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The Roots of Artillery Doctrine: Napoleonic Artillery Tactics Reconsidered



Bruce McConachy

HISTORIANS claim that the changes evident in Napoleonic artillery practices from 1807 resulted from declining standards throughout the *Grande Armée* brought on by years of constant warfare. This paper argues that this is incorrect. Examination of the long-term development of the French artillery arm, the growth in artillery numbers, and improvements in artillery practices reveals the increasing importance of artillery tactics within Napoleon's overall battle plan. This should be seen as a culmination of years of experimentation and innovation, rather than compensation for a decline in other arms.

It is generally recognised that French successes under Napoleon came at a price: battle casualties slowly thinned the veterans from the ranks, while an influx of inexperienced recruits took their place. Many historians dealing with French tactics believe that the artillery's rise was occasioned by the declining quality of French infantry that resulted from this ongoing process,¹ a situation exacerbated by the loss of experienced officers.² A second school of thought attributes this trend in artillery tac-

1. D. G. Chandler, "Column Versus Line: The Case of Maida," *On the Napoleonic Wars* (London: Greenhill, 1994), 138; B. Nosworthy, *Battle Tactics of Napoleon and His Enemies* (London: Constable, 1995), 178; G. E. Rothenberg, *The Art of Warfare in the Age of Napoleon* (Bloomington: Indiana University Press, 1978), 136; R. B. Holtman, *The Napoleonic Revolution* (Philadelphia: Lippincott, 1967), 41.

2. Nosworthy, *Battle Tactics*, 180–81.

ties to France's inferiority in cavalry numbers during 1813–14.³ This massing of cannon has been seen by some as a decline in artillery tactics.⁴ While a major shift did occur in French tactical practice from 1809, this article argues that it was the result of improvements in the use of artillery, rather than a response to declining standards. Nevertheless, the new artillery tactics did compensate for the decline in the quality of France's infantry and cavalry.

Beginning with the Battle of Friedland (14 June 1807), Napoleon's system of artillery began to make its presence felt upon the battlefield. While the aggressive handling of a small number of cannon is evident prior to 1807, Friedland was the moment when the system began to crystallise into the Napoleonic artillery regime that thereafter systematically handled large artillery formations in an aggressive manner. At this time the artillery moved from being exclusively a support arm to one that could take the lead with the other arms supporting it in turn. To understand the nature of this new system and why it appeared when it did, we need to examine the development of the artillery arm in the wake of the Seven Years' War (1756–63). Two important trends with roots in the reforms of that period culminated with the range of artillery-based tactics overseen by Napoleon in the years 1807–12. These trends were the heightened mobility of the artillery arm and the development of new practices to maximise the benefits resulting from this enhanced mobility.

During the years 1732–64 and 1772–74, France employed the artillery system of Jean-Florent de Vallière (1667–1759) in the manufacture of its cannon. Vallière based his system on the belief that the cannon's ultimate role was in siegecraft, rather than in open battle. Cannon were designed to maximise the impact of shot, rather than for mobility. The tubes were cast thick, to allow powerful charges to be used, and long, to ensure greater range.⁵ Vallière's guns were basically the same immobile pieces as those used by Louis XIV. As long as the infantry was likewise relatively immobile, this was largely acceptable. However, as the widespread field use of the column increased the infantry's mobility, a school of artillery officers who sought to emulate Prussian and Austrian

3. S. Bowden, *Napoleon's Grande Armée of 1813* (Chicago: Emperor Press, 1990), 50; J. R. Elting, *Swords Around a Throne* (New York: Free Press, 1988), 537; R. S. Quimby, *The Background of Napoleonic Warfare* (New York: Columbia University Press, 1957), 334; Nosworthy, *Battle Tactics*, 174–75.

4. P. Griffith, *French Artillery* (London: Almark, 1976), 43. In contrast, Griffith's *The Art of War of Revolutionary France* (London: Greenhill, 1998), 238, sees the concentration of guns as "a step forward in the gunner's art."

5. M. Lauerma, *L'Artillerie de Campagne Française Pendant les Guerres de la Révolution* (Helsinki: Suomalainen Tiedeakatemia, 1956), 10; J. A. Lynn, *The Bayonets of the Republic* (Urbana: University of Illinois Press, 1984), 205.

advances began to advocate mobile guns. French gunners' observation of the bold, swift handling of the concentrated mass of English and German guns at Minden (1759) prompted a reevaluation of their own tactics.⁶ With the appointment of Marshal Charles Louis Auguste Fouquet, Duc de Belle-Isle (1684–1761), as Minister of War in 1758, this school gained powerful support. In collaboration with the great pioneer of ballistics, Bernard Forest de Bélidor (1694–1761), reformers instituted experiments to enhance the artillery's mobility.

It soon became evident that the Vallière system was obsolete. In 1747, the Dutch had begun to utilise new methods of casting guns. Instead of casting a hollow barrel, the Dutch cast the gun solid, then drilled it out. This increased accuracy by decreasing windage, particularly when combined with more precise casting of roundshot, and permitted the use of smaller charges. This made possible a new generation of guns: With reduced chamber walls to contain the explosion, barrels could be lightened, allowing carriages to be lightened in turn. Combined, these features promised a dramatic reduction in weight, with a corresponding increase in mobility, for any new generation of cannon.⁷

Attempts at change were resisted first by Vallière as War Minister (served 1732–59), and later by his son and successor in the post, Joseph-Florent de Vallière (served 1759–76). But with the accession of Etienne François, Duc de Choiseul (1719–1801), to the post, reform was resumed, largely because of the common perception that the inferiority of the artillery had caused such recent defeats as Minden. The officer chosen by the War Minister in 1763 as the instigator of this reform programme was Jean Baptiste Vacquette de Gribeauval (1715–89), an opponent of the Vallière system who had recent experience in the Austrian and Prussian forces, and who was to serve as Inspector-General after the younger Vallière's death in 1776. The experience gained in Austrian service under Generaldirector Prince Joseph Wenzel von Liechtenstein (1696–1772) during the years 1756 to 1762 stood Gribeauval in good stead in carrying out his reform programme. As Austria's Director-General of Artillery since 1744, Liechtenstein had redesigned the Austrian field pieces, taking into account the lessons of the War of the Austrian Succession (1740–48), in order to make the guns lighter and more manoeuvrable. His introduction of a unified range of three-pounder, six-pounder and twelve-pounder guns made the Austrian artillery the pre-

6. B. P. Hughes, *Open Fire: Artillery Tactics from Marlborough to Wellington* (Chichester: Anthony Bird, 1983), 41–43, 46; Elting, *Swords*, 18.

7. E. Picard and L. Jouan, *L'Artillerie Française au XVI–XVIIe Siècle* (Paris: Berger-Levrault et Cie, 1906), 65–66; Lauerma, *L'Artillerie*, 12–13; Quimby, *Background*, 145.

dominant artillery force in Europe during the Seven Years' War. It was this lesson in mobility, imparted by Liechtenstein, which Gribeauval brought back to France in 1763.⁸

Like Liechtenstein, Gribeauval also advocated striking power and accuracy, as well as mobility. The result of his work by 1764 was a superior range of four-pounder, eight-pounder, and twelve-pounder guns, and a six-inch howitzer. Gribeauval was able to reduce the length and weight of his barrels, with the weight of a four-pounder cannon plummeting from thirteen hundred pounds to six hundred pounds, with a proportional reduction in the larger calibres.⁹ These lighter barrels permitted a similar decrease in the weight of the carriages. As a result, Gribeauval's pieces were more manoeuvrable than their predecessors. Instead of fifteen horses, a twelve-pounder cannon now required six horses or fifteen men to maneuver it.¹⁰ Guns could now be transported across obstacles as easily as a small cavalry troop, or moved as quickly as infantry.

Gribeauval also introduced a series of technical innovations aimed at improving the pieces' accuracy. He used an elevating screw to adjust the gun's range by raising and lowering the breach, which had previously been done by utilising wedges, or *quoins*, of various sizes. The screw now allowed more precise ranging. Whereas Vallière's cannon lacked sights, Gribeauval provided crews with graduated rear sights. These two innovations have been hailed as "the most significant improvements in the design of ordnance during the last two hundred years of the smooth-bore era."¹¹ Together with reduced windage, Gribeauval's guns enjoyed a marked degree of accuracy over their predecessors.

During 1802 and 1803, Napoleon appointed a committee, headed by General (later Marshal) Auguste de Marmont (1774–1852), to review the artillery's armament and equipment with the intention of reducing the range of calibres and further simplifying their construction. This committee recommended that the four-pounder and eight-pounder guns be replaced by the six-pounder cannon. The large number of six-pounder

8. Quimby, *Background*, 146; P. J. Haythornthwaite, *Austrian Specialist Troops of the Napoleonic Wars* (London: Osprey, 1990), 3; Rothenberg, *Art of War*, 25.

9. Vallière's eight-pounder gun weighed 3200 kg compared to Gribeauval's 1600 kg. weapons: Quimby, *Background*, 146; D. G. Chandler, *The Campaigns of Napoleon* (London: Weidenfeld and Nicolson, 1966), 138. See also Picard and Jouan, *L'Artillerie Française*, 101.

10. Picard and Jouan, *L'Artillerie Française*, 84; B. P. Hughes, *Firepower: Weapons Effectiveness on the Battlefield, 1630–1850* (London: Arms and Armour, 1974), 15–16. Maneuvering an eight-pounder cannon required four horses (eleven men) instead of eleven horses, while a four-pounder gun required three horses (eight men) rather than four horses.

11. Elting, *Swords*, 257; Quimby, *Background*, 146; Lynn, *Bayonets*, 205–6; Hughes, *Firepower*, 18.

Austrian and Prussian guns captured between 1794 and 1800 would allow the French artillery to cannibalise captured equipment and ammunition.¹² The 6-inch howitzer was also to be replaced by a 5.5-inch model. These changes in calibre were deemed to have only limited effect upon battlefield firepower, while enhancing mobility through a reduction in the weight of the piece and its ammunition. As part of the new “System of Year XI,” many eight-pounder guns were replaced by twelve-pounder cannon to enhance their punch and range.¹³ The new Year XI system was also able to streamline further the design of field pieces through continued experimentation. As Gribeauval’s pieces enjoyed a mobility advantage over Vallière’s models, so year XI pieces enjoyed a similar advantage over Gribeauval’s models.

Because of industrial requirements, production of the new guns began in earnest only in 1805. The renewal of the war in that year interrupted the introduction of the new pieces, resulting in the slow replacement of the Gribeauval models. Despite these problems, limited numbers of year XI equipment saw service, with the older models relegated to the arsenals. The incentive to promote year XI pieces was also undermined by the incorporation into the French forces of an influx of good quality Austrian six-pounder and twelve-pounder pieces. This action served to create a logistical problem in providing battlefield replacements by undermining some of the advances made in equipment standardisation.¹⁴ The pressures of war, therefore, put an effective brake on the immediate technological drive for mobility.

Mobility was also sought through nontechnological innovation, principally through reforming the artillery’s manpower. This was to take two forms: the militarisation of the artillery train, and the mounting of artillery crews to maximise their battlefield mobility. In the mid-eighteenth century, the artillery had only just become militarised, casting off the last remnants of its guild origins.¹⁵ The royal and early revolutionary artillery, therefore, still relied upon civilian contractors to supply teams and drivers. The desire to maximise returns led the contractors to neglect the drivers, their animals, and the equipment. To preserve their investment, contractors frequently unlimbered and abandoned the guns at the first shot, leaving the gunners to manhandle their pieces about the battlefield as best they could. At the Battle of Novi (15 August 1799),

12. H. C. B. Rogers, *Artillery Through the Ages* (London: Seeley, 1971), 74; Elting, *Swords*, 258; Chandler, *Campaigns*, 360.

13. A. de Marmont, *The Spirit of Military Institutions or Essential Principles of the Art of War*, trans. F. Schaller (Westport, Conn.: Greenwood, 1974), 70; Elting, *Swords*, 700 n. 18; Chandler, *Campaigns*, 360.

14. Rothenberg, *Art of War*, 143; Elting, *Swords*, 258.

15. Rothenberg, *Art of War*, 15.

contractors abandoned their guns and caissons in a defile during a retreat, which led to the rearguard being cut off.¹⁶

In 1792–93 four major contractors supplied French artillery horses. By early 1794 this responsibility had become a public monopoly, though the horses remained privately owned. This led to such a degeneration of the system that procurement by contractor was reestablished in 1795. The British Royal Corps of Artillery had experimented with militarising its train in 1786 and eight years later had established the Royal Corps of Artillery Drivers, in which military personnel handled state-owned animals. The United States had also militarised its trains, using artillerymen as drivers. French military “conductors” supervised the civilian artillery drivers, but their small number left them powerless to influence adequately the drivers’ overall practices. So in January 1800, Napoleon took matters in hand and established a separate corps of drivers within the artillery, giving them junior artillery rank. Horses were thereafter state property.¹⁷ Henceforth, reliable, professional military trains manoeuvred light-weight mobile cannon across the battlefield without the restrictions of civilian contractors or the tactical need to manhandle heavy and immobile pieces any significant distance. This new reliability was an essential prerequisite for Napoleon’s ability to implement the artillery assault.

While the presence of reliable trains upon the battlefield enhanced the gun’s mobility, its potential was still restricted to the speed at which the crews could march with their pieces. The mounting of a number of crews through the advent of horse artillery overcame this restriction. Experience in coordinating the artillery and cavalry during the Seven Years’ War saw Russia equip a number of guns to allow them to operate effectively in conjunction with the horses. After experiencing the advantages which this gave the Russian mounted formations, King Frederick II of Prussia (reigned 1740–86) established an experimental corps of horse artillery in 1759. Instead of walking, gunners were now mounted either on their own horses, or in emergencies, on the pieces themselves. Carriages were further lightened, while roundshot was made hollow for large calibre pieces to reduce the weight of the caissons and heighten their mobility. The intention was to provide the cavalry with firepower, as Frederick had recently forbidden them to use firearms. Horse artillery allowed the Prussians to seize high ground and defend it with cannon,

16. Elting, *Swords*, 254. Similarly, the allies lost forty guns after Fontenoy when the contractors abandoned their charges. A. F. Becke, *An Introduction to the History of Tactics, 1740–1905* (London: Hugh Rees, 1909), 10.

17. Lauerma, *L’Artillerie*, 141. Train drivers were militarised on 3 January 1800. Marmont, *Spirit*, 74; Lynn, *Bayonets*, 209; Becke, *Tactics*, 22; Elting, *Swords*, 254, 700 n. 10. This also saved the Napoleonic treasury two million francs a year.

giving the impression that it was held by infantry. This ruse succeeded until Prussia's opponents became aware of the new style of artillery, this in spite of Frederick's employment of this secret weapon only at decisive times, such as at the Battle of Reichenbach (1762).¹⁸

The Marquis de Lafayette (1757–1834), saw the Prussian “flying artillery” in the Camp of Silesia in 1785, and began to extol its virtues in France.¹⁹ This initiated a protracted debate upon the virtues and limitations of horse artillery, but, due to the significant cost, it was not until 1791 that Antoine-Jean-Louis le Bègue de Presle du Portail (1743–1802), as War Minister, authorised the formation of two experimental companies at Metz. Following a series of experiments demonstrating the artillery's mobility, which silenced all skeptics, the National Assembly approved the formation of further companies on 11 January 1792.²⁰ After the successes of the new artillery's first appearance at Valmy (20 September 1792) and subsequent use at Jemmapes (6 November 1792), generals clamoured for this new form of artillery, particularly as the foot artillery lacked the ability at this time to engage an enemy at canister range.²¹

These successes were based on the horse artillery's enhanced utility arising from its mobility. In its primary role of firepower support for the cavalry, it soon demonstrated its value, particularly when the cavalry had forced the enemy infantry formations into squares. Deploying just beyond effective musket range, these guns could devastate the square's dense ranks with canister. As General Maximilien Sebastien, Count Foy (1775–1825) noted, the object of horse artillery should be to “get up close and shoot fast.”²² The horse artillery, therefore, also turned to close support of the infantry, as employed at Wattignies (15–16 October 1792), Altenkirchen (4 June 1796), Rastadt (5 July 1796), and Biberach (2 October 1796). A memoir of 1793 described horse artillery as a force whose mobility could negate the advantage of manoeuvre enjoyed by superior enemy troops. This was particularly important to bolster the cavalry, which at this time was outnumbered and outclassed by its oppo-

18. Nosworthy, *Battle Tactics*, 370–71; Becke, *Tactics*, 11; Rogers, *Artillery*, 56. Hughes, *Open Fire*, 40, however, holds a contrary view: horse artillery was simply a highly mobile general reserve; J. Luvaas, *Frederick the Great on the Art of War* (New York: Free Press, 1966), 157; Nosworthy, *Battle Tactics*, 371.

19. E. Detaille, *L'Armée Française*, trans. M. C. Reinertsen (New York: Waxtel and Hasenhauer, 1992), 233.

20. Lynn, *Bayonets*, 204; Nosworthy, *Battle Tactics*, 372.

21. Detaille, *L'Armée*, 234; Becke, *Tactics*, 19.

22. G. Jeffrey, *Tactics and Grand Tactics of the Napoleonic Wars*, ed. N. Zuparko (Brookton, Mass.: Courier, 1982), 99; Foy quoted in Lauerma, *L'Artillerie*, 154.

ment's horse. Proponents of the service now valued a company of horse artillery as equivalent to two cavalry regiments in fighting power.²³

In an attempt to approach this new innovation systematically, General Louis Marie Jacques Amalric, Count de Narbonne-Lara (1755–1813), the new Minister of War, established an all-arms committee early in 1792 with a brief to formulate the most efficient means of raising, training, and equipping the new artillery. Unlike the Austrian force, which mounted its gunners upon specially constructed seats upon the guns and limbers, the French forces recognised the imperative of mobility and adopted Prussia's model, in which each man was mounted upon his own horse. France also created a reserve pool of horses from which to replace team casualties. The need for mobility was not absolute, and, in having to balance the mobility of the lighter pieces with the striking power of the heavier pieces, the committee came down in favour of striking power. Wherever possible, each six-gun company was to be equipped with eight-pounder or twelve-pounder cannon, and one or two six-inch howitzers, with the required number of light caissons. Subsequent experience proved that the twelve-pounder cannon was too immobile, while shortages led to the utilisation of four-pounder pieces. The year XI six-pounder pieces were the ideal horse artillery pieces. Following continued successes, the number of such companies was raised to thirty in mid-1793, before finally obtaining final recognition as a distinct branch of the artillery in 1794.²⁴ At its height, Napoleonic France fielded fifty-four companies of horse artillery.

France now had the highly mobile artillery force necessary for the implementation of the Napoleonic artillery system. But for the artillery to have a decisive battlefield impact, it first had to dispense with the notion that its principal role was the negation of enemy batteries. Only by targeting enemy infantry and cavalry formations could the artillery become a truly decisive battlefield arm. The new mobility prompted a revision of the artillery's employment; in particular there was a renewed interest in the ideas of Destouches, Inspector General of Artillery in 1720, who asserted that the artillery should follow the troops it was to support and to facilitate their mission with its fire. This involved targeting enemy troops whose movements threatened friendly formations, rather than their guns.²⁵ Opposing this view were the advocates of counter-battery fire, who asserted the advantages of attacking enemy batteries, rather than enemy troops. They felt that a single enemy can-

23. Griffith, *Art of War*, 242; Lynn, *Bayonets*, 204, 210, 211; Lauerma, *L'Artillerie*, 126.

24. Nosworthy, *Battle Tactics*, 372; Lynn, *Bayonets*, 204.

25. Picard and Jouan, *L'Artillerie Française*, 115–18; A. H. de Jomini, *The Art of War* (London: Greenhill, 1992), Article 46, 317; Quimby, *Background*, 147.

non was worth as many as two hundred infantrymen. They also believed that the loss of experienced gunners continued to affect an enemy into the future, while infantrymen could be readily replaced.²⁶

Frederick the Great had concluded during the 1740s that the artillery should aim at the enemy infantry to facilitate the success of friendly infantry or cavalry, as the defeat of the hostile infantry would soon leave its artillery unsupported and easily overrun.²⁷ His powerful voice was joined by that of another influential reformer, General Jacques-Antoine Hippyoyte, Count de Guibert (1743–90), who took up the mantle of Director of France's Higher War Council (October 1787–July 1789). Guibert saw that to facilitate victory, the artillery's role should be to support and sustain friendly troops, to bombard important positions in preparation for an assault, and to strengthen weak portions of the battle line. Because of the inaccuracy of individual guns, Guibert believed that to have a decisive effect, many guns would be needed to bring concentrated fire onto a large area occupied by masses of troops. The objective should be to attack the ground which the enemy occupied, and that which it wished to cross, with fire. Thus placed, artillery fire could inflict casualties and undermine the steadiness of enemy formations.²⁸ These premises, though recognised at earlier times, were never systematically exploited until they became the very foundations of Napoleon's doctrine of massed cannon.

Traditionally, the heavy guns were positioned on high ground where they remained immobile, firing in support of the battle lines, while the battalion artillery was scattered across the army's front. The largest concentrations of guns were placed upon the flanks to prevent them being turned.²⁹ As the new field pieces allowed the artillery to manoeuvre across the battlefield in support of friendly formations, reformers gave consideration to the optimum means of achieving the artillery's goals. Instead of scattering guns over the army's whole front, Guibert advocated their concentration into strong batteries, as dispersed they were an irritation, rather than a decisive factor: "The main object of artillery should not consist in destroying men on the totality of the enemy's front; but to effectively rout, or . . . to make a breach in a part of it; whether

26. Hughes, *Open Fire*, 20, estimates a gun's value at 60 to 120 casualties for each hour of active engagement; Nosworthy, *Battle Tactics*, 394–95.

27. Frederick II, "Instruction für Meine Artillerie," *Die Werke Friedrichs des Grossen*, ed. G. B. Volz (Berlin: Verlag von Reimer Hobbing, 1913), 6: 339; Frederick II, "Das Militarisches Testament von 1768," *ibid.*, 229–30.

28. Picard and Jouan, *L'Artillerie Française*, 140; J. A. H. Guibert, *A General Essay on Tactics* (London: J. Millan, 1781), 1: 347; Jomini, *Art of War*, Article 46, 316.

29. Picard and Jouan, *L'Artillerie Française*, 122; Frederick II, "Militarisches Testament," 230–31.

towards those points from whence an advantageous attack can be made, or proximate to those where it can be attacked with greatest success.”³⁰

Guibert’s ideas were supplemented and amplified by Chevalier Jean de Beaumont du Teil (1738–1820) in his *De L’Usage de Artillerie Nouvelle* (1778). The foundation of du Teil’s approach was the belief that the effect of a large number of concentrated guns was greater than the effect of the same guns operating in individual companies. As Lespinasse’s *Essai Sur L’Organisation d’ Artillerie* (1800) noted, the effects of concentrated fire where the casualties were concentrated into a smaller area had a greater psychological impact than scattered ones.³¹ Therefore, du Teil asserted, “it is necessary to multiply the artillery on the points of attack which ought to decide the victory, relieving the batteries which have suffered, replacing them by others without the enemy’s being able to notice it, so to prevail from an advantage which redoubles his ardour, and discourages your troops. The artillery thus multiplied with intelligence, procures decisive results.” Du Teil went on, “does it not follow further, that it is necessary to concentrate on the principal points and upon the weak points which are most threatened, the greatest quality of fire . . . while one threatens attacks upon others.”³²

Supporting artillery should march rapidly to attack the enemy with the intention of gaining surprise. At a range of five hundred to one thousand yards, the guns should go into action, where they were to engage the enemy with an accurate and decisive fire. At this range, the lighter pieces would compensate for their inferior weight by their greater fire rate, which would enable them to overcome heavier enemy artillery. Batteries should be sited to bring the greatest number of opponents under fire, engaging columns with perpendicular fire and lines with oblique fire.³³ When the artillery had unsettled the enemy, an infantry assault would be launched, as “the victory which the artillery has prepared then depends only upon the courage of the troops.”³⁴ Napoleon had studied under du Teil and his brother (Baron Jean Pierre du Beaumont du Teil [1722–94]) at the Auxonne artillery school, and therefore quickly embraced du Teil’s artillery doctrine, particularly the belief that “fire must be concentrated on a single point and as soon as the breach is made, the equilibrium is broken and the rest is nothing.”³⁵

30. Guibert, *Essay*, 1: 342.

31. Du Teil cited in Nosworthy, *Battle Tactics*, 381.

32. Du Teil quoted in S. Wilkinson, *The French Army Before Napoleon* (Oxford: Clarendon Press, 1915), 69–71; Quimby, *Background*, 296; Rothenberg, *Art of War*, 23.

33. Jomini, *Art of War*, Article 46, 317.

34. Du Teil quoted in Quimby, *Background*, 295–96.

35. Napoleon quoted in S. Wilkinson, *The Rise of General Bonaparte* (Oxford: Clarendon Press, 1930), 168. Chandler, *Campaigns*, 138. Similar sentiments were

The acceptance of the desirability of the concentration of fire decreed the eventual elimination of battalion guns and smaller batteries. At their best, such pieces frustrated the principle of concentrated fire and dissipated the artillery's impact, despite their occasional convergence into extemporised batteries. Rather than being an offensive arm, battalion artillery was essentially defensive, being employed to cover squares, evolutions, and retreats.³⁶ Contemporaries regarded their principal role as the stiffening of their parent unit's morale. Frederick had introduced greater numbers of such guns in an effort to compensate for the declining standards of his infantry.³⁷ The utility of battalion artillery was further undermined by a tendency to slow the movement of their battalion, while many colonels were ignorant of their correct employment.³⁸ In 1740 Marshal Belle-Isle had been able to introduce battalion guns, then much in vogue because of the belief that their mobility and rapid fire made the guns suitable for supporting the infantry with dedicated artillery support. At the Battle of Fontenoy (11 May 1745), the guns proved too immobile for their support role. In 1756, the rapid-firing "Rostaing guns" replaced the "Swedish guns." However, many, including Gribeauval, felt that their rate of fire did not compensate for their dispersal of fire. Because of its poor performance, battalion artillery was abandoned after the Seven Years' War.³⁹

In September 1791, two guns were authorised for each National Guard battalion, and for the Volunteer battalions in March 1792. In the years 1791 to 1794, battalion artillery enjoyed a political advantage over regular companies. These guns and their volunteer crews were regarded as free from the conservative taint of the regular army; instead, they were the "artillery of the Revolution." Therefore, battalion artillery grew not because of its utility, but because its employment multiplied the field-artillery without strengthening the position of the regular army.⁴⁰ Despite their political advantages, battalion guns again weakened the other artillery, without strengthening the infantry's fire. Having fared no better than its predecessors, battalion artillery was reduced in 1795 to one gun per battalion. Following the infantry's increased professionalism

also expressed in *Correspondance de Napoléon I*, 32 vols. (Paris: Plon, 1858–77), no. 15358, 19: 116 (Napoleon to Prince Eugène, Viceroy of Italy, 16 June 1809).

36. Lynn, *Bayonets*, 210; Nosworthy, *Battle Tactics*, 398.

37. Lynn, *Bayonets*, 213–14; Rothenberg, *Art of War*, 25; Griffith, *Art of War*, 236.

38. Chandler, *Campaigns*, 340; Becke, *Tactics*, 10; Hughes, *Open Fire*, 53, citing Augustus Frazer; Elting, *Swords*, 18.

39. Quimby, *Background*, 89; Nosworthy, *Battle Tactics*, 396–97; Lynn, *Bayonets*, 204.

40. Lynn, *Bayonets*, 205.

from 1796, these guns were no longer necessary and were subsequently withdrawn in 1798.⁴¹

These innovations benefited Napoleon and ensured that he had at his disposal a highly mobile artillery which had shaken off many of the limitations of the past, particularly its former dispersed employment practices. Now the artillery had acquired the mobility to allow it to be consistently employed in a decisive manner: in concentrated batteries which aimed to destroy or disrupt key enemy formations in preparation for an attack by supporting troops. However, a great divide separated the theoretical and practical realities. In addition to shortages in matériel, the structures did not yet exist to allow the concentration and coordination of large artillery forces. From 1807, Napoleon was able to develop those structures and implement the full range of artillery tactics and practices long advocated by reformers such as Guibert and du Teil. The timing of this change coincides with the achievement of the artillery's maturity and a general growth in numbers of field pieces, the opportunity offered by a respite from hostilities in Central Europe to implement significant change, and a realisation that artillery could be utilised to minimise French battlefield casualties. Such a realignment of artillery tactics would demand a similar realignment of the infantry's practices.

Before Napoleon could hope to adopt any of Guibert's or du Teil's recommendations, a significant degree of reform lay ahead. The artillery of the early Empire still suffered from a degree of immaturity, made manifest in a lack of formal command structures and established procedures. The cause of these deficiencies lay predominantly with the relative youth of the French artillery as an autonomous arm. Since its creation in 1671, the Royal Corps of Artillery had been enrolled in the lists as an infantry regiment.⁴² Despite its being granted full status as an autonomous service in 1774, not until 1793 was the separation of the arms complete. By 1797, however, the artillery was being accorded precedence as the senior service arm.⁴³ But the long association with the infantry had engendered a conservative view of the artillery. Guibert, so innovative in other respects, was content to view the artillery as still an ancillary service.⁴⁴ Despite his conservatism, Guibert remodelled the arm's tactical movements to correspond to simplified infantry and cavalry-style evolutions, which reduced the time needed to bring guns into

41. Becke, *Tactics*, 22; Griffith, *French Artillery*, 8; Nosworthy, *Battle Tactics*, 397.

42. Detaille, *L'Armée*, 233.

43. Elting, *Swords*, 17; Rothenberg, *Art of War*, 106.

44. Guibert, *Essay*, 6.

action by requiring them to traverse shorter distances.⁴⁵ These manoeuvres formed the basis for the 1791 regulations,⁴⁶ and were used throughout the Revolutionary and Napoleonic Wars. In contrast, du Teil asserted that recent improvements in the artillery could enable it to operate in a truly independent fashion, although he failed to lay down a precise set of manoeuvres of his own.⁴⁷

This lack of formal regulations was to be an ongoing problem. A set of regulations issued on 1 April 1792 simply provided the artillery with an organisation, rather than with a comprehensive system of practice.⁴⁸ Instead, procedures were developed at the corps level. Napoleon's Imperial Guard published its own set of procedures in 1812, though these were not an official regulation for the army.⁴⁹ The work closest to a standard reference for French gunners during the Napoleonic Wars was the *Aide-Mémoire à l'Usage Des Officiers d'Artillerie de France Attachés au Service de Terre* by General Jean-Jacques Basilien, Count de Gassendi (1748–1828). The *Manuel de l'Artilleur* by Théodore d'Urtubie was also very widely utilised.⁵⁰

Shortly after becoming First Consul in 1799, Napoleon established a large army artillery staff under his own direct control and charged its officers with supervision of weapons and munitions production, armament of fortresses, and the operation of artillery schools. The officers also served in the artillery staffs of field armies and their formations.⁵¹ Despite this, it took until 1809 for the post of Inspector-General of Artillery, which had been eliminated in 1790, to be revived.⁵² From

45. Guibert, *Essay*, 332–33, Plate 12. See also T. D'Urtubie, *Manuel de L'Artilleur* (Paris: Chez Magimel, 1794), Plates 11–13.

46. I. A. de la Croix, *Rules and Regulations for the Field Exercise and Manoeuvres of the French Infantry* (Boston: T. B. Wait, 1810), 2: 557–67; 3: Plates 42–44.

47. Quimby, *Background*, 292; Becke, *Tactics*, 19.

48. Detaille, *L'Armée*, 233. Instructions still dealt solely with firing individual guns, rather than batteries.

49. M. Ney, "Instructions for The Troops Composing the Left Corps," *Memoirs of Marshal Ney* (London: Bull and Churton, 1833), 2: 337, 338; H. Lachouque and A. S. K. Brown, *The Anatomy of Glory* (London: Brown University Press, 1961), 516; Elting, *Swords*, 544–45.

50. J. J. Gassendi, *Aide-Mémoire à l'Usage des Officiers d'Artillerie de France Attachés au Service de Terre*, 3d ed. (Paris: Chez Magimel, 1801); Nosworthy, *Battle Tactics*, 359–60. It is worth noting that Gassendi had been Napoleon's captain in the artillery and still regularly attended imperial councils. A. J. F. Baron Fain, *Napoleon: How He Did It* (San Francisco: Proctor Jones, 1998), 81.

51. Elting, *Swords*, 250.

52. With Lariboisière as Inspector-General. S. Bowden, and C. Tarbox, *1809: Armies on the Danube* (Arlington, Tex.: Empire Games Press, 1980), 125. This position oversaw all other artillery functionaries and was essential in assuring uniformity of matériel and practice; Detaille, *L'Armée*, 233.

1806, Napoleon began a reorganisation of his artillery, assigning one foot and one horse artillery company to each infantry division. Light cavalry divisions received a single horse company, while heavy divisions received two. Each corps also received a reserve of two foot companies, at least one of which was a twelve-pounder company, and a horse company. In addition, a reserve force of artillery was established under the Emperor's personal control. The concept of an army artillery reserve was not new; French armies had traditionally employed a reserve of mortars under the commander in chief's personal control.⁵³ Frederick had assembled one of the largest reserves of artillery to date in 1763 when he amassed a force of seventy guns.⁵⁴ Napoleon's artillery reserve was for use at decisive times and places. By 1809, this role was played by the artillery of the Imperial Guard. Napoleon summed up the role of this elite force: "In most battles, the Guard artillery is the deciding factor since, having it always at hand, I can take it wherever it is needed."⁵⁵

As a disciple of du Teil and an avid student of Guibert,⁵⁶ Napoleon wholeheartedly embraced their ideas, so it is no surprise that the Emperor should have come to regard the artillery as the key to further innovation in tactical practice. This view was shared by many senior commanders who were convinced that the gunners' task was to inflict casualties through firepower, and that the infantry's true *métier* was to follow up with the bayonet to exploit the gaps in the hostile formations caused by the guns.⁵⁷ This attitude directly resulted from the influence of du Teil who asserted, "we must unite the greatest number of troops and the greatest masses of artillery on the points where we wish to force the enemy's position, while creating the illusion of attack on others. . . . The moment when our troops should assault is determined by the ravages that the artillery has made on the troops and defences of the foe."⁵⁸ Earlier, Frederick had employed that very system, amassing sixty guns during the Battle of Olmütz (1758) against the enemy's flank, which was then battered with canister fire.⁵⁹ These precedents combined to form

53. Nosworthy, *Battle Tactics*, 297.

54. Rothenberg, *Art of War*, 25.

55. Napoleon, *Correspondance*, no. 20070, 25: 347 (Napoleon to General Clarke, Minister of War, urging completion of Guard artillery as a priority, 2 June 1813).

56. Chandler, *Campaigns*, 138–39; Quimby, *Background*, 291; Wilkinson, *Rise of General Bonaparte*, 17.

57. Chandler, "Column Versus Line," 135–36.

58. Du Teil quoted in L. Montross, *War Through the Ages*, 3d ed. (New York: Harper and Brothers, 1960), 449.

59. Frederick II, "Militarisches Testament," 228; R. R. Palmer, "Frederick the Great, Guibert, Bülow: From Dynastic to National War," in *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, ed. P. Paret (Princeton, N.J.: Princeton Uni-

Napoleon's attitude to artillery: "it is with artillery alone that battles are won."⁶⁰

Despite Hilaire Belloc's assertion that no one considers the Battle of Eylau (7–8 February 1807) a turning point,⁶¹ it seems that Napoleon's view of the artillery's potential became fully crystallised in the wake of that battle where the massed Russian guns demonstrated the arm's potency. Russia had traditionally used masses of guns; in fact, a Russian brigade boasted more pieces than a French division. By massing cannon in support of their troops, the Russians were able to achieve an enhanced defensive and offensive effect along the whole of their battle lines, while maintaining a sufficient artillery reserve. At Eylau, the Russians boasted a gun to soldier ratio of 6:1000, in contrast to the French ratio of 2:1000.⁶² Given this vast superiority, the massed Russian guns devastated an entire French corps, which was then ridden down by the supporting Russian cavalry. The corps ceased to exist as a combat formation within a thirty-minute period.⁶³

According to General Antoine Henri de Jomini (1779–1869), after this event Napoleon determined to dramatically increase his own artillery strength.⁶⁴ Thereafter, cannon consistently massed in unprecedented numbers would prepare the assault, a task which individual batteries and swarms of *tirailleurs* (light infantry) had undertaken in former times.⁶⁵ Despite aiming for a cannon-to-troop ratio of 5:1000, Napoleon was only able to achieve a maximum ratio of 3.3:1000, a figure not much higher than the 3.2:1000 of the revolutionary *Armée du Nord* (1793).⁶⁶

Napoleon utilised the grand-battery, as he recognised that its effects increased beyond the number of guns employed: "Nothing will resist, whereas the same number of cannon spread out along the line would not

versity Press, 1986), 101; C. Duffy, *Frederick the Great: A Military Life* (London: Routledge, 1988), 317; J. F. C. Fuller, *British Light Infantry in the Eighteenth Century* (London: Hutchinson, 1925), 73.

60. Napoleon, *Correspondance*, no. 11417, 14: 52 (advising Prince Eugène, Viceroy of Italy, 8 December 1806), and no. 20929, 26: 458 (advising Eugène, 20 November 1813); Napoleon, "Précis des Guerres de Jules César," *Correspondance*, 32: 27.

61. H. Belloc, *Napoleon* (London: Cassell, 1934), 310.

62. Wise, *Artillery*, 38; Rothenberg, *Art of War*, 143.

63. S. T. Ross, *From Flintlock to Rifle: Infantry Tactics, 1740–1866* (London: Associated University Presses, 1979), 104.

64. Jomini, *Art of War*, Article 46, 318.

65. F. Myatt, *The Soldier's Trade: British Military Developments, 1660–1914* (London: Macdonald and Janes, 1974), 174; Elting, *Swords*, 533; J. Tulard, *Napoleon: The Myth of the Savior*, trans. T. Waugh (London: Methuen, 1984), 150, notes a tactical change from this time.

66. Lynn, *Bayonets*, 206–7; Wise, *Artillery*, 38.

give the same results.”⁶⁷ He formed these batteries by adding companies from the artillery reserve to the divisional artillery. By forming the grand-battery in this fashion, rather than as one single large battery, it was easier subsequently to disperse the fire, and to produce detachments. By dispersing the constituent companies at fifty- to one hundred-yard intervals, the effects of counter-battery fire could be minimised.⁶⁸ Clues to Napoleon’s thinking in this regard can be discerned as early as his first command in 1796. After first massing thirty guns at the Battle of Lodi (10 May 1796), Napoleon continued to employ increasingly larger grand-batteries. At the Battle of Castiglione (5 August 1796) he massed some nineteen guns, and a further eighteen at Marengo (14 June 1800), while at Austerlitz (2 December 1805), he formed two grand-batteries of twenty-four and eighteen guns respectively. A further force of twenty-five guns was concentrated to pound the Prussians at the Battle of Jena (14 October 1806).⁶⁹ His post-1807 batteries, though, were substantially larger. At Wagram (5–6 July 1809), he committed 112 guns to plug a gap in the French line by halting, with their massed firepower, the advancing Austrian III Corps. Later in the day, they were used to support General Alexandre Macdonald’s decisive assault.⁷⁰ Subsequently at Borodino (7 September 1812), some two hundred guns were concentrated in similar offensive and defensive roles. A grand-battery of ninety guns beat off a counterattack by Marshal Mikhail Kutuzov (1745–1813) against the French centre, while a great charge by Marshal Joachim Murat (1767–1815) was supported by one hundred guns of the French horse artillery.⁷¹

The Emperor also changed the fire regime of his batteries. More traditional exponents, such as Frederick and du Teil, had advocated the conservation of ammunition, apportioning fire in relation to the importance of the objective so as to save munitions for the battle’s decisive moment.⁷² Napoleon opposed this position, complaining that the artillery did not fire enough. He advocated continuous fire, regardless of ammunition expenditure, and ensured that sufficient rounds were

67. Napoleon quoted in Griffith, *French Artillery*, 36.

68. Jeffrey, *Tactics*, 98; Hughes, *Open Fire*, 88, perhaps envisioning a single large battery, asserts that grand-batteries were inflexible formations, and that it was doubtful if increased numbers of pieces produced an increased level of effectiveness.

69. Elting, *Swords*, 725 n. 16; Griffith, *French Artillery*, 33.

70. Jomini, *Art of War*, Article 46, 316; Bowden and Tarbox, *1809*, 133; G. E. Rothenberg, *Napoleon’s Great Adversaries: The Archduke Charles and the Austrian Army, 1792–1814* (London: B. T. Batsford, 1982), 168.

71. Falls, *Art of War*, 32; H. Wundenberg, *My Military Experiences, 1806–1816*, ed. C. Hopkinson and J. Hendersen (Newcastle upon Tyne, U.K.: Napoleonic Association, 1991), 10; Rothenberg, *Art of War*, 142.

72. Frederick, “Meine Artillerie,” 337; Quimby, *Background*, 297.

always available. According to Napoleon, each gun should have always three hundred rounds to hand.⁷³

Grand-batteries, when employed offensively, were used to prepare the enemy position for an assault. When the enemy's reserves were committed and the enemy forces were wavering, the guns of the grand-battery raced forward and proceeded to tear apart the enemy lines with canister. Unlike earlier close-range bombardments in support of advancing formations, the artillery's role in the assault was now to act as the principal attacking force, rather than as a mere supporting force. This fire was intended to open the way for the infantry columns to seize the decisive points.⁷⁴ Such a canister charge was first employed at the Battle of Friedland (1807), where General Alexandre Antoine Hureau (1769–1810), Chief of Artillery for First Corps, pushed forward thirty guns by a series of bounds to within 120 yards of the Russian infantry and, ignoring casualties, devastated them with canister for twenty-five minutes.⁷⁵ Artillery could fire canister extremely accurately at 400 to 600 yards, yet the maximum range of musketry did not exceed 200 yards. Therefore, massed guns could devastate great sections of the enemy's line without the gunners suffering prohibitive losses themselves.⁷⁶ During the assault, a decisive shift occurred as to which services acted as the principal assault force, and which provided the support.

Napoleon was convinced that a revolution in warfare had been achieved, with artillery at its core.⁷⁷ No longer did commanders such as Marshal Michel Ney (1769–1815), or Marshal Murat take the lead in the assault, but artillery commanders such as Hureau and General Antoine Drouot (1774–1847). Artillery now occupied the primary place, with an army's strength measured in guns, rather than in battalions.⁷⁸ Napoleon's system of grand tactics was aimed at compelling an adversary to break the continuity of his line, thus exposing himself to a fatal blow. Artillery instead of the musket would now break that continuity. In instigating this system, Napoleon fundamentally recast the nature of gunpowder warfare. Whereas earlier commanders had achieved their successes by the gradual attrition of repeated attacks, Napoleon's artillery system of

73. Napoleon, *Correspondance*, 31: 328–29, "Notes Sur l'Art de la Guerre."

74. Marmont, *Spirit*, 130; Jomini, *Art of War*, Article 46, 316; Becke, *Tactics*, 31.

75. Hughes, *Open Fire*, 60–61; Griffith, *French Artillery*, 41. Drouot undertook a similar manoeuvre with seventy guns at Lützen in 1813. Elting, *Swords*, 262; Chandler, *Campaigns*, 363, 579.

76. Elting, *Swords*, 544. It should be noted that some armies such as the French employed a heavy canister out to 750 yards. This heavy canister should not be confused with grape, which was at this time exclusively a larger naval round.

77. Napoleon, *Correspondance*, 30: 447 ("Diplomatie-Guerre").

78. J. L. S. Colin, *The Transformations of War*, trans. L. H. R. Pope-Hennessy (London: Hugh Rees, 1912), 25; Quimby, *Background*, 296.

the middle and later Empire sought to employ the single smashing blow whenever possible.⁷⁹ Napoleon also sought to reduce to a minimum the time which an enemy force could resist.⁸⁰ This would have important strategic and grand tactical consequences, as it could preempt enemy moves and timing, while allowing the French to utilise their superior grand tactical abilities.

The campaign of 1809 was a critical one for the maturation of French artillery. The structures and practices were now in place for the artillery to fulfil its potential. The only factor now lacking was experience in putting the new practices into effect. Despite B. P. Hughes's⁸¹ optimistic picture of a well-staffed French artillery service, it must be noted that when General Jacques Alexandre Bernard Law, Count de Lauriston (1768–1828), manoeuvred his 112 guns at Wagram, no general had had experience in handling large artillery formations. In thrusting forward, Lauriston advanced beyond the effective assistance of his supports. The grand-battery suffered such severe casualties from the Austrian force opposite that volunteers from the Old Guard infantry had to be dispatched to serve the guns.⁸² The year 1809, therefore, provided the French with valuable practical experience in handling large artillery formations. By the end of that campaign, the French artillery had reached maturity.

R. M. Epstein has recognised the unprecedented overall levels of firepower present throughout the later stages of this campaign. He sees the Austrian use of artillery as arising from the reforms of Archduke Charles (1771–1847) since 1805, and the French practice as a response in turn. The massive preparatory bombardment by the Austrian guns against Essling convinced Napoleon, Epstein asserts, that he needed to increase his own firepower.⁸³ While this demonstration may have justified Napoleon's position on artillery numbers, Epstein's overall conclusion is not supported by the train of development in the French artillery just outlined. French artillery tactics, in conjunction with Austrian developments, helped in large part to account for the dramatic impact that firepower had in this campaign. But Epstein's assertion that environment

79. Chandler, *Campaigns*, 179; Becke, *Tactics*, 12–13. Contrary to Griffith, *French Artillery*, 43. This is not a degeneration, as warfare, like evolution, has no higher or lower forms, only those more or less suited to the environment.

80. Becke, *Tactics*, 31; Griffith, *French Artillery*, 47, asserted that a battery of 80 to 120 guns could destroy one infantry division every hour.

81. Hughes, *Open Fire*, 61.

82. Elting, *Swords*, 259; Bowden and Tarbox, *1809*, 134; Griffith, *French Artillery*, 43; J. R. Coignet, *The Notebooks of Captain Coignet* (London: Greenhill, 1986), 183.

83. R. M. Epstein, *Napoleon's Last Victory and the Emergence of Modern War* (Lawrence: University Press of Kansas, 1994), 111–12, 117, 129.

was primarily responsible for shaping French artillery tactics from that time is misleading. French artillery practices clearly had deeper roots, stretching back to the Seven Years' War.

The French infantry responded to the artillery's new potency by simply exercising the flexibility already inherent in the 1791 regulations. The change from spearhead to support did not involve any dramatic change in practice; columns of manoeuvre and waiting now took on a more predominant role as the infantry awaited the artillery's successes, before manoeuvring to exploit the gaps in the enemy's lines. Contrary to common assertion, these were not deep assault columns intending to pierce the thin enemy line using their mass. Rather, as columns of manoeuvre, their assignment was merely to exploit an already shattered line. This misperception arises from a fundamental misunderstanding of the "columns of attack." The *colonne d'attaque* was so named because its companies were organised to deploy in a line according to seniority. The line was the common assault formation, while the column of attack was so named as the formation most suited for manoeuvring before launching an attack. By contrast, the column of division was slower to deploy.⁸⁴ Therefore, assaults were conducted in column in order to exploit a gap made in the enemy line by the artillery. When opposition was encountered, the columns would still deploy into line and engage in fire-combat.⁸⁵

Despite having eliminated battalion artillery in 1798, in the interests of concentrating the limited artillery and enhancing its fire, France again in 1809 supplemented its infantry regiments with battalion artillery. Two four-pounders were again assigned to each regiment to give it dedicated fire support. But the reintroduction of battalion artillery did not occur because, as F. L. Petre claims, Napoleon felt that "the more inferior the quality of a body of troops, the more artillery it requires."⁸⁶ It is true that the new formations of 1809 did include some 11,300 new recruits who

84. J. L. S. Colin, *La Tactique et la Discipline dans les Armées de la Révolution* (Paris: R. Chapelot, 1902), 10; Fig. 3; C. W. C. Oman, *Wellington's Army, 1809–1814* (London: Greenhill, 1986), 67; C. W. C. Oman, *Studies in the Napoleonic Wars* (London: Greenhill, 1987), 87; M. Glover, *Warfare in the Age of Bonaparte* (London: Book Club Associates, 1980), 168–70; P. J. Haythornthwaite, *The Napoleonic Sourcebook* (London: Arms and Armour, 1990), 98; Nosworthy, *Battle Tactics*, 172; J. R. Arnold, "A Reappraisal of Column Versus Line in the Napoleonic Wars," *Journal of the Society for Army Historical Research* 60 (Winter 1982): 198; G. F. Nafziger, "The Decree of 18 February 1808," *First Empire* 9: 7–8.

85. Ney, "Instructions," 2: 378; Bowden, *Grande Armée*, 62; Quimby, *Background*, 334–35. See Jeffrey or Quimby for details of the various types of column and line formations.

86. Napoleon, *Correspondance*, no. 15678, 19: 361 (to General Clarke, Minister of War, 18 August 1809). This letter refers to the raw conscripts and national guards

possessed only rudimentary training.⁸⁷ However, the majority of these raw recruits were concentrated in the II Corps, yet the allocation of battalion artillery was not confined to this body. Other French formations, including the elite III Corps of Marshal Louis-Nicolas Davout (1770–1823), also received an equivalent assignment of battalion artillery. Epstein dismisses as nonsense suggestions that Napoleon’s infantry was in decline due to the high ratio of conscripts: “The performance of the infantry in the French 2nd, 3rd and 4th corps was magnificent, as was that of the infantry in Eugene’s Army of Italy.”⁸⁸ Rather than representing a decline in these elite troops, this assignment reflected a reappraisal of the removal of such artillery in 1798. Napoleon was to lament, “everyday I am more convinced of the harm done to our armies by taking away the regimental guns.”⁸⁹ Instead of artillery being employed purely to stiffen poorer quality infantry, Napoleon saw now that it also had a role in succouring even good quality infantry: “the better the infantry, the more one must husband it and support it with good artillery.”⁹⁰

Consistent assertions that link an increase in artillery, particularly battalion artillery, with significant tactical decline⁹¹ can also be shown to be simplistic by examining the assignment of guns for the 1812 campaign. Once again, Davout’s corps (now renumbered I Corps) received an assignment of battalion artillery, as did the Imperial Guard. The standard of the Imperial Guard’s senior regiments had scarcely declined in 1812. Rather than being brought up to strength by the inclusion of raw recruits, the senior regiments received drafts of proven veterans, while the junior regiments received selected conscripts chosen from throughout France. Many had been tempered by service in Spain. Likewise, Davout’s soldiers were predominantly veterans of the campaigns in cen-

opposing the Walcheren landing, rather than line troops as Petre suggests. F. L. Petre, *Napoleon and the Archduke Charles* (London: Arms and Armour, 1976), 361. See also Epstein, *Napoleon’s Last Victory*, 168.

87. Napoleon, *Correspondance*, no. 15351, 19: 108 (to Marshal Berthier, Major-General [Chief of Staff] of the Army of Germany, 15 June 1809); Chandler, *Campaigns*, 670.

88. Prince Eugène de Beauharnais (1781–1824); Epstein, *Napoleon’s Last Victory*, 165; in 1809, Napoleon praised the standard of Davout’s corps. Napoleon, *Correspondance*, no. 15317, 19: 87 (Napoleon to Marshal Davout, commanding III Corps, 9 June 1809); Bowden and Tarbox, *1809*, 31, also describes Davout’s corps as “the world’s most formidable line combat formation”; see also, orders of battle, 142–45.

89. Napoleon, *Correspondance*, no. 15273, 19: 58 (to General Clarke, Minister of War, 29 May 1809).

90. *Ibid.*, 31: 328–29, “Considerations sur L’Art de la Guerre,” *Oeuvres de Napoleon Premier à Sainte-Hélène*.

91. Rogers, *Artillery*, 54; Hughes, *Open Fire*, 56.

tral Germany since 1805, the conscripts being concentrated into each regiment's sixth battalion. This corps, acting as the spearhead of the *Grande Armée* in 1812, subsequently proved itself the best non-guard formation in the French army. Despite this elite status, I Corps received the highest allocation of battalion artillery.⁹²

While battalion artillery previously served to dissipate the artillery's effects, the same was not the case in 1809–12. At earlier times, the French artillery's low gun-to-troop ratio was the result of the low absolute numbers of guns. The diversion of a portion of this limited force to the battalions served only to weaken the army's reserve and brigade companies.⁹³ In 1809 the assignment of four-pounders followed the capture of the Vienna arsenal and its large quantities of artillery. Captured Prussian and Austrian pieces had previously strengthened the reserve and divisional artillery.⁹⁴ The shortages were now in qualified personnel to man this abundant matériel. The allocation of these lighter guns on a separate establishment, therefore, did not weaken the other artillery as in previous eras. Now the French infantry regiments had dedicated artillery support, in addition to that at divisional, corps and army levels. However, after the loss of artillery matériel in 1812, battalion guns were once again withdrawn to prevent their dilution of the artillery.⁹⁵

In 1812 I Corps also received the highest absolute allocation of artillery. Rather than indicating a need to support the corps's constituent formations with artillery to bolster its declining quality, the allocation of such forces reflects the various formations' perceived roles. The *Grande Armée* of 1812, in contrast to earlier campaigns, reflected Napoleon's ideal artillery organisation,⁹⁶ and the arm's maturation. The *Grande Armée* was comprised of six separate wings, each of which was assigned specific strategic roles. The main army, acting as spearhead, enjoyed the highest gun-to-troop ratio, reflecting the artillery's offensive role. The Army of Italy and the Second Support Army supported the main army, while two other corps provided flanking cover. Finally, a reserve force following in the rear received a lower allocation.

Despite A. F. Becke's claims to the contrary,⁹⁷ this change of regime may also have been prompted by a desire to minimise tactical casualties. Napoleon had advocated winning battles at the lowest possible cost in

92. O. von Pivka, *Armies of 1812* (Cambridge: Stevens, 1977), orders of battle, 110–11.

93. Hughes, *Open Fire*, 50.

94. Elting, *Swords*, 214, 258; Rothenberg, *Napoleon's Great Adversaries*, 162–63.

95. Chandler, *Campaigns*, 670.

96. Griffith, *French Artillery*, 9. All guns were year XI pieces.

97. Becke, *Tactics*, 80.

Artillery Allocations by Wings, Grande Armée, 1812
(in cannon per 1000 men)

	Army Wing	Strength	Artillery	Ratio
Imperial Guard; 1st, 2d, & 3d Corps; 1st & 2d Cavalry Corps	Main Army	217,900	564	2.59
4th & 6th Corps; 3rd Cavalry Corps	Army of Italy	80,400	204	2.53
5th, 7th, & 8th Corps; 4th Cavalry Corps	Second Support	79,000	178	2.25
Austrian Auxiliary Corps	Right Flank	34,100	60	1.75
9th & 11th Corps	Reserves	83,500	140	1.67
10th (Prussian) Auxiliary Corps ⁹⁸	Left Flank	32,400	84	2.59

human life: "all my care will be to gain victory with the lowest possible shedding of blood. My soldiers are my children."⁹⁹ As a soldier, he had always been concerned to conserve his resources, expending them only as required to achieve an economy of force and victory. His veterans received special attention, with particular concern for their welfare.¹⁰⁰ Any practices that conserved this precious resource, while heightening the possibility of victory, were especially welcome. The ever-expanding power of enemy artillery, combined with rising levels of tactical proficiency amongst Napoleon's enemies, made many of the French practices of the past increasingly costly for a diminishing return. While Friedland (1807) demonstrated the mobile artillery's potential, Eylau (1807) demonstrated to Napoleon the costs of war. Where the victory at Austerlitz (1805) had cost only nine thousand casualties, and Jena and Auerstädt (1806) cost seven thousand each, Eylau had cost twenty-five

98. The increased artillery of the Prussian Corps may reflect either its independent role against Riga (and possibly St. Petersburg thereafter), or Prussian choices in the selection of its field force. Prussia used its treaty (24 February 1812) to "blood" portions of its regiments and generate battle-hardened veterans. Prussia had its own agenda. G. F. Nafziger, *Napoleon's Invasion of Russia* (Novato, Calif.: Presido, 1988), 67, 131.

99. Napoleon, *Correspondance*, no. 9405, 11: 343 (Proclamation, Quartier Impérial, Elchingen, 21 October 1805); B. H. Liddell Hart, *The Ghost of Napoleon* (Westport, Conn.: Greenwood, 1980), 137; Holtman, *Napoleonic Revolution*, 52–53.

100. Coignet, *Notebooks*, 122–23, 99–100; Fain, *Napoleon*, 160–61.

thousand without achieving a decisive result.¹⁰¹ Napoleon's reaction to this event was uncharacteristically despondent. His letters immediately after Eylau, in which he consistently referred to the casualties suffered, reflect this attitude.¹⁰² S. T. Ross sees in these letters a sudden realisation by Napoleon of the costs of war.¹⁰³

While opponents, such as French historian Émile Bourgeois (1857–1934), have viewed this response as a “great show of horror,” other French historians such as Albert Vandal (1853–1910) have accepted that Napoleon was “sincerely moved.”¹⁰⁴ Throughout his career, Napoleon insisted that every measure be expended to care for the casualties, regardless of nationality.¹⁰⁵ Any appearance of disinterest, such as his infamous statement to the Austrian Foreign Minister, Clemens von Metternich, “a man like me troubles himself little about the lives of a million men,”¹⁰⁶ belies his true position. Perhaps his true beliefs were reflected in his statement that to allow himself to be overly concerned would impede his ability to function as Emperor and General:

Do not believe, however, that I have not, as other men have, a heart of feeling. I am indeed a good enough man: but since my earliest youth, I have set myself the task of silencing that chord, and in me it utters no sound. It might come to be said of me, when I let loose a battle, that though my ruling angel, for whom I would give my head, were about to take her expiring breath, I myself would be quite unmoved. The pains that I would feel would be great and perhaps even greater than that of other men if I let myself go, but I must shut up my feelings, and when the battle was over, I should cry if I had time to do so. Were it not so, how do you think I would be able to perform as many things as I do. The hours fly, and for one in my position, if I lose a moment, I may have lost all.¹⁰⁷

101. Ross, *Flintlock*, 108.

102. Napoleon, *Correspondance*, no. 11813, 14: 304 (to Empress Josephine, 14 February 1807); no. 11788, 14: 290 (to Cambacérès, Prince-Archchancellor, 9 February 1807); no. 11789, 14: 290–91 (to Duroc, Grand Marshal of the Palace, 11 February 1807); no. 11798, 14: 297 (to Empress Josephine, 11 February 1807); no. 11876, 14: 332–33 (to Prince Jerome, 25 February 1807).

103. Ross, *Flintlock*, 107.

104. P. Geyl, *Napoleon: For and Against*, trans. O. Renier (Harmondsworth, U.K.: Penguin, 1976), 225.

105. J. S. C. Abbott, *Life of Napoleon Bonaparte* (London: Ward Lock, 1899), 402; H. F. Hall, *Napoleon's Letters to Josephine, 1796–1812* (London: J. M. Dent, 1901), 275.

106. Napoleon at Dresden, 26 July 1813, quoted in G. Ritter, *The Sword and the Sceptre*, trans. H. Nordon (London: Allen Lane, 1972), 47; J. Seeley, *A Short History of Napoleon I* (London: Seeley and Co., 1899), 195.

107. J. Kemble, *Napoleon Immortal* (London: John Murray, 1959), 152.

On balance, it must be conceded that Napoleon's expressed concerns for his men were genuine. This concern may have acted as a further incentive to move towards an artillery-based tactical system which would also serve to minimise battlefield casualties.

By 1812 Napoleon had achieved the full range of his reforms. He had revolutionised battlefield tactics through his use of artillery and the artillery assault. Prior to 1807, the attack was conducted by musket-armed infantry who sought to slowly wear away the enemy's defences. Instead, Napoleon now sought to use both the matériel and philosophies that he had inherited to develop a system whereby a decision was achieved by smashing blows delivered by the artillery. Massed artillery now acted as the spearhead, pounding a breach in the enemy lines, which was exploited by the supporting infantry and cavalry. While this system catered for any declining standards within elements of the *Grande Armée*, the loss of experienced officers, and even to some extent a cavalry inferiority, these factors alone are insufficient as explanations for the reorientation of French tactical practice. Had Napoleon's system been simply an extemporised response to declining levels of proficiency, it would not have survived the peace of 1815. Instead, this system heralded the leading role of artillery, which was cemented during the First World War. Its essential principles are still valid today.