# Combined Arms Tactics in the English Civil War

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*Nine-tenths of tactics are certain, and taught in books: but the irrational tenth is like the kingfisher flashing across the pool, and that is the test of generals.*

T. E. Lawrence.

The fighting components of an (English) civil war and Napoleonic army were similar, but the way they were employed in battle was markedly different. The early-modern military *revolution* of 1560-1660 in Continental Europe witnessed noticeable developments in military capability including, *inter alia*, an understanding of the force multiplication advantages of combined arms warfare. For political, economic and geographical reasons England's military development at the end of the Elizabethan and beginning of the Stuart period had lagged behind its Continental role models. At the commencement of the English Civil War, therefore, the English military machine, which spawned two rival armies, fought to catch up. There was no shortage of English (or Scottish) military manuals. However, none were written to cover combined-arms tactics. In short, the three fighting components were not trained to fight together; instead their training was specific to their arm and the business of combined arms warfare was constrained to the views, capabilities and decisions of the commanders on the day of battle.

This paper will consider the fighting components of the mid seventeenth-century in Part I, examine the doctrinal approach to warfare and, in particular, combined arms warfare in Part II, and will consider combined arms warfare in the battles of the first English Civil War in Part III.

## Part I

The fighting components of a Napoleonic army consisted of the infantry, the cavalry and the artillery and the ability of a general was measured by his ability to weave these components on the field of battle in order to achieve his tactical aims and, it could be argued, his short-term operational objectives. The fighting components of an army in the early to mid-seventeenth century consisted of the same arms. However, the make-up of those components was noticeably different. A circumstance that was borne out by the continued development of weaponry and considerable evolution in battlefield tactics throughout the eighteenth century. That sustained change undermined Michael Roberts' periodic categorisation for the Military Revolution from 1560 to 1660.[1] Jeremy Black deliberates that the 'revolution' started earlier and finished much later, while Geoffrey Parker has reservations about the basis of Roberts' arguments and considers the military advances to have been more evolutionary than revolutionary.[2] A brief examination of the individual fighting components in 1560, 1660 and 1792 (the start of the French Revolutionary Wars) confirms that

[1] Roberts, M., *The Military Revolution, 1560-1660* first published in January 1955. Reproduced in Rodgers, C. J. (ed.), *The Military Revolution Debate: Readings on the Military Transformation of Early Modern* Europe (Oxford, 1995).

[2] Black, J., *A Military Revolution? Military Change and European Society 1550-1800* (Basingstoke, 1991) and Parker, G., *The Military Revolution: Military Innovation and the Rise of the West, 1500*-1800 (Cambridge, 1996).

their development by the 1640s and the start of the English Civil War, although significant, was merely a stage in a longer transformation.

Charles Firth, in his excellent work on Cromwell's Army, noted the increasing importance of the infantry but he was justifiably guarded in attributing that rise to the introduction of firearms and concluded that they 'were not able to contend against the cavalry on anything like equal terms'.[3] Following the demise of longbowmen and (unmounted) crossbowmen in early sixteenth century, the infantry consisted of musketeers and pikemen. At first, the former was in the minority but over time, the proportions changed and by the start of the English Civil War, two musketeers to one pikeman was the norm. However, the musket did not revolutionise infantry tactics, rather the musketeer slotted neatly into existing tactical systems in the same way that the bowman had been interspersed with ranks of pikemen a century earlier.[4] On the Continent, the French seem to have been using a makeshift bayonet from 1647, although there are earlier seventeenth-century references to long knives called 'bayonets'. William Barriffe, in his 1661 edition of his drill book, talks about unscrewing forks (this is presumed to be the staff from the musket rest) and inserting them in musket barrels.[5] However, a designed plug bayonet was not in use by British troops until the late 1660s. Within years, the socket bayonet had been developed and with it, the pikeman's days were numbered.

At the start of the seventeenth century, there were three types of cavalrymen in European armies. Two were designated as 'heavy' and one as 'medium'. The 'heavies' included the cuirassiers clad in full helmet and three-quarter-length plate armour and armed with a heavy backsword, and the second were the lancers. Because they carried an arquebus, a lighter equivalent of the musket, the medium cavalry was known as harquebusiers.[6] By 1645 and the introduction of the New Model Army, both the lancer and cuirassier were obsolete; all that remained were the medium harquebusiers and the mounted infantry, known as dragoons. Because they were viewed as a cheap form of light cavalry, large numbers of dragoons were raised and much used during the Thirty Years' War. One contemporary writer noted that this marked a conscious move away from armour, 'which only saved you from the lance and pike but not the musket and cannon'.[7] However, the dragoons served to blur the lines between the infantry and the cavalry, a distinction which could have been exploited to the advantage of combined arms tactics but which does not appear to have been fully capitalised upon. Firth, using James Turner's *Pallas Armata* as his guide, states that the dragoons' role was to advance or retreat before the rest of the army, to secure lines of communication and key points, while in the close fight, they were expected to line hedges and ditches. It is only in the open fight that they might have been called upon to dismount and cooperate as musketeers with the regular cavalry.[8] It is interesting to note that by the mid-eighteenth century,

[3] Firth, C., *Cromwell's' Army* (London, 1992) p. 68.
[4] Phillips, G., *"Of Nimble Service": Technology, equestrianism and the cavalry arm of Early Modern European Armies* p. 64. Reproduced in Hammer, P. (ed.) *Warfare in Early Modern Europe 1450-1660* (Aldershot, 2007).
[5] Barriffe, W., *Military Discipline: or the Yong Artilleryman* (London, 1635) p. 145. According to Simon Marsh, Barriffe also makes reference to the practice of making the musket rest have more of a pointed end seemingly so it could be used as a 'Swedish feather' - effectively a stake that was carried by musketeers to place before them as a defence against cavalry.
[6] Rather confusingly an infantryman armed with an arquebus was known as an arquebusier.
[7] Digges T., *Four Paradoxes or Politique Discourses* (London, 1604) p. 62.
[88] Firth, op. cit. p. 125. Turner, J., *Pallas armata, Military essayes of the ancient Grecian, Roman, and modern art of war written in the years 1670 and 1671* (London, 1683).

as David Chandler documented, 'dragoons became barely distinguishable from the regular horse in terms of role'.[9]

The final fighting component was that of the artillery, which began to emerge, alongside the cavalry and infantry, as a separate component of the army, with its personnel of skilled technicians: master-gunners, superintendents of artillery, wheelwrights, carriage makers, carpenters, gunpowder experts, and metal founders.[10] This 'separateness' was particularly prevalent in England because the Board of Ordnance was responsible for the supply and upkeep of military stores, including all ordnance (guns, mortars, muskets, pistols etc.) and munitions, including powder, to both the navy and the army – in that order. There were no standing artillery units at the time of the Civil War. The Board of Ordnance had been set up around 1406 as the designated keeper of the matters ordnance within the Tower of London. During Henry VIII's reign the organisation was placed on a more official footing within the White Tower, while the Office of the Armoury and Royal Arsenal moved to the Royal Dockyard at Greenwich. However, it is beyond the scope of this paper to examine, in any detail, the plethora of field guns available to an army commander or to consider the subject of sieges and fortifications. The best work on this subject (from the perspective of the English Civil War) is Stephen Bull's *Furie of the Ordnance*, in which he is clear on three points: that the part played by artillery varied from battle to battle, that artillery was generally static and that, 'contrary to popular belief there was no direct equivalent of horse artillery'.[11]

## Part II

Recent books such as John Keegan's *Face of Battle* and Brent Nosworthy's *With Musket, Cannon and Sword,* might leave the reader with an impression that the fighting components operated alone or against another single component.[12] Both pay scant regard to combined arms offensive or defensive tactics. The current United States military doctrinal definition of combined arms is an approach to warfare which seeks to integrate different combat arms of a military to achieve mutually complementary effects.[13] Combined arms hit the enemy with two or more arms simultaneously in such a manner that the actions he must take to defend himself from one, make him more vulnerable to another.[14] With that in mind, it is worth going back to examine Michael Roberts' remarks. 'The military revolution which fills the century between 1560 and 1660 was in essence the result of just one more attempt to solve the perennial problem of tactics – the problem of how to combine missile weapons with close action; how to unite hitting power, mobility, and defensive strength'.[15] He explains that Maurice of Nassau (1567-1625), influenced by the treatises of classical Roman and Greek 'professors of tactics', most notably Aelian, Vegetius and Leo, developed new battlefield formations (battalia) to exploit all types of weapon. Roberts notes that Maurice's reforms were mainly defensive in nature. It was the even greater achievements of the King of Sweden, Gustav Adolf (1594-1632), who interwove the fighting components for offensive operations. This was nothing new *per se*, since Alexander the Great had dabbled with combined arms tactics as early 335 BC in his Balkan campaign and Hannibal's Macedonian combined arms tactics were used to

[9] Chandler, D., *The art of warfare in the age of Marlborough* (New York, 1976) p. 35.
[10] Tallett, F., *War and Society in early-modern Europe, 1495–1715* (London, 1992) p. 43.
[11] Bull, S., *The Furie of the Ordnance, Artillery in the English Civil Wars* (Woodbridge, 2008) p. 143.
[12] Keegan, J., *The Face of Battle* (London, 1976) and Nosworthy, B., *With Musket, Cannon and Sword, Battle Tactics of Napoleon and his Enemies* (New York, 1996).
[13] ADRP 3-0: *Unified Land Operations*. Department of the U S Army dated 16 May 2012. The United Kingdom Land Warfare Development Centre, current Army Doctrine Publication AC 71940 is less clear cut in its definition.
[14] Lind, W. S., *Maneuver Warfare Handbook* (Colorado, 1985) p. 12.
[15] Roberts, op. cit. p. 13.

spectacular effect at Cannae 216 BC. But there is no escaping the fact that gunpowder had changed the face of battle and there were now three mutual supporting and supportable components. Consequently, of all of Roberts assertions, the modernising of battle tactics by formalising combined arms warfare, is perhaps the one which supports, above all others, that a military revolution had indeed taken place.

John Guilmartin suggested that the 'combined arms revolution' (his words) had in fact taken place a century earlier, when a Spanish army under Gonsalvo de Cordova had learned from their defeat at the hands of the French at Seminara River (Calabria) in 1495. By the time of the battle of Pavia in 1525, an Imperial-Spanish army under Charles de Lannoy won, as a result of 'the concept of a balanced mix of shock and shot infantry – pikemen and arqubusiers formed into composite bodies – supported by enough cavalry to hold enemy skirmishers at bay'.[16] Guilmartin concluded that tactical innovation went hand in hand with the emergence of the *columna* and the tercio, which he labelled the 'first permanent fighting organisation in mixed arms'.[17] However, history does not support Guilmartin's assertion and despite his clear description of a combined arms force at Pavia there is no evidence, that I can uncover, to support a change in Spanish tactics for the rest of the sixteenth century. In trying to trace a clear-cut start point for the adoption of a combined arms approach, the reforms of Gustav Adolf provide a far stronger claim. Indeed, in all of the counter claims questioning Roberts' thesis and his revolutionary assertion, no historians, including Geoffrey Parker, have provided alternative sources for sixteenth-century combined arms tactical innovation.

Combined arms tactics with 'modern' components continued to develop for the balance of the seventeenth century and the duration of the eighteenth century and culminated, at the start of the nineteenth century, with Napoleon's ground-breaking *corps d'armée* system. This could be said to have been an operational combined arms formation, since each corps had its own components of infantry, cavalry and guns, and was, in fact, a miniature army.[18] The consequence of deploying and employing this force tactically, was encapsulated by Carl von Clausewitz. 'The combat is of two kinds, which are essentially different: the destructive principle of fire, and the hand to hand or personal combat… Artillery, obviously, acts only with the destructive principle of fire. Cavalry only with personal combat. Infantry with both.'[19]

What Clausewitz suggests, holds good for combined arms encounters in the English Civil War, but in practice, the evolution of the independent arms was in a state of flux and, as such, the execution of combined arms tactics in the early to mid-seventeenth century was not as straightforward as it was one hundred and fifty years later. So, what did commanders have to guide them in the execution of combined arms encounters during the Civil War? Barbara Donagan noted that English works in the period formed part of a flood of books dealing the conduct and technology of war.[20] A point supported and elaborated upon by David Lawrence in his detailed work in which he lists no less than 94 books being produced in England and Scotland over the period 1603 to 1645.[21] Jeremy Black considered that 'manuals also permitted a degree of standardisation that both helped to

[16] Guilmartin, J. Jr., *The Military Revolution: Origins and first tests abroad* p. 307. Published in Rodgers, C. J. (ed.), *The Military Revolution Debate: Readings on the Military Transformation of Early Modern* Europe (Oxford, 1995).
[17] The tercio was an administrative unit with command of up to 3000 soldiers, subdivided originally into ten, later twelve companies, made up of pikemen, swordsmen and arquebusiers or musketeers.
[18] Chandler, D., *The Campaigns of Napoleon* (London, 1967) p. 185.
[19] Clausewitz, C., *Vom Kreig* (Bonn, 1973) Buch 5, Chapter 4 p. 507.
[20] Donagan, B., *War in England 1642-1649* (Oxford, 2008) p. 34.
[21] Lawrence, D. R., *The Complete Soldier: military books and military culture in early Stuart England, 1603-1645* (Leiden, 2009). The full list of these publications is listed as a table at the back of this work.

increase military effectiveness and was important for the cohesion and utilisation of military resources'.[22] If this was a by-product of the military revolution it was certainly a result of the connection between military culture and print culture. 'If we are to fully understand how the theory and practice of war was formulated in the years leading up to the Civil War, we cannot weigh military books in isolation, but we must see them as products of the relations between these various groups'.[23] Jason Peacey in his chapter on *Revolution in Print* goes one stage further and proposes that 'print culture sheds light on every aspect of the civil war: on it causes, its course, and its consequences'.[24] These 94 books covered a whole host of subjects including: the art of war, manuals on infantry, cavalry and artillery drills, treatises on fortifications, sieges and encamping, books on military law, books providing military commentary, and finally military or personal combat memoires. None, however, were written specifically for combined arms operations. Most drew heavily on Jacob de Gheyn's *Wapenhandelinghe* published in 1607 in Amsterdam. De Gheyn was an artist not a soldier but his work was commissioned by the House of Nassau and it is one of the earliest manuals of arms.[25] It was significant for its systematic and didactic nature of depicting drill and training and, significantly, it was also published in English for political reasons in an attempt to commit the English to the cause of Dutch independence.[26]

Influenced by a growing sixteenth-century interest in the Roman art of war, described in a number of translations and surviving texts, Niccolò Machiavelli in Florence and Justus Lipsius in Leiden picked up on the idea of comparing and contrasting the massive infantry formations of their day and the Macedonian phalanx of the classical past. In brief, a technique was devised whereby a body of infantry (in this case armed with arquebusiers) could be arranged in ten ranks and, by firing and retiring (counter-marching) they could subject the enemy to a continuous fire. Subsequently, in an attempt to maximise the battalion firepower, they spread the infantry outwards in a linear fashion. There were two distinct problems with this. Firstly, men deployed in thin linear formation lacked the psychological advantage of being part of a tightly packed body and secondly, these fire and counter-march movements were not easy to master. The solution, in both cases, was drill 'to inculcate discipline and foster the bond which develops between men who together perform the same movements repetitiously over a prolonged period'.[27] Jacob de Gheyn's work was designed to close the loop. The English authorities recognised the value of standardised drill and in 1623 the Privy Council and Council of War authorised the publication of *Instructions for Musters and Arms* which became the foundation for the training of the county militias and inevitably found its way into the trained bands in the years leading up to the Civil War.

A number of British writers were influenced by this 'Dutch-drill'. Most notably John Bingham in his work on *The Tactiks of Aelian* (1616) John Cruso's *Military Instructions for the Cavallrie* (1632) and *The Art of War, or Militarie Discourses* (1639) and Henry Hexham's *Principles of the Art Militarie* (1642).[28] Bingham takes Aelian's work, which is the only (major) work on the military art

[22] Black, J., *Rethinking Military History* (London, 2004).
[23] Ibid, p.14.
[24] Peacey, J., *The Revolution in Print: Oxford Handbook of the English Revolution* (Oxford, 2014).
[25] The reforms were the product of three members of the house of Nassau: William Louis, Count of Nassau and stadtholder in Friesland; his brother John; and Maurice, son of William of Orange, who held various stadholderships and served as captain-general of the Dutch forces in Flanders and Brabant.
[26] Gheyn, J. de., *The Exercise of Arms* (The Hague, 1607).
[27] Tallet, op. cit. p. 25.
[28] Bingham, J., *The Tactiks of Aelian* (London, 1616). Cruso, J., *Military Instructions for the cavallrie* (Cambridge, 1632, Reprinted 1644). Cruso, J., *The Art of War, or Militarie Discourses* (Cambridge, 1639). Hexham, H., *Principles*

to survive from the classical period, and adapts it to modern circumstances and weaponry. He makes no mention of combining components in battle. Cruso's books, despite the title of the first, covered both infantry and cavalry drill based on the Dutch model. His first book concentrates on the cavalry and provides considerable detail on the requirements of cavalry officers and soldiers generally, on the levying of the cavalry, on marching, encamping and then a key piece on embattling of cavalry. But it makes no mention of combining the cavalry with the infantry or being supported in the attack by artillery. It also makes scant reference to the use of dragoons with cavalry or the infantry. 'The occasions for the combat of the cavalry are many and frequent. Sometime by a sole company, sometime by more troops, otherwhile by all the horse together.'[29] For the most part, the adversary to be attacked consisted of the enemy's horse only and even the chapter on embuscadoes (ambushes) concerned a group of horse unsupported by infantry.

Hexham was Quartermaster to Colonel George Goring in the Dutch Wars (he became a royalist general in the civil war) and his work is a recognition of Maurice's achievements. It outlines, again in great detail, the structure of an army and roles of the officers and key non-commissioned officers; provides extremely detailed accounts of musket and pike drills with excellent diagrams; includes details and rates of pay as well as the ransoms to be paid for officers and finally a section on military law and the punishments. The second section concentrates on the various battles fought during the Thirty Years' War, but provides little explanation of how those formations were fought. A final section covers the artillery and engineers. While Hexham does not consider combined operations *per se,* he includes a pivotal section on the inclusion of cavalry squadrons to support the first line infantry in which he describes placing '*Battallions* of horse, interlaced, and placed betwixt the *intervals*, and distances of the Foote, as the ground necessity may require. For, if an Enemies Horse should be ranged betweene his *Battallions* of foote, it is needed then, that the other side should observe the same form likewise, and have horse to encounter horse, lest they should breake in upon the foote divisions'.[30]

As we have seen, language was no barrier to the dissemination of ideas. The French and Spanish were influenced by these new Dutch tactics but the Spanish in particular saw no reason to change from their tried and tested system of large-scale tercios. Gerat Barry, an Irish soldier who spent thirty years in the service of the Spanish and Italians, produced the only English work on Spanish tactics. *A Discourse of Military Discipline* was published in 1634 and it concentrated, in the main, on the requirements of officers and soldiers and the need for good leadership.[31] He goes into great detail about battle formations and even considers the challenges and foibles of coalition battle deployments, but once again there is no detail on how the components were expected to fight collectively.

However, the Dutch reliance on articulated firepower, rather than the Spanish massed cohesion, had undoubtedly rationalised military standards. Nevertheless, Gustav Adolf had more fundamental misgivings about the Dutch model. The Swedish King was a warrior, whereas Maurice was a chess master. The former inherited a war on succession to his throne in 1611 and remained at war, with one power or another, until his death at Lützen in 1632. Maurice, conversely, only fought one pitched battle and that unwillingly under civilian pressure. Gustav was only too aware that the Dutch

*of the Art Militarie, Practised in the Warres in the Netherlands* (Initially published in London in 1637 before as a complete work in Holland, 1642).

[29] Cruso, *Military Instructions* p. 38.

[30] Hexham, op. cit p. 58. Roberts, K., *Pike and Shot Tactics 1590-1660* (Oxford, 2010) p. 43.

[31] Barry, G., *A Discourse of Military Discipline* (Brussels, 1634).

system could not deliver a mass charge and could not win pitched battles as it was fundamentally defensive in nature.[32] Moreover, the emphasis on maintaining intervals between the infantry, limited the application to the open terrain, characteristic of the Netherlands. Gustav modified the Dutch system by adapting it for operations in the terrain of central Europe and, most prominently, for offensive operations. With regard to the infantry, he improved the rate of fire of his musketeers by improving the weapon and cartridges, by adjusting the open formations to make better use of space by firing two ranks at a time, and by reducing the length of the pike. For the cavalry, he followed the French example of charging first to seize the initiative. He dispensed with cuirassiers in favour of harquebusiers (this was also driven by the structure of Swedish society), deployed them in ranks three deep (rather than the Dutch five) and did away with the carbine, concentrating instead on pistols and the sword. His dictum was that the cavalry would charge home with their swords and only use their pistols in the melee or pursuit.[33] Keith Roberts, however, suggests that at Lützen, Gustav's instructions for the cavalry were that 'only the first or at most the first two ranks, when near enough to see the whites of the enemy's eyes, were to give fire, then to reach for their swords; the last rank however, was to attack without shooting but with swords drawn, and to keep both pistols for the melee'.[34] Perhaps Gustav's greatest changes were made in artillery and the use of cannon on the battlefield. Improvements in metallurgy enabled lighter guns to be manufactured and the 3-pounder guns were light enough to be pulled by a single beast or manhandled by a couple of soldiers and were, *ipso facto*, able to keep pace with the advancing infantry and/or cavalry. From the concept of combined arms tactics, this was ground-breaking.

Colonel Robert Monro and Captain Thomas MacKenyee served under Gustav (and the King of Denmark) in Germany from 1627 to 1634.[35] They recorded their service and Monro published it in 1637 under the title *Robert Monro, His Expedition with the Worthy Scots Regiment*.[36] To all intents and purposes it is a diary of events rather than a doctrinal handbook, but he does make some useful observations following his activities. We are thrilled by stories of German soldiers singing and releasing birds of prey as they went into battle and staggered by how much siege work they were employed on. However, it is Monro's accounts of the battles which are most interesting as they provide a glimpse into Gustav's all arms approach. Monro credits Gustav's victory at Breitenfeld, in September 1631, to four principle reasons: faith, good use of his artillery, his direct command and control and lastly his combined arms approach. 'The fourth help to this victory was the platoons of musketeers his majesty had very wisely ordained to attend the horsemen, being a great safety for them, and a great prejudice to the enemy, the musket ball carrying and piercing farther than the pistolet; also the great celerity used in charging and discharging of our small cannon brought the enemy's battalie in disorder, to the furtherance of this victory.'[37] Sadly Monro's account of the Battle of Lützen does not help us in our search for examples of combined arms tactics and he omits

[32] Feld, M. D., *Middle Class Society and the Rise of Military Professionalism: The Dutch Army 1589-1609* p. 246. Published in Hammer, op. cit.
[33] Wanklyn, M., & Jones, F., *A Military History of the English Civil War* (London, 2004) p. 34. At p. 272 the same authors suggest that 'charging home' was quite literal in that the horses were being used as 'an equine battering ram'. Gavin Robinson examined the possibility that charging home was more physical than psychological in nature in his paper *Equine Battering Rams? A reassessment of Cavalry Charges in the English Civil War* and concluded that, as a recognised tactic, it was unlikely though not impossible. Published in *The Journal of Military History* vol. 75, No. 3 dated July 2011 pp. 719-731.
[34] Roberts, op. cit. p. 51.
[35] Some 13,700 Scottish soldiers were sent as allies to help Christian IV, however, following the Treaty of Lübeck in 1629, Christian agreed to take no further part in the War and the Scots moved to support the Swedish King.
[36] Monro, R., *Robert Monro His Expedition with the Worthy Scots Regiment* (London, 1637).
[37] Ibid, part II, p. 68.

his hitherto detailed tactical observations, apparently overcome by the death of Gustav in the battle. He elected instead to pour forth venom on Catholics in a religious tirade. However, we do know that Gustav added light artillery and commanded musketeers to support his flanking cavalry.[38]

Nevertheless, Monro's account provides unequivocal evidence that combined arms were practised if not completely understood by all. The only other source I discovered within the English books, manuals and treatises, which mentions or considers combined arms tactics, was Robert Ward's *Anima'dversions of Warre*.[39] It is a very detailed work of nearly 300 pages which, on initial reading, appears to be 'all things to all men'. However, at Chapter 118 we see a glimpse of combined arms mentality with a brief chapter on 'the excellent service which may be performed by the Dragoons here in England' but the light flickers and snuffs before any real nuggets are gleaned. The first written illustration of combined arms tactics appears a few chapters later. 'There are to be drawn out of sundry Troopes of Carbines, a certaine number of horse; which are to be joined with a proportional number of foote: these are speedily (without keeping any order or distances) to runne upon the enemies Ordnance; and either to surprise them, or to hold those of the enemy that guard them… In the next place, there are certaine horse to be commanded out of divers Troopes of Carbines to assist and guard the folorne Hopes if the infantry; and these are to towle out the enemy to beginne light skirmishes…' When cavalry are attacking infantry that have placed themselves in a geographical advantage 'every horseman is to take up behind him a Musketire, whose service will be excellent either to place behind, upon some passage or advantage, to rescue your Troopes if they should be put to retreate, or to assist the horse in their discharge against the Enemy…'[40] Ward returns to the combined arms theme in the two final chapters: the first entitled 'The manner of Framing battels' and the second 'Rules and Observations to be used in time of Fight – Divers observations which both generals and officers must make use of in time of fight or skirmish'.[41] Here again the combined arms detail is brief and merely scratches the surface but it is the title of that latter chapter that is pivotal.

If combined arms actions were both necessary and practised, why were they not written down and formalised? Charles Carlton, in his excellent work, provides a clue. Carlton states that General Essex told his officers not to burden recruits with so many ceremonial drills. 'Most manuals made military manoeuvres so complicated, admitted one Elizabethan author, that they could only be accomplished in the heat of battle by veterans of at least seven years of service.'[42] If it was too much to expect a soldier to remember the drills for manoeuvre over and above those of his individual weapon it was not unreasonable to conclude that officers struggled to comprehend tactics beyond those of their own component. For general officers, combined arms tactics were a huge step up from understanding the individual components' capabilities and limitations. There were no staff or military colleges to teach senior officers this pinnacle art of warfare and they were too complicated, too little understood and too multidimensional to commit to paper. The execution of combined arms tactics is that *kingfisher moment* that Thomas Lawrence so eloquently referred to. 'Nine-tenths of tactics are certain, and taught in books: but the irrational tenth is like the kingfisher flashing across

[38] Roberts, op. cit. p. 52. Commanded musketeers (or shot) were musketeers temporarily attached to other units (usually horse) to provide firepower.
[39] Ward, R., *Anima'dversions of Warre* (London, 1639)
[40] Ibid, pp. 316-319.
[41] Ibid, Book 2, pp. 61-95.
[42] Carlton, C., *Going to the Wars, The Experiences of the English Civil Wars, 1638-51* (London, 1992) p. 73 - citing Garrad, William *The Art of Warre* (1591).

the pool, and that is the test of generals.'[43] Gustav was one of those great generals. It came intuitively.

## Part III

Despite the absence of prescribed doctrine or institutional teaching on combined arms warfare, and notwithstanding that there were no great generals of the calibre of Gustav, Marlborough or Wellington commanding armies during the English Civil War, it would be nonsense to conclude that civil war encounters were devoid of attempts, successful or otherwise, to combine the effects of the fighting components. Combined arms warfare was not the sole domain of great generals but in the seventeenth century, and for most of the following century, it was the exception rather than the norm. Furthermore, England's military capability was very different to that of the major Continental armies. A point further complicated by the contrasting dynamics of a civil vis-à-vis a general conflict, with both sides vying for more of the same pot. Despite the plethora of books and manuals and the considerable amount of personal experience gleaned by English, Scottish and Irish officers in Continental conflict there was no need for nor guarantee that battles would, should or indeed could be fought using the major or minor innovations of the Swedish or Dutch technique. To reinforce the point, with regard to cavalry tactics, at the start of the wars the Royalists (generally) adopted the Swedish style and the Parliamentarians the Dutch style. But by 1645 they were all working, to a greater or lesser extent, on the former. The infantry situation is less clear cut. In addition to the Dutch and Swedish systems, a new German doctrine had been adopted by the 1640s. It was, to all intents and purposes, a composite of the Danish and Swedish systems and it was this German model that was used increasingly by both sides during the wars that followed. Finally, the artillery, perhaps the most multifaceted of all the fighting components, was the one, that if mastered and exploited, could have had the greatest combined arms effect.

When considering the ordnance, it is important to keep in mind that Parliament controlled both the royal arsenals and the majority of the major ironworks and so had an immediate advantage. Nevertheless, by mid-1643 Charles had made good the shortfall by bringing in a variety of equipment from the Continent. Most of the Parliamentary and Royalist artillery were the 9-pounder and 15-pounder culverins or heavier which, once deployed, would not move except, given sufficient time and adequate resources, in retreat. Pounding an enemy into submission by the preliminary bombardment of these static guns was unlikely. Thomas Digges, who was a mathematician not a soldier, noted that 'Great artillery seldom or never hurts'.[44] Furthermore, Stephen Bull summed up the role of the big guns as follows. 'Guns were best deployed in such position that they could be fired as soon as the enemy's squadrons were discovered. Even though it might happen that the artillery killed relatively few of the opposition, its impact on morale was considerable.'[45] It is often quoted that Gustav Adolf was the father of light artillery with his so called 'leather guns'. This is inaccurate because, while Gustav led the way with regard to the employment of lighter guns, metallurgists and artillerists across the globe had been working the issue since the mid-sixteenth century, if not earlier. As early as 1578 William Bourne had expressed the importance of 'small ordnance' that was mobile; in 1611 George Carew designed a demountable brass field piece for the difficult terrain in Ireland.[46] James Weymss, master-gunner of England and general of the artillery in Scotland, is often credited with the invention of the leather gun but in fact the most likely creator

[43] Lawrence, T. E., Article in The Army Quarterly and Defence Journal (October, 1920).
[44] Digges, op. cit. p. 63.
[45] Bull, op. cit. p. 138.
[46] Ibid, p. 9.

was his uncle, Robert Scott, who served with Gustav from 1623-27. A number of these Anglo-Scottish examples of leather guns were used in the Civil War but it was the development of lighter guns called Drakes which had greater potential for the movement of artillery in support of infantry and/or cavalry in the advance or attack.[47] By the time the Civil War broke out, light 3-pounder drake guns had become the standard infantry support artillery for Parliamentarian army of Essex but by mid-1643 a new gun, known as a 'case drake', had also been introduced.[48]

Nevertheless, there are only a few examples of guns, light or otherwise, moving during the battle in support of the other arms. Perhaps the best example is at Cheriton in 1644 when Waller sent infantry to seize a wood but was defeated by Hopton who had the foresight to send infantry and guns to recover it. Cropredy Bridge provides another example, where Waller pushed a number of guns (possibly Case Drakes), over the River Cherwell to engage the Royalist forces who were overextended. At the second Newbury, Manchester's attack on Shaw House involved 500 musketeers advancing with two guns (probably drakes) which were captured following a Royalist counter attack. Edmund Ludlow's account of events at Marston Moor also indicates in the initial stages two parliamentarian field pieces advanced with two regiments of foot on the parliamentarian left which were attacked by the royalist foot lining the ditches. 'Whereupon Col. Cromwell commanded two field-pieces to be brought in order to annoy the enemy, appointing two regiments of foot to guard them; who marching to that purpose, were attacked by the foot of the enemy's right wing, that fired thick upon them from the ditches.'[49] At Lostwithiel, Richard Symonds describes the parliamentarian defence around Castle Dore toward the end of the battle by explaining that 'just at 6 of the clock the enemy made a very bold charge of cannon, muskets and horse to gain this hill, as likewise the pass near St. Veepe, but were valliantly beat off'.[50]

These accounts are hardly battle winning manoeuvres, but it would be wrong to conclude that artillery was ineffective on Civil War battlefields. As Charles Firth wrote, and I wholly concur, 'Artillery played a much more important part in the Civil War than is generally supposed, and its skilful handling exercised considerable influence in deciding the fortune of battles and campaigns'.[51] Guns of whatever calibre and weight deployed and firing at the enemy are naturally contributing to the all arms fight but they are so doing individually not collectively. The first Battle of Newbury in 1644 provides a good example. John Childs suggests that the static nature of the guns on an English battlefield was not just due to the weight of the ordnance, but because the civilian drivers employed by the Board of Ordnance refused to risk their lives in the heat of battle.[52] Not surprisingly, it was to be another hundred years before mobile artillery was to be universally embraced and once again, Britain was well behind the power curve.

Combined tactics using both cavalry and infantry are far more commonplace, in part due to the intermixed formations that both sides adopted. From the commencement of the war the

[47] A drake was an artillery piece with a shortened barrel and a bore that tapered at the breech end, allowing a smaller charge to be used and the walls of the barrel thinned to make the gun lighter in weight.
[48] Marsh, S., *The Train of Artillery of the Earl of Essex*, (Romford, 2016) p.17. Marsh, S., *A Case of Drakes – James Wemyss and Artillery Innovation in the Civil War* (To be published in 2017 by Helion as part of the 2016 'Century of the Soldier' Conference).
[49] Firth, C. H. (ed.), *The Memoirs of Edmund Ludlow, Lieutenant-General of The Horse in the Army of The Commonwealth of England 1625 —1672*, three volumes (Oxford, 1894) vol I, p. 99.
[50] Long, C. E. (ed.)., *Diary of the Marches of the Royal Army during the Great Civil War by Richard Symonds* (Camden Society, 1859) p. 64.
[51] Firth, op. cit. p. 149.
[52] Childs, J., *Warfare in the Seventeenth Century* (London, 2001) p. 160.

Parliamentarians showed far greater understanding and willingness to combine infantry and cavalry in attack as well as defence. At Edgehill in 1642, Nicholas Byron's brigade had withstood one cavalry charge before being attacked a second time by Robartes' and Constable's Regiments of Foot supported Stapleton's and Balfour's cavalry. The Foot on their own, like the cavalry before them, failed to break Byron's men but Edmund Ludlow, writing after the battle recorded that, 'The Earl of Essex order'd two regiments of foot to attack that body which we had charged before, where the King's standard was, which they did, but could not break them till Sir William Balfour at the head of a party of horse charging them in the rear, and we marching down to take them in flank, they brake and ran away towards the hill'.[53] Another good example was at Marston Moor, although historians are split over whether it was the Parliamentarian (Cromwell's) cavalry and Scottish (Leslie's) cavalry and dragoons that destroyed Newcastle's Whitecoats or whether they moved to support Crawford's infantry in the task.[54] Captain Stewart's account, which is undated but was attached to a letter from Manchester, Fairfax, Lindsey and Leven to Parliament dated 10 July 1644, a few days after the battle, had the following account of the last stages of the battle. 'Lieutenant General Cromwell, and Major General Lelsy being joined, and receiving advertisement, that our Foot were engaged with the enemies Horse and Foot, marched to their assistance, and met with the enemies horse (being retreated upon the repulse they had from the Scottish Foot) at the same place of dis-advantage where they had routed our horse formerly, and indeed their success was answerable, if not much worse, for we routed them wholly, killed and took their chief Officers, and most part of their Standards. After which wee set upon the rear of their foot, and with the assistance of our main Battell, which all this time stood firm, we put them wholly to the rout…'.[55] This account is quite clear that it was a combined arms attack.

Another slightly less convincing example, was the destruction of Prince Rupert's Foot in the dying stages of the Battle of Naseby in 1645. 'To return again to our right wing, which prosecuting their success, by this time had beaten all the enemies horse quite behind their foot, which when they had accomplished, the remaining business was with part to keep the enemies horse from coming to the rescue of their foot, which were now all at mercy, except one *Tertia*, which with the other part of the horse we endeavoured to break, but could not, they standing with incredible courage and resolution, although we attempted them in Flanks, Front and Rear, until such time as the General [Fairfax] called up his own Regiment of foot which immediately fell in with them, with But-end of muskets (the General charging them at the same time with horse) and so broke them'.[56] Both the examples at Marston Moor and Naseby were in the dying stages of the battles where determined resistance would have been eroded or collapsed altogether. At which point, the use of all available arms would have been almost an automated expedient. Malcolm Wanklyn makes the point that Captain Stewart's report from Marston Moor places the incident much earlier in the battle, he concludes that 'it seems highly unlikely that the Allied left wing cavalry would have been used against infantry formations at that stage if they had an encounter with enemy cavalry still to come'.[57] This is a clear indication that combined arms attacks were the exception rather than the norm in Civil War encounters. Furthermore, there was no guarantee of success. At the second Battle of Newbury in 1644, William Balfour's horse supported by several companies of musketeers managed

[53] Firth, *Memoirs* op. cit. vol I, p. 43.
[54] Peter Newman, David Clark, John Barratt, Peter Young and Charles Firth suggest the former, while David Cooke, and Malcolm Wanklyn suggest, and I agree with them, that this was a combined effort by the infantry and cavalry.
[55] Stewart, *A full relation of the late Victory – sent by three Generals to Parliament* (1644) p. 11. (Samuel Gardiner, in which Gardiner attributes the text to Lord Eglinton.)
[56] Sprigg, Joshua, *Anglia Rediviva* (London, 1647) pp. 38-9.
[57] Wanklyn, M., *Decisive Battles of the English Civil Wars* (Barnsley, 2014) p. 134.

to make considerable inroads into the Royalist position, under cover of the numerous hedgerows, before being counter attacked by the Queen's Regiment of Horse and the King's Lifeguard of Horse. Many of Balfour's troopers, and most of the infantry, were slain in their attempt to escape. 'About the same time, 4 of the clock, their bodyes of horse approached towards our field… the King's regiment being neare, drove at them, which made them wheele off in confusion, and followed them in the chase, made all their bodyes of horse run in confusion, killed man, besides musketeers that had lined the hedges and played upon us in the chase till wee cut their throats'.[58]

'Commanded musketeers' require mention as these are infantry withdrawn from the formation to form a separate body in order to support the cavalry to strengthen the wings, or to line hedges or occupy buildings. The tactic of commanded musketeers advancing with the cavalry was certainly used by armies on the Continent. But there is no evidence of the same tactic being used on civil war battlefields. Indeed, Prince Rupert was often critical of the way commanded musketeers were used in support the cavalry as it differed markedly.

Finally, a few words on the dragoons. Dragoons, as has been mentioned, had specific independent roles, both on and off the battlefield, but there are some good examples of dragoons being used in an all-arms manner. At Edgehill, the Royalist dragoons were used to good effect to clear the hedges and ditches on both flanks thus enabling the cavalry to charge. At Marston Moor, as we have seen, and if Captain Stewart's account is to be believed, the Scottish dragoons assisted Cromwell's horse by clearing musketeers out of a ditch and then towards the end of the battle they closed on Newcastle's Whitecoats so as to provide covering fire. 'At last a Scots regiment of dragoons under Frizell was brought up, and by their shot made a way for the horse to enter and put them to the sword'.[59]

During the first half of the seventeenth century, we can conclude that combined arms tactics were undoubtedly in the embryonic stages of understanding and development. Examples from the Thirty Years' War certainly outnumber and outweigh those from the English Civil War and there are a number of reasons for this. As the Earl of Orrery wrote for King Charles II in his treatise on the art of war 'all who have commanded armies, or written on military art have universally agreed, that no one act of war is so great in itself, or in the consequences of it, as fighting a Battel'.[60] Put simply, it was the last resort and to be avoided at all costs. Once committed to battle commanders should, to use modern military parlance, 'keep it simple, stupid'.[61] Combined arms tactics were not only new they were complicated and *ipso facto* risky. Veterans were few and far between. The men that took up arms in the nation's civil conflict were untrained, in many cases illiterate and often coerced into enlisting. Officers were selected for their social cachet not their martial prowess. Training of both was dedicated to the basics and in order to steel them for the ordeal and horror of combat. As John Cruso noted, the lance was an effective weapon but its obsolescence was entirely due to it 'being a thing of much labour and industry to learn'.[62] Combined arms tactics were also hard to learn and, given the unpredictability of war, the devil to master.

[58] Long, *Richard Symonds* op. cit. p. 145.
[59] Firth op. cit. p127. He cites Stewart *A full relation* – my copy does not include this and is clearly an abridged version.
[60] Orrery, R. B., *A treatise of the art of war* (London, 1677) p. 148.
[61] KISS is an acronym for "Keep it simple, stupid" as a design principle noted by the U.S. Navy in 1960.
[62] Cruso, *The Art of War* op. cit. p. 30.

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