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CHAPTER 4

THE BATTLE

The Armies, their Weapons and Tactics

MARK ADKIN

THE ARMIES

PREVIOUS

French cuirassiers counter-charge the disorganised Union Brigade, while lancers strike them in the flank (right). (Print after H. Chartier, Philip Haythornthwaite)

Like modern armies the three that fought at Waterloo were composed of formations, units and sub-units. A unit was usually an infantry battalion of up to 1,000 men, normally commanded by a lieutenant colonel (in the French Army, a major), and cavalry or artillery regiments also commanded by lieutenant colonels. Sub-units formed the component parts of units such as infantry companies, cavalry squadrons or artillery companies (the term 'battery' was applied to an artillery position) commanded by captains. Formations were larger forces. Brigades consisted of two or three battalions commanded by major generals (in the French Army, general of division); divisions comprised two or three brigades also commanded by senior major generals, and a corps was an all arms force (infantry, cavalry and artillery) formed of several divisions normally commanded by lieutenant generals or equivalent. This simple system was more complex at Waterloo, although by and large it applied to the Anglo-Allied Army. A Prussian brigade equated to a British division, each consisting of three regiments divided into three or four battalions. Their cavalry also had brigades instead of divisions with regiments having four squadrons. A French infantry brigade had two regiments of three, sometimes four, battalions; the cavalry had brigades of two regiments, each with three or four squadrons. The Imperial Guard was really an army within an army although it acted as a corps at Waterloo under the personal direction of the emperor. Its tactical grouping for the battle was three infantry divisions – Old, Middle (unofficial title) and Young Guard, and the Guard Light and Heavy Cavalry Divisions with the Guard artillery batteries initially divided among them. The different types of infantry (guard, grenadier, line, and light), of cavalry (heavy, medium or light) and of artillery (field and horse) are discussed below under army tactics.

The Anglo-Allied Army was organised into three corps. I Corps, under the young William, Prince of Orange, consisted of the 1st and 3rd British Divisions, the 2nd and 3rd Netherlands (Dutch-Belgian) Divisions and the Netherlands Cavalry Division. The II Corps commanded by Lieutenant General Lord Rowland Hill had only the 2nd British Division and one British brigade as the bulk of the corps (17,000) were stationed at Hal over 7 kilometres to the west, guarding against Napoleon making an attempt to outflank Wellington's right. The Reserve (III) Corps under Wellington's direction consisted of the 5th British Division, and the Brunswick Division (contingent). The Cavalry Corps under the Earl of

Prince William of Orange.
(Anne S. K. Brown)



Uxbridge had seven brigades that were deployed as separate formations with, in general terms, the heavy in reserve behind the front line and the light on the flanks.

Of the Prussians only the IV Corps (31,000) under General Friedrich Wilhelm Freiherr Count von Bülow, with four infantry and three cavalry brigades arrived in its entirety in the late afternoon. It was followed two hours later by three infantry and one cavalry brigade from the II Corps (12,800) commanded by Major General George von Pirch I. Finally, at about 7.30 p.m. one infantry and one cavalry brigade from Lieutenant General Hans Ernst Carl von Ziethen's I Corps (5,000) arrived – too late to be of much use as by then the French were on the verge of defeat.

Napoleon famously stated that God was on the side of the big battalions, and perhaps the most obvious factor among the many considered when assessing an army's strength and battle worthiness is the number of soldiers in it. The numbers discussed here are those available to the army commanders on the actual battlefield during 18 June. In round figures the Anglo-Allied Army (under the command of the Duke of Wellington) had 73,200; the Prussians (under the command of Field Marshal Gebhard Leberecht von Blücher) ultimately had some 49,000. Emperor Napoleon's French Army had about 77,500 available having sent Marshal Emmanuel de Grouchy off chasing the Prussians with 30,000. At the start of the battle Napoleon had a very slight advantage of about 4,500 men – certainly nowhere near enough to give him the 'big battalions', and by the end of the day, including casualties, he was hopelessly outnumbered. However, at 11.30 a.m. he had five hours in which to defeat Wellington before the first Prussians arrived on the battlefield – although at the start he was convinced he had Wellington to himself.

The overall numbers available to a general are by no means the only, or even the most important factor, in establishing an army's worth. The numbers become more relevant if the strengths or otherwise of the components of the army are also compared. At Waterloo Wellington had 53,800 infantrymen in



Bülow's entry into Arnhem in 1813. At Waterloo he commanded the IV Corps of Blücher's army and headed the attack on the French right at Plancenoit. (Rijksmuseum)

84 battalions, 13,350 cavalry in 93 squadrons, and 157 artillery pieces and one rocket troop in 24 batteries. The total eventual Prussian contribution amounted to 38,000 infantry in 62 battalions, 7,000 cavalry in 61 squadrons and 134 artillery pieces in 17 batteries. Napoleon deployed 53,400 infantry in 103 battalions, 15,600 cavalry in 113.5 squadrons and 246 artillery pieces in 34 companies (batteries). Wellington and Napoleon had virtually identical



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Lieutenant General Rowland Lord Hill, one of the Duke of Wellington's most trusted commanders, commanded the II Corps at Waterloo. He was to become Commander-in-Chief of the British Army in 1828. (National Army Museum)

numbers of infantry, but in battalions the latter had 19 battalions more. The reason for this was that Wellington's battalions averaged about 640 all ranks but Napoleon's only 520 (the Prussians 615); thus Wellington and Blücher had the 'big battalions' in the literal sense. In comparison Napoleon's cavalry exceeded that of his main opponent, certainly at the start of the battle, by some 2,250, although it was in artillery that he had the obvious advantage. Napoleon was a gunner by training and always strove to have superiority in this arm. At Waterloo he achieved a superiority of 89 pieces with six batteries of heavy 12-pounders making up almost 40 per cent of the total. These pieces, in batteries of eight (six cannons and two howitzers), were the most powerful on the battlefield throughout the day.

Other key factors in comparing the armies and understanding their organisation (leaving aside the commanders in chief discussed in an earlier chapter) include training, experience and composition of the arms and support services. These last include staff officers, supply of ammunition and food and medical arrangements. Wellington complained bitterly some six weeks before the battle that his army was very weak, ill-equipped and with an inexperienced staff. He was primarily railing against the cosmopolitan nature of his army, and the shortage of funds with which to make the local purchases necessary to pay, feed and move his army. However, things had improved by early June.



Napoleon was a gunner by training and throughout his many campaigns he relied on massed artillery fire to prepare the way for his main attack. (Print after JOB, René Chartrand)

Wellington's command was an Anglo-Allied force in which the majority of the men spoke languages other than English – German predominating. The regular British Army element, making up around 49 per cent of the total, included eight battalions of the King's German Legion (KGL), recruited from the German State of Hanover, along with 16 cavalry squadrons and three artillery batteries. The remainder was made up of Allied contingents. The most numerous were the Hanoverians (excluding the KGL) who supplied 17 battalions, or 21 per cent of the infantry, four cavalry squadrons and two batteries. The Dutch Netherlands (Dutch and Belgian) provided 13 battalions, 14 squadrons and two batteries; Brunswick eight battalions, five squadrons and two batteries; Nassau (a German territory) eight and a half battalions; and the Belgian Netherlands four battalions, nine squadrons and just over two batteries.

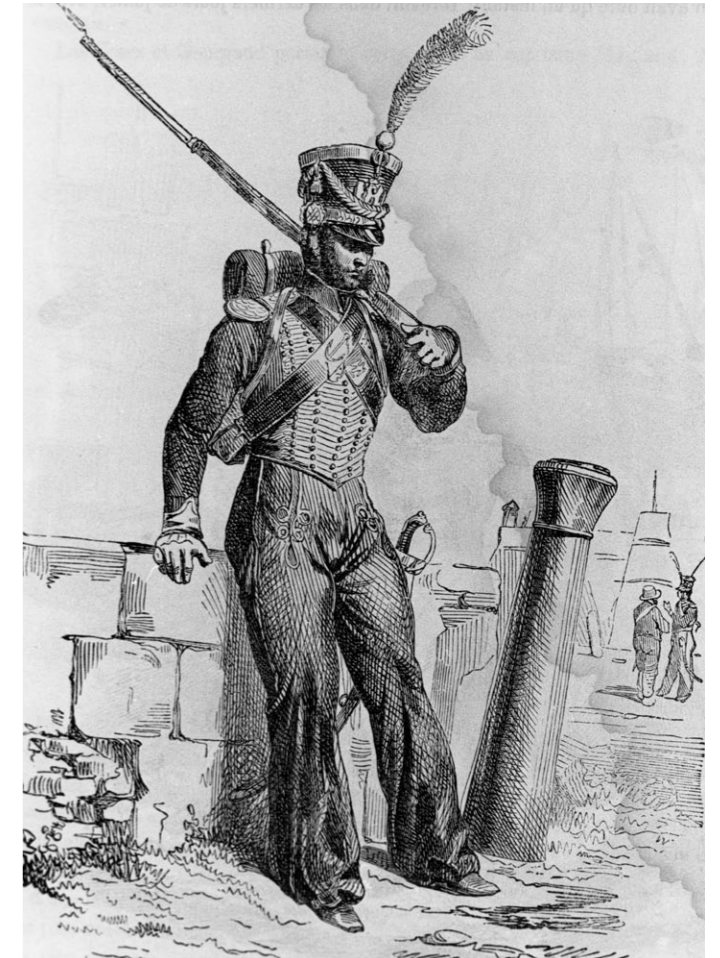
This composition gave Wellington some misgivings and the realisation that he needed to group inexperienced formations with experienced ones. Generally he did this by placing formations of potentially uncertain reliability within larger British ones. With the four Hanoverian infantry brigades (1st, 3rd, 4th and 5th) a number of KGL officers and senior NCOs were transferred into the *Landwehr* (militia reserve) battalions to stiffen the leadership. The 1st Brigade, the strongest with five battalions, was part of the British 3rd Division and fought well at Quatre Bras and at Waterloo, where it was posted in the front line near the centre. It suffered severely, losing over 1,500 men and three battalion commanders in the course of the two battles. The 3rd Brigade (part of the 2nd Division) was deployed in reserve behind the right flank and was not involved in the fighting until the final advance on a retreating enemy. The 4th Brigade (part of the 6th Division), consisting of four *Landwehr* battalions, was placed on the left flank of the infantry line where it saw little action and suffered few casualties. The 5th Brigade (5th Division), another *Landwehr* formation, was placed in the front line on the left but was not heavily engaged and its losses were minimal. The Duke of Cumberland's Hussars were the only regiment of the Hanoverian Cavalry Brigade at Waterloo (the others were at Hal). It was a volunteer unit of doubtful value and posted well to the rear. Later the regiment was seen withdrawing from the battlefield without orders, and efforts to stop them proved unavailing. Their commander, Lieutenant Colonel von Hake, was later court-martialled.

In the Netherlands contingent the Dutch contribution was much stronger than the Belgian. This kingdom, under King William I, was only formalised three months before Waterloo from the former northern and southern states (Holland and Belgium respectively) that had previously been part of Napoleon's empire. The fact that many of the officers and men had previously fought for

Napoleon, along with the language differences (the 2nd Netherlands Division had French, Dutch and German speakers), gave Wellington cause for (largely unjustified) concern. The 2nd Netherlands Division (the 1st Division was at Hal) was part of I Corps and grouped with the 1st British (Guards) Division and the 3rd British Division. It played a crucial part in holding the crossroads at Quatre Bras where it lost 1,100 men. Another 2,000 were lost at Waterloo where it was posted in the front line and faced the 2nd French Infantry Division's attack at the start of Napoleon's first attempt to break Wellington's line. The duke also had his doubts about the loyalty of the 3rd Division commanded by the Dutchman Lieutenant General David Hendrik Baron Chassé, who had spent five years fighting for the French. It was posted well out on the west flank and not committed to the action until the Imperial Guard attacked at the end of the battle, when Dutch commander Detmer's Brigade charged enthusiastically into the wavering guardsmen. Lieutenant General Jean Antoine de Baron Collaert, who along with his three brigade commanders had fought for Napoleon, commanded the Netherlands Cavalry Division. Wellington initially kept this division back in reserve. However, despite its recent history it participated successfully in several counter-charges against the French cavalry milling round the Allied squares in the afternoon.

Blücher had two main concerns regarding the reliability of his army. The first revolved around the officers and men recently recruited from new Prussian territories such as Westphalia and Saxony. These feelings were particularly prevalent among the Saxon contingents. Saxony had supported Napoleon and provided troops for him until their defection in the Leipzig campaign of 1813. Saxony had been split in two with the northern part taking half the army, and in 1815 many Saxon soldiers had no wish either to be part of Prussia or to fight for her. At Liège in May Saxon soldiers at Blücher's Headquarters mutinied shouting threats and

Sketch of a typical soldier of Napoleon's Imperial Guard in the uniform of 1812. (akg-images)





Dutch soldier Lieutenant General Baron Chassé had spent five years fighting with the French before deciding to fight on the side of the Allies. He commanded the Third Division at Waterloo. (Painting by Jan Willem Pienemann, Rijksmuseum)

throwing stones. Seven officers were executed and 14,000 soldiers sent home. Discipline remained fragile and this manifested itself again after the Battle of Ligny when some 6,000–8,000 disappeared during the army's retreat to Wavre after heavy losses in the fighting around the village. By 18 June the Army of the Lower Rhine had shrunk from 130,000 to 100,000 due to casualties and desertion.

Blücher's other potential problem was the high proportion of *Landwehr* units, many of which had recently been demobilised and whose soldiers had little desire to fight again. Of the Prussian units that reached the Waterloo battlefield a third of the infantry and a quarter of the cavalry were *Landwehr*. However, any misgivings Blücher may have had were dispelled by the *Landwehr* units' aggressiveness in the struggle for Plancenoit village.

When Napoleon crossed the frontier into Belgium with his Army of the North he commanded around 123,000 men of the 500,000 under arms that had been assembled, in great haste and despite daunting difficulties, to confront the armies that threatened France's borders. His return from Elba had largely been triumphal, with many units eagerly transferring their allegiance back to their beloved emperor. These included numerous veteran officers of middle and junior rank who had resented being put on half pay, while their places were filled with young and inexperienced non-entities who had secured royal patronage. A number of these Royalist officers refused to break their new oath of loyalty to the king and fled the country, while others 'sat on the fence' uncertain of what to do. However, Napoleon's main dilemma was in selecting his senior commanders, a number of whom had so recently transferred their allegiance to the king.

One of the two key marshals at Waterloo was Marshal Nicolas Soult, the chief of staff. A former corporal and drill instructor; he had always been an ardent supporter of his emperor, who later declared Soult to be 'an excellent "état-major" general (chief of staff)'. Nevertheless, Soult had little staff experience and there is some reason to doubt Soult's role in charge of what was a strong professional staff. An example from the battle was that he did not insist on the normal procedure of sending messages in triplicate – something that contributed to French communication difficulties at Waterloo. A far more experienced man for this role was Marshal Louis-Alexandre Berthier, who although remaining loyal to the king had refused to fight his former master, and died after a fall from a window on 1 June. Napoleon was initially doubtful about giving Marshal Michel Ney the critical command of the army's left wing, on account of the fact that Ney had sworn to the king that he would bring Napoleon to Paris in

an iron cage. It was not until 12 June, when the army was already on the march, that the emperor finally overcame his misgivings and gave him his command – something that at Waterloo resulted in Ney becoming Napoleon's second in command responsible for co-ordinating all major attacks.

Other senior commanders such as Major Generals D'Hurbal, L'Heritier, Jacquinet and Kellerman had all hesitated to join the returning emperor, thus generating a question mark over their true commitment. That said, they all fought well at Waterloo. The exception to this was Lieutenant General Louis Bourmont, commanding the 14th Infantry Division (not at Waterloo), who had defected to Blücher on 15 June along with his staff. Blücher gave him a frosty reception, remarking to the effect that a cur will always be a cur.

One divisional commander who was notoriously incompetent was Napoleon's youngest brother, Prince Jérôme Bonaparte, commanding the 6th Infantry Division in Lieutenant General Honoré Reille's II Corps. He spent the day fruitlessly attacking Hougomont, an error compounded by his corps commander who reinforced failure with yet another division.

Despite initial doubts as to the reliability of several senior commanders, the great bulk of the men Napoleon took to Waterloo were seasoned troops, and in that respect superior to most of his enemies. They were battle-hardened, confident

Prussian and French infantry cross bayonets at Ligny. (Anne S. K. Brown)





veterans whose overall morale at the return of their emperor was excellent. The same cannot be said for the pre-battle discipline of many units. Some soldiers doubted the loyalty of those officers who had been rewarded by promotion for rejoining the emperor while they had received nothing. The 12th Dragoons (in Grouchy's force) went so far as to petition for the removal of their colonel, and groans and jeers greeted the appearance of some officers. There were severe problems with shortages of equipment and uniforms – a high number of the Young Guard had a strange assortment of uniform or headgear. Horses had been hard to obtain, particularly ones capable of pulling heavy guns, as the stock of animals had never recovered from catastrophic losses in Russia in 1812.

The French supply train was not up to its task. French armies notoriously relied on foraging to supplement rations and on 17 and 18 June the supply wagons had dropped well to the rear as the long columns pressed further into Belgium. This meant soldiers went

marauding for food and plundered during the day and night before the battle. Many were out of their officers' control and indeed a number of officers joined in. This dispersal of units was one of the reasons why several formations were late arriving on the battlefield on the morning of the battle, with the 4th Division still arriving at 11.30 a.m. The disciplinary situation had been sufficiently serious for the provost marshal, Major General Radet, to offer his resignation – it was declined.

As regards rations, things were not much better in the Anglo-Allied Army. After the battle Wellington denied his commissary officers the Waterloo Medal as supplies of food failed to get through to the troops on the 17th and 18th. Medical arrangements on both sides were rudimentary and unable to cope with the number of casualties the battle would cause. M. K. H. Crumplin in his book *The Bloody Fields of Waterloo* estimates there were 55,000 killed and wounded at the battle, of which 15,000 were dead and around 35,000 wounded. The burden on the Allied and Belgian civilian medical services was exacerbated as not only had the French spent much of the day attacking and so left dead and wounded

strewn all over the battlefield, but so many were abandoned when the French retreated. With the casualties at Quatre Bras, Crumplin estimates the Anglo-Allied, Prussian and French armies had up to 40,000 wounded to deal with in the days and weeks after the battle. The situation on the battlefield was made even worse as French ambulance wagons had civilian drivers many of whom, on coming under fire, unhitched their horses, mounted up and fled. With the hard fighting at Quatre Bras most of Wellington's ambulance wagons had been used to take casualties to Brussels and when attempting to return many were unable to get through the clogged roads leading south. Assistant Surgeon John Haddy James attached to the 1st Life Guards (each unit had a regimental surgeon or assistant) was appalled at his helplessness; firstly due to the late arrival of his instruments and then the total inadequacy of the contents of his medical bag.

At dawn on 18 June the soldiers of both armies were suffering precisely the same hardships. They were soaking wet from torrential rain, hungry, and exhausted both from lack of sleep and hard marching. All had the problem of keeping their powder dry so there was much cleaning of muskets and a continual popping of weapons being test fired. An anonymous French soldier described the situation thus:

Throughout the Napoleonic Wars supplies were always hard to obtain on campaign, as depicted here by this French supply train in Poland, 1806. Waterloo was no exception. (akg-images)

The high level of destruction and mounting casualties at Waterloo is clear to see; there simply was not the medical support on either side to cope with the enormity of the losses. (akg-images)





Prussians storm Plancenoit on the afternoon of 18 June. Here the IV Prussian Corps under Bülow defeated Lobau's VI Corps. (akg-images)

About 8 o'clock the wagons arrived with cartridges and hogsheads of brandy; each soldier received a double ration; with a crust of bread we might have done very well, but the bread was not there... This was all we had that day... marching all night without rations, sleeping in the water, forbidden to light a fire... We were glad to pull our shoes out of the holes in which they were buried at every step, and, chilled and drenched to our waists by the wet grain ...

Most of Wellington's and Blücher's men would have echoed these comments.

THE WEAPONS

The weapons used at Waterloo can be divided into three basic categories – firearms, blade and artillery. Very few soldiers on any Napoleonic battlefield did not have a firearm of some sort, even if it was their secondary weapon. In each army the primary weapon of the infantryman was the musket (or rifle), of the cavalryman the sword/sabre and of the gunner his cannon (or howitzer). These were the weapons of the day upon which battle tactics were based. Although the size and weight of each type varied slightly from army to army, in practice there was little to choose, in terms of effectiveness, between a French, British or Prussian musket. Similarly the sword or sabre wielded by a French cavalryman was not a lot different from that held by a British or Prussian horseman. Of greater importance was the comparative skill and training of the holder and the tactical situation he was in.

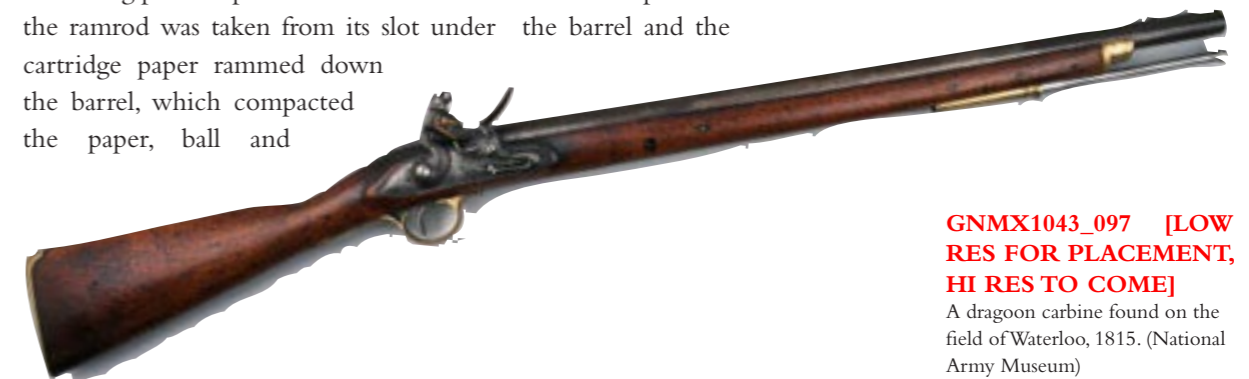
Firearms

These included muskets, rifles, carbines (or equivalent) and pistols. The musket overwhelmingly predominated. Of the 145,000 infantrymen who participated in the battle only around 8,000 were not armed with one. All muskets were flintlock, smoothbore, black powder, and muzzle-loading weapons with much the same characteristics in terms of range, accuracy and defects. The minor differences were in length of barrel, weight and size (diameter) of the bore. The British used the India (designed for the British East India Company) pattern 'Brown Bess' that had an 18.7-millimetre bore, meaning it fired a larger ball than the French Charleville year IX model with a bore of 17.2 millimetres. The Prussian 1809 Potsdam musket with a bore of 19.5 millimetres meant that in an emergency a Prussian infantryman could use the ammunition of any army on the battlefield,

whereas a Frenchman could not, although if using the small French ball it would rattle down the barrel with the excess windage causing much less accuracy and stopping power. The Brown Bess could also fire French musket balls, and as with the Potsdam was therefore marginally easier to load, particularly as fouling increased after continual firing. Various versions of the Brown Bess were in service with the British Army for over 100 years (1722–1838). Although it was generally reliable, one officer at Waterloo considered the French weapon superior for skirmishing due to its comparative lightness and slightly longer barrel, and claimed that soldiers could sometimes be seen searching to find discarded weapons due to problems with the locks on their own muskets.

The inherent problems of all muskets were similar. Perhaps the most significant was their wild inaccuracy at anything over 80–100 metres. At that range an individual soldier might hope to hit a man in one out of 20 shots. However, at short ranges – the shorter the better – massed fire could be devastating as the large lead balls had massive stopping power. A hit on the arm would knock a man down, ripping through muscle and smashing bones. Another problem was the time taken to load – this applied to all muzzle-loading firearms. Thus a fundamental requirement for infantrymen was the ability to follow the lengthy loading drill. If this was not mastered in barracks then he would have little hope of coping in the confusion, excitement and adrenalin rush of battle. He had to follow the correct sequence of actions automatically without thinking, and as fast as possible.

The drill involved taking the cartridge (made up of powder and ball wrapped in greased paper), biting the end off, and while keeping the ball in his mouth, pulling back the cock (hammer) to the half cock position – firing of the musket at this stage gave us the expression 'going off at half cock'. A small amount of powder from the cartridge was poured into the pan and the frizzen moved to the vertical position to secure the powder. The butt was grounded and the remaining powder poured down the barrel and the ball spat down after it. Next the ramrod was taken from its slot under the barrel and the cartridge paper rammed down the barrel, which compacted the paper, ball and



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A dragoon carbine found on the field of Waterloo, 1815. (National Army Museum)

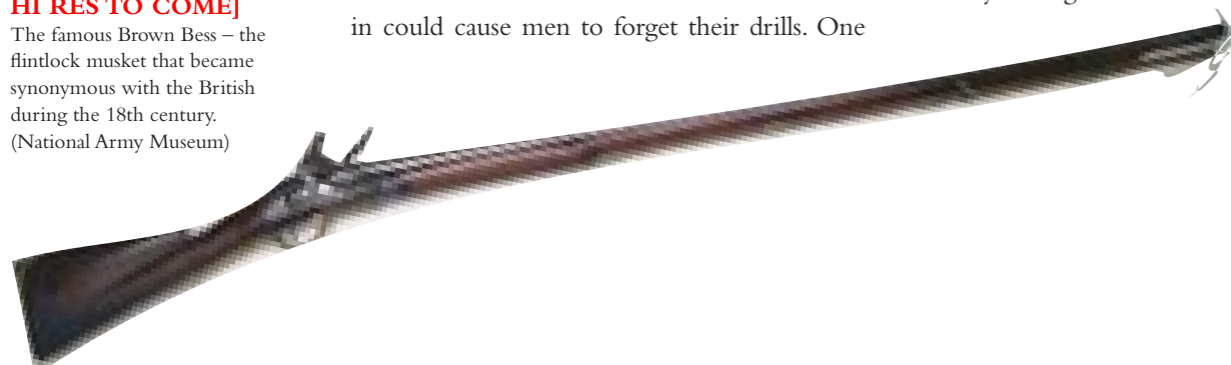
powder at the bottom. The ramrod was replaced (if lost or broken the musket could not be reloaded) and the cock pulled back to full cock. The musket was now ready to fire. To fire two shots a minute was a reasonable average, three exceptionally good. Invariably the first shot fired was the least likely to go wrong, as time had usually been spent getting everything correct. From then on firing rates tended to decline as barrels became fouled and mistakes were made, some of which took time to rectify. In emergencies the rate of fire could be speeded up by cutting corners, for example by banging the butt on the ground instead of ramming – a procedure that dramatically reduced effectiveness.

Several things could go wrong with muskets once firing started and clouds of smoke from the black powder developed. With little wind, smoke hung around and was continually reinforced by further firing (by artillery as well); this obscured targets, sometimes making it hard to tell friend from foe. Rain could ruin powder, or perhaps wash it from the pan. A good flint would last for up to 40 shots, but the setting required numerous adjustments and they were often dropped, so spares were essential. About one misfire could be expected every ten shots and it was not uncommon to have a hang fire. This meant the powder in the pan burnt more slowly than expected, resulting in a delay in firing of several seconds. This was most disconcerting for the firer, when, just as he lowered the weapon thinking he had a misfire, it fired. As more rounds were fired, so the fouling in the barrel accumulated, making ramming more difficult and eventually impossible until it was cleaned. At the same time the barrel was getting hotter and hotter – this could happen after ten minutes of continuous firing. The danger was not just the possibility of burnt hands as soldiers could avoid this by holding the sling, but the risk of the powder charge in the barrel exploding (called ‘cooking-off’), possibly disabling the firer. Captain Coignet, Napoleon’s wagon master at Waterloo, described how at the Battle of Marengo soldiers urinated down the barrels and dried them by pouring in loose powder and setting it alight!

Human errors made in the heat of battle with the enemy closing in could cause men to forget their drills. One

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The famous Brown Bess – the flintlock musket that became synonymous with the British during the 18th century. (National Army Museum)



was not removing the ramrod before firing, resulting in it being shot away and rendering the musket useless until another was found. Soldiers sometimes put the ball down the barrel first, which meant the musket would not fire. A similar result came from not closing the pan before loading the cartridge, which meant the powder could fall out or be blown away. Spiking their right hand while ramming a musket with fixed bayonet was not uncommon, as was forgetting the weapon was loaded and loading it again. The subsequent explosion was more likely to injure the firer than the enemy. Badly bruised shoulders from the kick of a loosely held musket, partial deafness, a bitter, gritty taste in the mouth, burnt cheeks and stinging eyes were the lot of soldiers involved in a prolonged firefight.

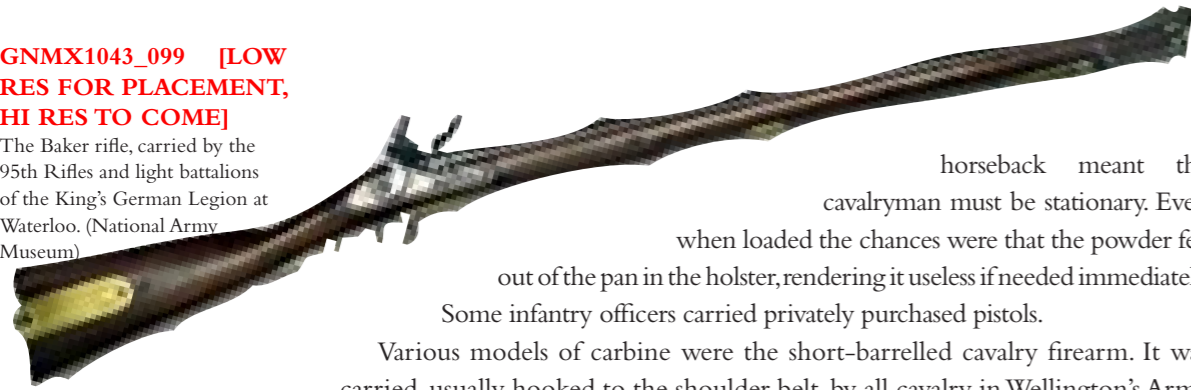
Some rifles were used at Waterloo, but only in Wellington’s Army, as in 1807 Napoleon had ordered the withdrawal of those in use in the French Army. Rifles had grooved barrels that spun the ball, enabling greater range and accuracy than a smoothbore weapon. A trained marksman could hit a man at 200–300 yards. Around 4,000 Anglo-Allied soldiers were armed with rifles. The Baker rifle was carried by the 95th Rifles, 1st and 2nd Light Battalions KGL, and three light companies in the KGL line battalions. The two *Jäger* companies of the Orange-Nassau Regiment; the Brunswick Advance Guard Battalion; two *Jäger* companies of the 1st Hanoverian Brigade and one light company in the Hanoverian Lüneburg and Grubenhagen Battalions were so armed, mostly with hunting rifles.

Rifles were primarily intended for use by sharpshooters and skirmishers, who were able to pick off enemy officers, gun detachments, horsemen or other worthwhile individual targets. This sharpshooter tactic was facilitated by the shorter (by 22cm) barrel permitting reloading in the prone position. The ball was 0.615 millimetres smaller than the musket ball but the same as carbines. However, at Waterloo Wellington used most of his rifle-armed troops as line infantry, relying on light companies of line battalions armed with muskets for most skirmishing. The grooving, while twisting the ball in flight, meant slower loading than with a musket as fouling built up more rapidly, resulting in increasing ramming difficulties. The loading drill was the same as with a musket but the rifleman carried a powder horn with fine powder and a bag of balls in addition to their supply of prepared cartridges in their cartridge box. Ramming the ball wrapped in a circular greased cloth followed a pinch of powder in the pan. A skilled rifleman could load and fire at around half the rate of his musket-armed comrade. The Baker rifle was to remain the British Army’s rifle for 40 years.

Most cavalry carried muzzle-loading pistols, some French horsemen having two in a holster on either side of the saddle. Their range was exceedingly short, it was extraordinarily difficult to fire accurately from a horse, and to secure a hit the target had to be very large or so close that the enemy was only feet away. To load on

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The Baker rifle, carried by the 95th Rifles and light battalions of the King's German Legion at Waterloo. (National Army Museum)



horseback meant the cavalryman must be stationary. Even when loaded the chances were that the powder fell out of the pan in the holster, rendering it useless if needed immediately.

Some infantry officers carried privately purchased pistols.

Various models of carbine were the short-barrelled cavalry firearm. It was carried, usually hooked to the shoulder belt, by all cavalry in Wellington's Army except for marksmen in the 10th Hussars, who had the shorter version of the Baker rifle. The Household troops and heavy dragoons carried the heavier 1796 pattern carbine with a 26-inch barrel, and the light cavalry the Paget carbine. They were all short-range weapons primarily for use for skirmishing. Their use

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Typical British riflemen in the uniforms of 1812. (National Army Museum)

at Waterloo was negligible. All Napoleon's cavalry, except for cuirassiers and lancers, carried a long firearm – dragoons had the musketoon that was extremely awkward to handle as it had a barrel of almost musket length.

Blade weapons

The sword and the sabre were the primary weapons of the cavalry, apart from the lancers. While there were exceptions, swords were generally straight or almost straight bladed, while sabres were usually more curved, some markedly so. There was considerable disagreement as to whether the thrust or the cut was the most effective way of disabling an opponent. The thrusters correctly maintained that a stab wound to the body had only to penetrate 6–8 centimetres to be fatal. However, if it penetrated too far the blade could become trapped in the rib cage and be difficult to withdraw. The slashers did not have that problem. A hard swipe with a well-balanced sabre would certainly inflict a fearful wound that would disable although not necessarily kill outright. There were numerous variations of length, curve or otherwise of blade, weight, balance and design of hilt as a weapon that could do both thrust and cut with equal facility was sought.

British heavy cavalry such as the Union Brigade carried a somewhat ineffective 1796 pattern sword that was 90 centimetres long and straight bladed apart from the 10 centimetres at the tip that curved on one side to make a point. Before Waterloo many had the tip of the blade ground into a spear point for easy penetration. However, it was a heavy, cumbersome weapon that was good for thrusting or hacking at an infantryman, but hard and tiring to wield when duelling with other cavalymen. British light cavalry carried the 1776 pattern sabre with a slightly shorter blade that was markedly curved, and wider at the point than the hilt. This gave the point end more weight and resulted in it being capable of inflicting dreadful slashing wounds with deep long cuts. It was not unknown for a man's arm to be severed or skull split through a helmet. French heavy cavalry were armed with swords and sabres with the cuirassiers and dragoons carrying straight bladed weapons, and the carabineers, *grenadiers à cheval* and *gendarmes d'élite* heavy straight sabres. Light cavalry carried a lighter curved sabre, including the lancers. The Prussian dragoons, hussars, *Uhlans* (lancers) and *Landwehr* cavalry all had curved sabres.

French infantrymen were also armed with a short sword (*sabre-briquet*) in addition to their musket and bayonet, although it was rare for an infantryman to fight with a sword. Most French officers also carried swords with many preferring the robust sabre of the élite companies. British Highland Regiment officers were



armed with the heavy, basket-hilted broadsword or claymore, while the British 95th Rifles officers were ordered to carry pistols, as their curved sword was such a poor weapon.

Every infantryman had his bayonet, mostly used for defence against cavalry. The British bayonet had a 43-centimetre blade (rifle bayonets were slightly longer as the barrel was shorter). There was little bayonet fighting at Waterloo except in Plancenoit village, where the Imperial Guard clashed with the Prussians. Sergeants in British infantry units were unique in carrying 2-metre pikes as their primary weapon. The exceptions were the sergeants of rifle regiments, who had rifles, or of the light companies of battalions, who had muskets. Pikes had a crosspiece below the spike to prevent over-penetration. They were of limited value to a battalion compared with the loss of over 30 muskets.

The final blade, or rather spiked weapon, was the lance. It was about 2.7 metres long and weighed over 3 kilograms, with a steel point, blackened wooden staff, leather wrist strap and steel ferule. Its advantages lay in its long reach, and it was an intimidating sight to see a mass of lancers charging towards you with lowered lances. It could be a deadly killer when held by a moving horseman as the point was driven into the body with the weight of the horse behind it. It was eminently suited to spearing fleeing infantrymen. However, a swordsman in a *mêlée* could comparatively easily parry it, and thereafter the lancer was seriously disadvantaged unless he dropped his lance and drew his sword – as they often did. It is likely that French regiments at Waterloo only armed the front rank of lancer squadrons with lances. Over half the Prussian cavalry present were lancers.

Artillery

As noted above, at the start of the battle Wellington deployed 157 pieces of ordnance and Napoleon 247. In the late afternoon and evening Blücher brought another 134. All were smoothbore, muzzle-loading pieces. This ordnance was divided into cannons (guns) that fired at direct line of sight targets, and howitzers that could lob projectiles over low obstacles at long distances as well as fire canister (see below) at closer ranges. Ordnance was classified according to the

weight of the projectile it fired or the diameter of the bore. The cannons were 6-pounders (Wellington had 67, Napoleon 142, Blücher 82); 9-pounders (Wellington 60) and 12-pounders (Napoleon 36, Blücher 18); those with the Imperial Guard were dubbed Napoleon's 'beautiful daughters'. Howitzers were 5½-inch (Wellington 30, Napoleon 56); 6-inch (Napoleon 6); 7-inch (Blücher 28) and 10-pounders (Blücher 6). Howitzers were distinguishable from cannons by their short stubby barrels.

Teams of horses working in pairs drew all artillery. The 12-pounders had teams of eight horses, the 9-pounders six and the 6-pounders six or four. The size of gun detachments varied according to the size of the piece but on average Wellington had 33 men to keep a gun in action, while Napoleon had 26, figures that include the officers, gunners, drivers for ammunition, forage and stores and wagons, and specialists such as farriers. Ordnance was divided into batteries (also called brigades and companies) for tactical purposes, having four, six or eight pieces; all except the four-gun batteries normally included two howitzers. All the artillery was divided between foot and horse artillery. The former was intended to support the army from static or semi-static positions, while horse artillery could manoeuvre on the battlefield in support of cavalry or infantry, whereas with foot batteries only the ordnance and accompanying caissons for ammunition and wagons were horse drawn.

Loading procedures were similar to those of muskets in that powder was placed in the vent at the base of the barrel and the charge and projectile were muzzle loaded and rammed home and the powder lit with a slow-burning match. The main difference was that after firing the barrel was swabbed with a wet sponge to remove any glowing embers. The rate of fire was slow as the piece recoiled backwards after firing and had to be re-aligned after every shot as well as reloaded. This was tiring work, particularly with the heavier pieces, and a good rate was two rounds a minute. This soon dropped to one or

A 6-in howitzer of the Foot Artillery of the Imperial Guard, c.1808–15. (Print after Maurice Orange, René Chartrand)





Austrian horse artillery in 1815.
(Anne S. K. Brown)

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less with exhausted or depleted detachments – the French had to call in infantrymen for muscle power after the Grand Battery lost men to the Union Brigade’s attack.

The ammunition held with the gun, in the axle box and limber, was usually dumped beside the piece for static firing. The limber then withdrew, undercover if possible, nearby. The bulk of the ammunition was kept further back on caissons (ammunition wagons), with more wagons in a third line behind that – there were slight variations between nationalities.

Cannons fired either round shot (an iron cannon ball) or canister, and howitzers shell or canister. Round shot accounted for about 75 per cent of all artillery ammunition carried at Waterloo, as it was dual-purpose ammunition equally capable of smashing walls, equipment or men’s bodies, particularly if they were packed together in columns. Cannon balls would ricochet on hard ground bowling over any soldier in their path, although wet ground at Waterloo largely prevented this. However, they were line of sight projectiles, and as Wellington usually deployed his troops behind a ridge, or got them to lie down or dismount, losses were considerably reduced. Round shot was effective for ranges up to 1,100 metres, but best at around 500–600 metres. Canister (also called case shot) was an anti-personnel, anti-horse projectile normally fired at ranges up to 350 metres for the ‘lighter’ type, and out to 400 or 500 metres for 12-pounders. British light canister consisted of a tin canister filled with 85 42-gram balls and

the heavy variety 41 100-gram balls. It was effectively a huge shotgun cartridge that could do enormous damage as the balls spread out in a cone.

Howitzers could fire canister in emergencies but normally relied on shells fired at a high angle to hit targets hidden from view. The common shell was a hollow iron sphere filled with gunpowder and lit by a fuse ignited by the flash of the propellant charge. The iron fragments flung out by the bursting charge were effective against men and horses, although with an airburst many were thrown upwards and thus were useless. The key to success was to cut the fuse to the right burning time for the range – a frequent cause of error. In wet ground shells would often bury themselves and limit the lethality of the explosion. The only howitzers to fire spherical case or shrapnel (invented by Henry Shrapnel in 1784) at Waterloo were the British, as it was unique to Britain. This was an iron sphere filled with a mix of gunpowder and musket balls ignited by a fuse. It was an effective projectile, very much the British ‘secret weapon’ at the battle, capable of flinging musket balls from an airburst out as far as 900 metres. At Waterloo French howitzers also successfully fired ‘carcass’ projectiles at the buildings in Hougoumont Farm. It was an incendiary projectile made from a bound canvas container in which was a solidified mixture of turpentine, resin, tallow, sulphur, saltpetre and antimony that was lit by the propellant charge. It burnt for around 12 minutes and was almost impossible to extinguish.

Another artillery weapon exclusive to the British was ‘ammunition without ordnance’ or rockets (called Congreve Rockets after their inventor Colonel William Congreve). They looked very similar to modern firework rockets. One troop was present at Waterloo firing 6-pound incendiary or canister rockets. They were cheap to make, did not need guns to fire them and had a range out to 2,700 metres. However, they were wildly inaccurate and could even turn back on the firers,

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OUT WHITE
BACKGROUND

Artillery train of the Imperial Guard under fire, c.1808–12. The gun (right background) has been unhooked from its limber and is in action. (Print after JOB, René Chartrand)





The Earl of Anglesey leads the heavy cavalry and dragoon guards in a charge at Waterloo. The range of weapons used by the cavalry are clear to see, including sabres and pistols. (Anne S. K. Brown)

although they could frighten both troops and horses. Wellington had little use for them and was only reluctantly persuaded to accept a few. At Waterloo the rockets were part of the 6-pounder battery of Captain Whinyates, Royal Horse Artillery (RHA). Normally a high-angle weapon, they could also be fired along the ground; they were employed in this way at the battle, where some 50 rockets were used.

TACTICS

For Wellington Waterloo was primarily a defensive and counter-attack battle fought against an opponent whose success depended on attacking. Napoleon was only forced onto the defensive on his eastern flank when the Prussians attacked in the evening. Throughout history the weapons used, their effectiveness and range, have dictated tactics. Waterloo was no different. It was largely, though not exclusively, the characteristics of the infantry musket that shaped how armies fought.

The infantry had to learn to manoeuvre, change formation between column, line or square, retire and skirmish. During the battle the British 71st Regiment changed from column to square to column and then to line. To do this under battle conditions necessitated constant training in the drills required. Similarly, the cavalry had to master various formations and how and when best to charge, to retire or skirmish. The commanders in chief set the overall grand tactics at Waterloo. Napoleon decided he would defeat his enemy by smashing a hole in the Anglo-Allied line with frontal attacks, and then exploit that break with reserves. Wellington decided to hide virtually all his army, except for his artillery, behind the Mont Saint Jean ridge to give them cover from view and direct fire. He kept the bulk of his cavalry and less experienced infantry formations in reserve for counter-strokes. Additionally he manned three outposts some distance in front of his line – Hougoumont and La Haye Sainte farms and the cluster of farms Papelotte/La Haye/Smohain. Blücher's plan was to march to join Wellington on his left flank and then attack.

Tactical success is most easily achieved when all arms co-operate and support each other on the battlefield. Co-ordination, not just between different arms but also between fire and movement, combined with surprise and concentration of force, has invariably been the key to victory.

The basic infantry formations used during the battle were the column, line and square. Battalion columns were not marching columns, but rather companies in two (British) or three (French and Prussian) ranks formed one behind the other with distances between companies varying dependent on the tactical

circumstances and need to change formation quickly. A British column of ten companies closed up would have a frontage of about 20 metres (one company in two ranks), and a depth of 50 metres with the grenadier (élite) company at the front and the light company at the rear. Its commander would lead each company with the other officers in the rear. The colour party was in the centre of the column. A battalion column in open order would be 20 metres wide but around 200 metres deep. Most of Wellington's battalions formed up in close order columns behind the Mont Saint Jean ridge at the start of the battle, as this formation was comparatively easy to control for movement. A battalion attack column, used mostly by the French and Prussians for advancing against the enemy such as those of Reille's divisions attacking Hougoumont, usually consisted of the six companies, each in three rank lines, three companies deep alongside each other. Again, this was easier to control, and from it to change formation to line to develop more firepower, or square to defend against cavalry. It was common to deploy light companies well in advance of the attackers to act as skirmishers (see below).

Dense columns (a French attack column could be nine ranks deep) were very vulnerable to fire. They were almost impossible to miss when within effective musket range, while cannonballs and canister could be devastating. An example of this was the 1st Nassau that remained in close column for most of the day and suffered accordingly. According to Captain Friedrich Weiz the battalion was 'at a serious disadvantage due to the depth of the column'. Another serious drawback was a column's inability to develop much firepower at the front – only the first two ranks of the two leading companies could fire. Equally they were vulnerable to physical attacks on their flanks, particularly by cavalry. French drill manuals decreed that attack columns should deploy into line to maximise firepower as they neared the enemy. This was seldom achieved or attempted as the French normally relied on sheer weight of numbers and momentum to push home their assault. The difficulty for the column commander was when precisely to order the change to line, which could take several minutes – too soon and he was open to attack by cavalry and was out of musket range; too late and he was vulnerable to massed musket fire.

At Waterloo General Jean-Baptiste Drouet, Count d'Erlon's Corps, advanced against an enemy largely hidden behind a crest so commanders could not see the Allied formations until too late to change formation. This particular attack was made even more difficult to control and vulnerable by advancing in divisional battalion columns in an attempt to combine firepower to the front with weight in the assault. Two complete divisions plus two brigades – 25 battalions, some 12,500 infantry – formed up with each complete division of

eight or nine battalions deployed in line in three ranks closed up one behind the other. For example, Marcognet's Division of eight battalions had its leading battalion in three ranks with a frontage of some 120 metres. The column thus had 24 ranks and a depth of only 80 metres – a gunner's dream.

When Wellington's front-line battalions deployed forward to meet the French infantry assault they formed into line – that is battalions drawn up in two ranks (with some Allied battalions in three). The objective was to get virtually all muskets available to fire. Firing was done by platoons, by files or by the front rank firing while the second 'made ready'. However, one massive volley by up to 500 muskets firing at short range into a dense target caused horrific loss. If followed by an immediate bayonet charge, as was British preference, it was invariably decisive.

For defence against cavalry attacks infantry relied upon a defensive square formation – if caught in line or column by charging cavalry they were lost. The



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British infantry in 1812 pattern uniforms and equipment, equipped with muskets and bayonets. (National Army Museum)



French cavalry attack a British square during the afternoon at Waterloo. (Anne S. K. Brown)

5th KGL was caught in line and destroyed when advancing to support La Haye Sainte. In some cases the formation was more rectangular than square. A British eight-company battalion, if not deploying skirmishers, would have two companies on each side facing outwards; six companies would have two companies at front and rear and one on each side. If casualties had been heavy two battalions could combine to form one square, examples at Waterloo being the British 2nd/30th and 2nd/73rd and 3rd and 4th Battalions, KGL. The square was usually formed with companies in two or more ranks, the front rank(s) kneeling. All had bayonets fixed so that in addition to the firepower the sides of the square became a 'hedgehog' of spikes that horses were reluctant to face despite the vicious use of spurs. This is what happened during Ney's massed cavalry assaults during the afternoon when his horsemen washed round the Allied squares like an incoming tide round rocks. The attacking cavalry mostly halted close to the squares, fired their pistols or carbines and retired, or were counter-attacked and driven off by Wellington's cavalry and devastating close-range volleys from the squares.

Battalion squares could be used for movement if there was a danger of cavalry attack. According to General of Brigade Baron Jean Martin Petit, commanding the 1st and 2nd Battalions of the 1st Regiment of Grenadiers of

British infantry repulse a French cavalry assault. Note the Congreve rocket being fired in the background.
(Anne S. K. Brown)



the Old Guard, who watched them advance, this was the formation of the eight battalions of the Imperial Guard when they launched their final assault. Napoleon finally withdrew from the battlefield in a square of the 1st Regiment of Grenadiers of his Guard.

It was not impossible, if rare, for cavalry to break a square – for example, if the infantry was caught in the process of changing formation, or if it was manned by shaken, hesitant troops, or if a gap was created by artillery fire or a horse collapsed into the square. In these circumstances horsemen could break through, and the square was almost certainly doomed. Infantry would often be ordered to fire at the horses, as bringing down both animal and rider resulted in a tangled confusion of bodies that formed an obstacle to those coming behind. In the evening a Hanoverian square of the Bremen Field Battalion was compelled to form first a triangle and then ‘an irregular mass’ by devastating case shot and musketry to the extent that all order within the ranks was lost within half an hour, and whatever remained of the exhausted troop retired.

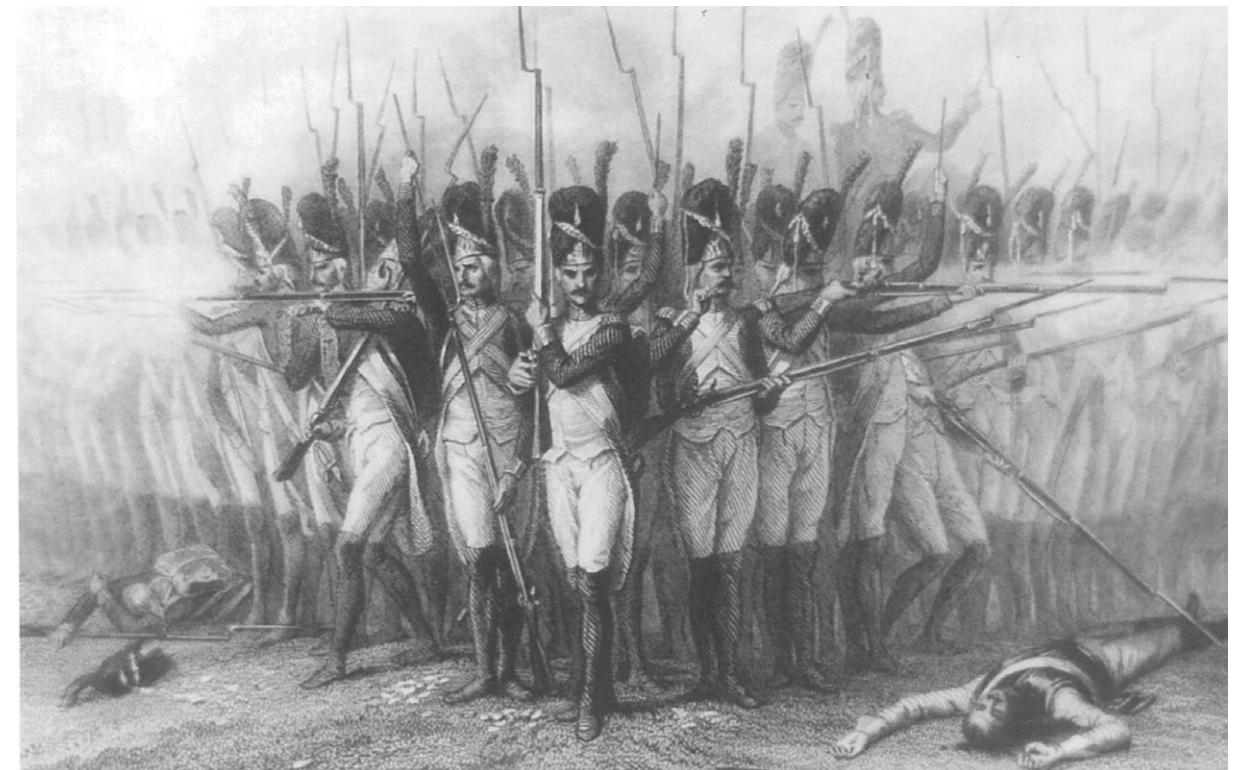
Either infantry or cavalry could undertake skirmishing, although at Waterloo only the former did so. It normally involved light infantry companies trained as marksmen to deploy 200–250 metres forward of a defensive position or in front of advancing infantry. They operated in open order in pairs and in extended lines employing individual aimed fire to disrupt an enemy advance, or screen an advance from enemy skirmishers and drive them away. They could be particularly effective against artillery detachments or picking off mounted officers. Indeed, the 3rd Battalion, KGL, suffered severely from the heavy skirmish fire of French tirailleurs, who were several battalions strong.

Skirmishers were highly vulnerable to cavalry attacks so individuals unable to seek shelter or form square were trained to face attacking horsemen until the last minute and then fall down and sham death. If this was too risky each individual should at the last moment jump to the right onto the horseman’s left (‘blind’) side and thrust his bayonet at the horse. Normally as the attackers closed in skirmishers would withdraw to their parent unit or round the flanks, or between the attacking units.

At Waterloo Wellington deployed skirmishers from the outset in an irregular line stretching almost 4,000 metres from Hougomont Wood to La Haye Sainte, and then east of the Brussels road to south of Papelotte. It averaged about 200 metres forward from the crest of the ridge. The object was to protect the batteries behind and inflict losses on advancing infantry but to retire to the shelter of the squares if faced by cavalry or pressed by the main attack. This line was sparsely spread, but being down a forward slope the artillery behind was initially able to fire over their heads.

With the French this duty fell to the voltigeur companies in the line or light battalions. A strong skirmisher screen fronted d’Erlon’s massive infantry advance

French Consular Guard form a square at Marengo, June 1800: the same formation was probably adopted to the Imperial Guard’s final advance during the early evening. (Print after Raffet, Philip Haythornthwaite)



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The 85th Regiment skirmish at Nivelles in November 1813: the men are in open order, operating in pairs. Skirmishers often played an important role on the battlefields of the era. (Print after Richard Simkin, Philip Haythornthwaite)

at the start of the battle. If all the attacking battalions had contributed their voltigeur companies then up to 2,600 French skirmishers would have outnumbered the thin Allied skirmish line by well over two to one. As the main body closed in the French skirmishers were trained to either withdraw through the main line, or if this was impossible to lie flat and let the infantry walk over them. For some reason during the final major infantry assault by the Imperial Guard in the final stages of the battle no skirmishers were deployed.

Cavalry operated on the battlefield in squadrons and charged, if possible knee to knee, in a line of three or four squadrons each of two ranks, or with the squadrons in echelon, chequered, or column formations. The massed French cavalry attacks in the afternoon were mostly in squadron columns as they were forced to attack on a narrow frontage. A theoretical sequence of a charge was walk, trot, canter, gallop and finally an all-out dash for the final 50 metres. It seldom happened this way. At Waterloo the gap between Hougoumont and La Haye Sainte was only 950 metres and Ney crammed 9,000 horsemen through it during the course of the afternoon so at best they approached the squares at a trot. When counter-attacked by Allied cavalry many were caught stationary or just milling around. Even the Union Brigade's counter-attack on d'Erlon's divisions as they crested the ridge and pushed through the hedges was mostly at a trot or canter. Captain Kennedy Clark, 1st (Royal) Dragoons, whose squadron confronted Donzelot's Division, stated:

From the nature of the ground we did not see each other until we were very close, perhaps eighty or ninety yards ... they [the enemy] had forced their way through our line – the heads of the columns were on the Brussels side of the double hedge... In fact the crest of the height had been gained... The charge of the cavalry took place on the crest, not on the slope of the ridge ...

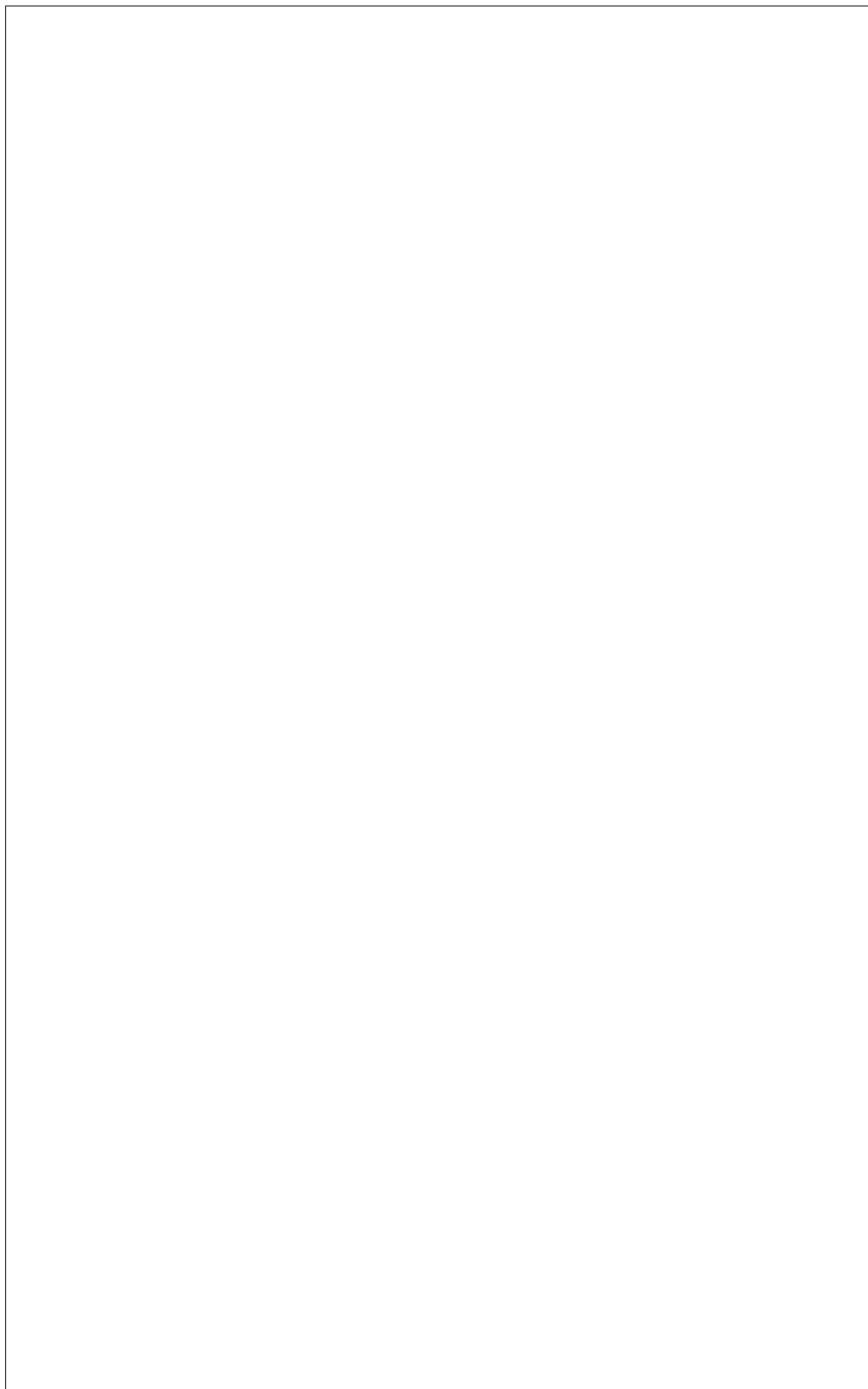
If cavalry charged other cavalry it was a tactical principle that those threatened should counter-charge, as being caught stationary was a serious disadvantage. This happened when the Household Brigade charged down onto the French cuirassiers that had advanced on d'Erlon's left flank west of La Haye Sainte. The resultant momentum against the slow-moving or stationary French horsemen soon drove the cuirassiers back. The classic example of a perfectly timed cavalry counter-attack was when the scattered and out of control Household and Union Brigades were caught on blown horses milling around the Grand Battery position. They were hit in front by cuirassiers and on their left by lancers and chasseurs (some 2,400 horsemen) and lost heavily, including the commander of the Union Brigade Major General Sir William Ponsonby. The French cavalry were in turn forced to retire by another well-executed counter-attack by the light cavalry brigades of both Major General John Vandeleur and Major General Charles Étienne Ghigny's Netherlanders.

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British gunners undergoing artillery training at Woolwich Barracks prior to Waterloo. (Anne S. K. Brown)



WATERLOO, 18 JUNE 1815 – THE SITUATION AT 11 A.M.



ARTILLERY

As with musketry, artillery fire had to be concentrated to be effective. Napoleon made the point with his maxim, 'In battle like a siege, skill consists in converging a mass of fire on a single point.' He succeeded in grouping 80 pieces (60 cannons and 20 howitzers) in a 'Grand Battery' to bombard the centre and left of Wellington's line before launching the attack by d'Erlon's Corps. On this occasion results were disappointing as, except for the artillery batteries, the Allies were sheltered behind the ridge and spread over a large area out of sight of the gunners. Co-operation with, and support of, other arms was a key artillery tactical principle; something that Napoleon (and Ney) only belatedly achieved to a limited extent. When some French horse batteries came forward during Ney's massed cavalry attacks they were able to fire effectively into the Allied squares – it was virtually entirely cannon fire that inflicted serious losses on the squares. However, they were only able to fire in between the cavalry attacks and it was generally not well co-ordinated with their mounted comrades. When La Haye Sainte was taken and a French horse battery unlimbered close to Captain

French cuirassiers attacking
Captain Sandham's artillery
company at Waterloo.
(Dawn Waring)



Alexander Cavalie Mercer's Battery's left flank, he felt sure that due to the rapidity and precision of fire, they would be annihilated. After the farm fell another French battery opened effective canister fire a mere 150 metres from Major General Sir James Kempt's Brigade but fortunately it was soon driven off by accurate rifle fire from the 1st/95th.

Wellington departed from the usual artillery tactics in two ways. First, apart from a small reserve of guns, he removed the horse batteries from his cavalry formations and placed them with the foot batteries, most initially in the front line along the ridge. In this way he achieved considerable concentration against his attackers as they advanced through the high-standing rye up the slope. However, these batteries were exposed to French guns, and during the day many suffered severely from losses of men and horses, and exhaustion. Secondly, Wellington ordered his gunners to abandon their pieces and seek shelter in the nearest infantry square if about to be overrun by cavalry. However, it could have been damaging to the infantry morale seeing the gunners running away, and for this reason the order was not universally obeyed. Abandoning the guns meant the enemy would capture them, and might either spike them (drive a tapered steel wedge into the vent) or drag them away. Fortunately the French were too disorganised or ill equipped to do either (the British Household and Union Brigades also failed to spike any Grand Battery guns), enabling the detachments to run back and resume firing as the French withdrew. Wellington also forbade his artillery from counter-battery fire – he wanted ammunition conserved for softer targets. Major H. J. Kuhlmann, KGL Horse Artillery, stated, 'the Duke of Wellington visited us several times and gave us the distinct order never to fire at the enemy artillery'. On one occasion Captain Mercer RHA disobeyed this order and suffered severely in consequence.

Waterloo was the final deciding clash of the Revolutionary and Napoleonic Wars between the two great opposing commanders of the era. Wellington was usually at his best when defending, and Waterloo was a classic example of his infantry and artillery defensive tactics and the use of cavalry for counter-attacks. Napoleon on the other hand had secured most of his great victories as an attacking general, with the main assault preceded by a concentrated artillery bombardment. Being a gunner, whenever possible he endeavoured to assemble a 'grand battery' with which to open a battle. Waterloo is an obvious example of his use of guns in this manner at the start followed by an attempt by massed infantry attack in close columns against the enemy's centre. Also it demonstrated again his invariably keeping the Imperial Guard as a last reserve either to clinch a victory or to counter an unexpected threat, or a final fling to snatch a victory from impending defeat – at Waterloo it was the latter two.

This battle also featured most if not all the common features of Napoleonic battle tactics, the most obvious being the defeat of the heavy infantry column assault by the extended line. The side bringing the most muskets to bear at close range invariably destroyed a column attack. With cavalry attacks against the infantry in squares, Waterloo demonstrated again and again that horsemen could not break a steady square. At various stages of the battle there are examples of skirmishers, fighting in woods or for buildings, cavalry counter-attacks, the importance of disabling captured guns and of achieving co-operation between cavalry, horse artillery and infantry in an attack.

It would be 40 years before European armies fought again. During the Crimean War both the weapons and tactics of Waterloo had changed little and a number of the generals of that era had been subalterns four decades earlier.