

A guide to the use of muskets during the English Civil War.

BY Simon Frame

The matchlock muskets bought for the New Model Army (generally known as ‘the Army Under Sir Thomas Fairfax’) which ordered 16250 matchlock muskets ‘full bore & prooffe’ were purchased at an average cost of 10s, although some cost up to 11s 6d¹. Early orders for all musket types say ‘English’, which was dropped by the mass December orders. Perhaps English manufacturers couldn’t keep up with demand? Interestingly, the 5150 ordered on 22nd December 1645 are specifically ‘4 foot long full bore and prooffe’, suggesting 48” barrels were still used, rather than the 42” which we accept as the norm for later in the war. The matchlock musket weighed about 11-12 lbs.

Long barrels were used as gunpowder was slow-burning and you wanted it all burnt before the ball left the barrel to give greater muzzle velocity (typically 1000 ft/second). The barrel tapered from breech to muzzle, and the breech was often octagonal as it was believed this was stronger. Some had the octagonal flat bits filed on to make the barrel look octagonal. The barrel was made by folding hot metal around a mandrel. Stocks were of walnut or beechwood. The trigger was called a ‘tricker’ in the C17th, and was operated by the first two fingers. The ramrod was called a ‘scouring stick’ or ‘gunstick’² and was always wooden. Rests were used at the start of the ECW, when many weapons had 48” barrels, but as bores and barrel lengths declined, they were done away with. Elton says that the soldiers complained ‘our Rests are of little or no use unto us in time of skirmishing’³ but he also mentions some drill ‘without rests.’⁴ Bores were usually 12 bore (12 lead balls to the pound) or 10 bore (10 balls to the pound)⁵. Because the burnt gunpowder fouls the barrel, slightly smaller balls were used, and the resulting ball/barrel gap, or ‘windage’, meant that ball was zig-zagging down the barrel. The phrase ‘10 bore rowling’ for instance, meant that 10 bore balls were being used in a larger barrel. Effective range was probably about 100yds for massed volleys (salvees in C17th), with about half that for aiming at a particular man. Barwick (1594)⁶ said of the Arquebus “It will kill the armed of prooffe (men with hardened quality ‘proofed’ armour) at ten-score yards (200 yards), the common armours at twenty score (400 yards), and the unarmed (unarmoured) at thirty-score (600 yards), being well used in bullet and tried powder” and Williams⁷ (1590) says that a musket would kill the best armoured man at ten score yards, an ordinary armoured man at twenty score, and an unarmoured man at thirty score. ‘A soldier's musket if not exceedingly ill-bored (as many are), will strike the figure of a man at 80 yards, perhaps even at 100; but a soldier must be very unfortunate indeed who shall be wounded by a common musket at 150 yards, providing his antagonist aims at him; and as for firing at a man at 200 yards with a common musket, you might just as well fire at the moon and have the same hope of hitting your object. I do maintain and will prove, whenever called on, that no man was ever killed at 200 yards by a common soldier's musket by the person who aimed at him’⁸. The way the balls were cast often left a slight ‘nipple’ on them and this made them even more inaccurate. Claims were made by each side about the others putting horse-hair or grit in their musket balls to cause infections, or of deliberately mutilating them to cause worse injuries. Musketeers were used in 6 (‘Swedish’ style) or 10 (‘Dutch’ style) ranks⁹ but 6 was the usual ECW practice. Turner maintains that five ranks is the ideal, because ‘five ranks can fire one after another without intermission’.

Gunpowder for muskets was made from a 1:1:6 ratio of charcoal, sulphur and saltpetre¹⁰. Saltpetre was obtained from urine or manure heaps, and Bishops palaces were supposed to be a good source because of all the wine they drank. Gunpowder was carried in bandoleers¹¹ (‘Apostles’ is a Victorian word) of up to 15 measured wooden bottles (sometimes with pewter lids) or tin charges of approximately 3 drachms with finer powder for the priming pan in a separate charger. Turner says that a ‘Musket requires half weight of her ball in fine Powder, and two thirds of common Powder’.¹² Of the 25200 sets (generally 14d) that the New Model ordered in 1645, 6000 or so were definitely the blue painted ones (22d), and 4000 were tin (20d). Orrery says that bandoleers are ‘often apt to take fire, especially if the matchlock musket be used’ that ‘they often tangle those which use them on service’ and ‘in secret attempts’ ‘their rattling often discovers the design’. Cartridges

¹ ‘Mungeam’ NMA contracts

² Sprigge *Anglia Rediviva*

³ Elton *the Compleat Body of the Art Military, 1659*

⁴ Elton *the Compleat Body of the Art Military, 1659*

⁵ Sir James Turner *Pallas Armata 1671*

⁶ Humphrey Barwick writing about the Arquebus c. 1591

⁷ Sir Roger Williams *A Brief Discourse of War 1590*

⁸ Colonel George Hanger, *a British officer who fought in the American Revolution 1814*

⁹ Sir James Turner *Pallas Armata 1671*

¹⁰ Sir James Turner *Pallas Armata 1671*

¹¹ The spelling varies.

¹² Sir James Turner *Pallas Armata 1671*

(‘cartouches’ in the C17th) were also used, which could be carried in a leather pocket or in a bag on a waistbelt (as per royalist Oxford army) or some *‘fantastical fellows’* even carried loose powder in a pocket.

Wadding was ideally used to tamp the musket ball down onto the powder and give greater compression, but the practice of carrying musket balls in the mouth for speed of loading¹³ probably meant that wadding was little used. For instance, Orrery complains that those who keep their bullets in their mouths seldom use ‘paper, tow or grass, to ram the bullet in,’ and ‘if they aim low, the bullet drops out ere the musket is fired’. Contemporary drill books consistently state that the aiming mark is to be ‘breast-high’¹⁴ but rarely, if ever, mention wadding. Kellie, in his 1627 *Pallas Armata*, states that he had often seen three or four of a rank of ten misfire.

Match burns at about 1” per 6 minutes and was made from twisted cord treated with saltpetre. At Devizes Hopton remedied a shortage of match by ordering his men ‘to search every house in the town and to take all the bedcords they could find, and to cause them to be speedily beaten and boiled’. Match had to be kept burning when on sentry duty, and the 1500 strong garrison of Lyme used five hundredweight of match in 24 hours.¹⁵ Match also created the hazards of sparks which could lead to accidental discharges and explosions, such as that described at Edgehill when ‘a careless soldier in fetching powder where a magazine was, clapped his hand carelessly into a barrel of powder...’¹⁶

To counter some of the problems above, ‘firelocks’ were often used. Early types covered by this generic name were the ‘snaphaunce’ which had a separate frizzen (from which the sparks were struck by the flint) and pan cover, but was obsolete before the Civil War, and the wheel-lock. The wheel-lock used a wound-up spring to spin a serrated wheel against a piece of iron pyrites. The tool used for winding or ‘spanning’ the lock was called a spanner, and this can be seen on some portraits, hung over the shoulder on a cord. Keeping the pistol spanned for too long often caused the mechanism to jam or fail. The wheel-locks use in the ECW was predominantly on pistols. The Wheel-lock pistol stock shape was apparently popular, as many later types of firelock pistol were made from new with stocks shaped as if for a wheel-lock.

English locks and dog locks were later forms of firelock. These both used an external sear or ‘dog’ to hold the cock or hammer at half-cock, with the Doglock gradually superseding the English lock. They cost about 14s 6d - 15s 6d¹⁷ and were used on pistols, to guard artillery (no sparking match around all that powder) and for sentry duties as you weren’t wasting match, and didn’t smoke you out if indoors. Some regiments had companies of firelocks (Devereux commanded the firelock company in Thomas Essex’s regiment) and whole royalist regiments used them. The New Model bought at least 2300 firelocks, plus 1200 dragoon carbines¹⁸. These weapons generally had the more modern ‘club’ style stock rather than the ‘fishtail’ type.

When they were out of ammunition, the English musketeer used his musket butt; at the battle of the Dunes in 1658, The Duke of York broke into some English infantry, but *‘we ran as great a danger by the butt end of their musketts as by the volley they had given us’* and at Naseby in 1645, Fairfax’s *‘fell in with them, with Butt-end of Muskets and so broke them’*.

More here:

<http://www.engerisser.de/Bewaffung/weapons/Matchlockmusket.html>

¹³ Ward *Animadversions of War 1639*

¹⁴ Elton *the Compleat Body of the Art Military, 1659*

¹⁵ Cal State Papers Domestic 1644

¹⁶ *Memoirs of Sir Richard Bulstrode*

¹⁷ Mungeam contract papers

¹⁸ Mungeam contract papers