and Army level to ensure fire dominance at critical points. The number of artillery regiments was increased from 115 to 247, even though France was running out of military aged males.

Recognising the importance of aerial observation, Pétain directed French military aviation to obtain air control over the battlefield so that artillery spotters, in aircraft and balloons, could operate unimpeded. The French assembled what became the world's first dedicated fighter squadrons, continually improved their aircraft, and achieved Pétain's objectives by May. French gunnery accuracy improved dramatically as the battle proceeded. Contrary to Joffre's view, Pétain used the existing fort system as the basis for a defence line. The remaining fortress artillery was heavily reinforced and they became the support for local tactical attacks. He so recognised the need for heavy artillery that on 6 March, he asked GQG (French General Headquarters) to stop sending large infantry formation

[8] Fortunately, given they lacked field carriages, Joffre did leave the various 'disappearing' guns in place.
[9] Early in the German offensive, in March, Joffre ordered the immediate production of 960 medium and 440 heavy guns!!
[10] He was due to retire in 1915 as a Lieutenant Colonel. When the opening months proved the soundness of his views, he experienced rapid promotion

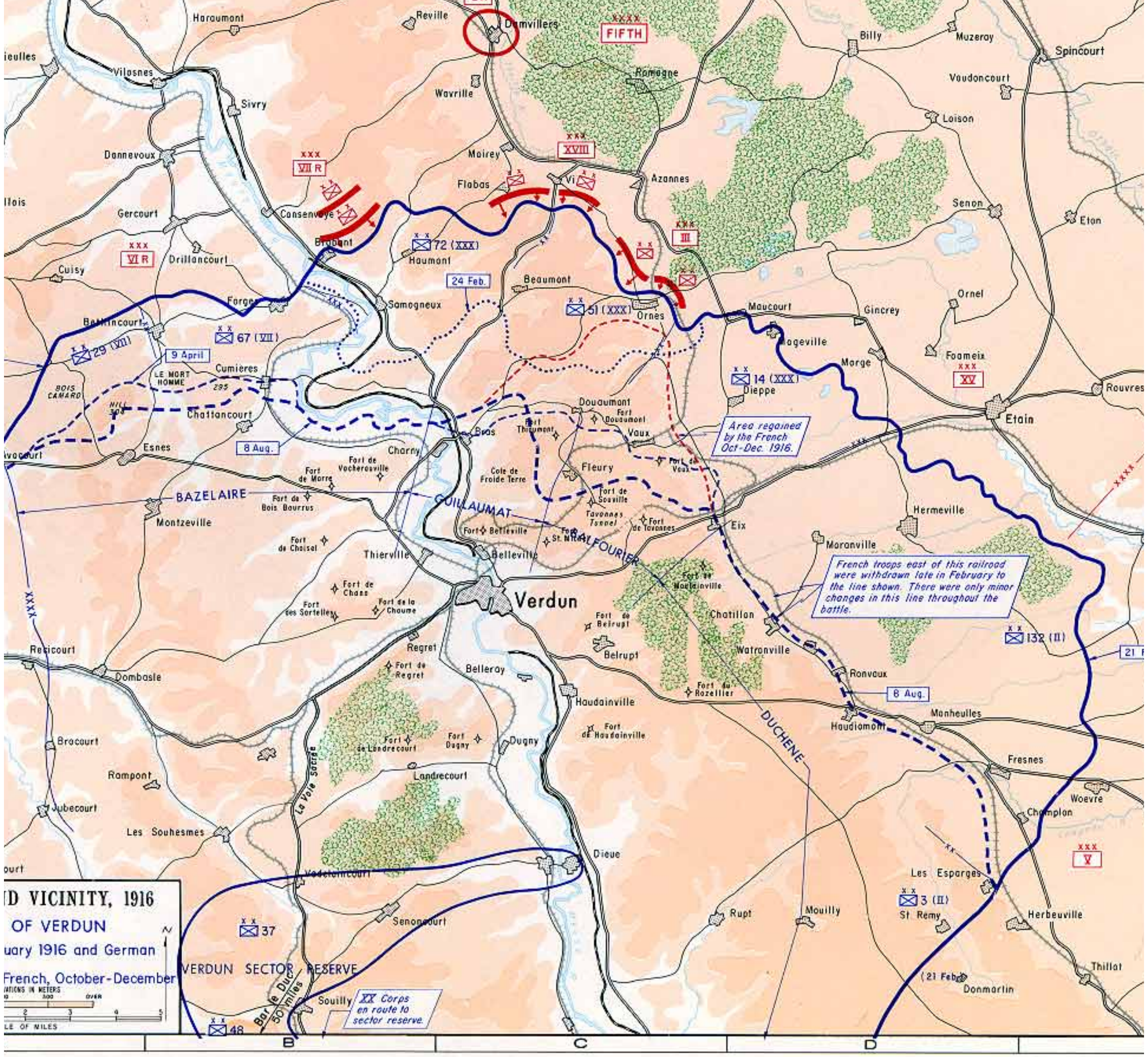
reinforcements – that clogged up the roads – and concentrate on sending heavy artillery instead.[11]

His major achievement was, however, to re-establish the infantry's confidence in their artillery. Pétain took close personal interest, every day, in what the artillery was doing. He ensured it had both sufficient ammunition and sufficient incentive to fire both offensive and defensive barrages. He personally reviewed the actions and effects of batteries and made his staff focus on the tactical employment of the guns, especially coordination between infantry and artillery in counter-attacks. Those staff he found wanting or who failed to demonstrate the expected degree of enthusiasm for the new techniques were quickly and ruthlessly removed. Recognising also the serious effect of German artillery on the French infantry morale, Pétain focussed closely on counter-battery work and on the tracking and locating of all German artillery. His attention to the artillery also carried though to its logistics support and he ensured that the flow of shells and spares was never interrupted. By the time he left in June, over two thousand tons of ammunition a day was being delivered to the fortress zone.

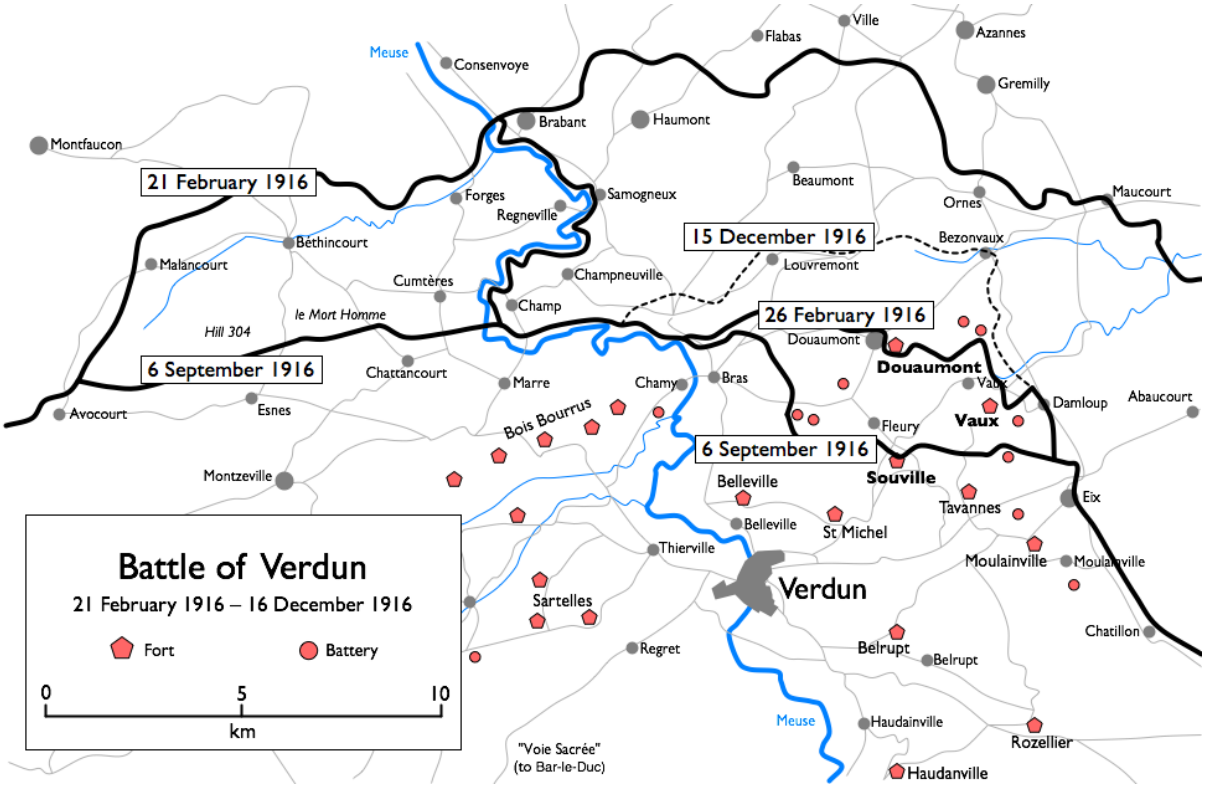
The Germans, through another tactical mistake, also provided Pétain with an early opportunity to use his artillery effectively in the offensive. By failing to clear the west bank of the Meuse and its existing batteries of emplaced obsolete 155mm guns, Pétain was able to use these to fire into the flanks of the advancing infantry and, arguably more importantly, interdict German logistics assets, including forward dumps and bridgeheads. The German *VII Korps* suffered very heavy casualties from these guns during an attempt in March to clear the east bank of the Meuse. The Germans recognised the threat and launched a series of attacks to clear the west bank but this brought them into range of massed French guns from reserve forces such as the French Third Army (further to the west) and they paid a heavy price for limited gains. This also saw the Germans reacting to French initiatives for the first time since the battle had begun.

In June, Pétain was promoted and General Robert Nivelle took command of the Verdun defence. However, by then Pétain's reinvigoration and reorganisation of the French artillery was well-entrenched. Although Nivelle faced several more massive German attacks, his experienced and confident gunners largely broke them up or were able to provide effective support to retake lost ground. Even the first mass use by the Germans of phosgene gas failed to win the battle, largely because French artillery was able to break-up the exploiting infantry formations. The Battle of Verdun was the longest single battle of the First World War, lasting from 21 February to 18 December 1916. It was one of the first in which Allied artillery made the greatest contribution to the outcome. It is a battle worthy of study for all gunners.

[11] Doughty, *Pyrrhic Victory*, p. 274.



D VICINITY, 1916
OF VERDUN
uary 1916 and German
French, October-December
VERDUN SECTOR RESERVE
XX Corps en route to sector reserve.
Bar le Duc 50 miles
Area regained by the French Oct-Dec. 1916.
French troops east of this railroad were withdrawn late in February to the line shown. There were only minor changes in this line throughout the battle.
Verdun
FIFTH
BAZELAIRE
GUILLAUMAT
NIVELLE
FOURIER
DUCHENE
La Voie Sacrée
24 Feb.
9 April
8 Aug.
8 Aug.
(21 Feb)
Le Mort Homme
Bois Camard
Hill 304
Douaumont
Fort Douaumont
Vaux
Fort de Vaux
Fleury
Fort de Souville
Fort de Tavannes
Tavannes Tunnel
Fort Thiaumont
Côte de Froide Terre
Fort de Vacherauville
Fort de Marre
Fort de Bois Bourrus
Fort de Choisel
Fort de Chana
Fort des Sartelles
Fort de la Chaume
Fort de Regret
Fort de Landrecourt
Fort Dugny
Fort de Haudainville
Fort de Belrupt
Fort de Moulainville
Fort du Rozellier
Fort St. Michel
Fort Belleville
Damvillers
Reville
Haraumont
Vilosnes
Sivry
Dannevoux
Gercourt
Drillancourt
Cuisy
Consenvoye
Brabant
Haumont
Wavrille
Moirey
Flabas
Azannes
Romagne
Billy
Muzeray
Spincourt
Vaudoncourt
Loison
Senon
Eton
Ornel
Gincrey
Maucourt
Mogeville
Morge
Foameix
Rouvres
Etain
Beaumont
Samogneux
Ornes
Dieppe
Forges
Bethincourt
Cumières
Chattancourt
Esnes
Avocourt
Charny
Bras
Montzéville
Thierville
Belleville
Regret
Belleray
Dugny
Landrecourt
Dieue
Récicourt
Dombasle
Brocourt
Rampont
Jubécourt
Les Souhesmes
Senoncourt
Souilly
Eix
Moranville
Hermeville
Châtillon
Watronville
Ronvaux
Haudiomont
Manheulles
Fresnes
Belrupt
Haudainville
Woevre
Champlon
Les Eparges
St. Remy
Herbeuville
Thillot
Donmartin
Mouilly
Rupt
72 (XXX)
51 (XXX)
14 (XXX)
67 (VII)
29 (VII)
37
48
3 (II)
132 (II)
VII R
VI R
XVIII
III
XV
V
B
C
D


Battle of Verdun
21 February 1916 – 16 December 1916
Fort
Battery
0
5
10
km
21 February 1916
15 December 1916
26 February 1916
6 September 1916
6 September 1916
Meuse
Meuse
Consenvoye
Brabant
Haumont
Flabas
Ville
Azannes
Gremilly
Montfaucon
Forges
Regneville
Samogneux
Beaumont
Ornes
Maucourt
Béthincourt
Malancourt
Louvremont
Bezonvaux
Cumières
Champneuville
Champ
le Mort Homme
Hill 304
Douaumont
Douaumont
Chattancourt
Marre
Chamy
Bras
Vaux
Damloup
Abaucourt
Avocourt
Esnes
Bois Bourrus
Fleury
Vaux
Montzeville
Souville
Belleville
Belleville
St Michel
Tavannes
Etx
Thierville
Moulainville
Moulainville
Verdun
Sartelles
Chatillon
Regret
Belrupt
Belrupt
Haudainville
Rozellier
"Voie Sacrée"
(to Bar-le-Duc)
Haudanville