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BRITISH MILITARY WEAPONS

The Problem of Telling Their Story in a New Museum

by William Reid

Five years and five months ago, less a few days, I left the Armouries in the Tower of London where I worked for 13 years. From the oldest military museum in the world – the Tower was first opened to the public 400 years ago – I moved four miles west to the newest, to become the director of the National Army Museum.

The museum began its existence in 1960 in the Royal Military Academy Sandhurst, our equivalent of West Point. When I took over as its director in 1970 we had a new building (figure 1) in which to install a modern display telling the history of the British Army from the end of the Middle Ages up to today. To guide us our charter, signed by the Queen, defines the Army as '. . . including Britain's standing army, militia, yeomanry, volunteers, Territorial Army and Territorial Army and Volunteer Reserve; and the Indian Army up to Partition in 1947, the forces of the East India Company and all other land forces of the Crown.' The complexity of this task is all too apparent when the number and variety of these forces is considered alongside a list of the places where they served. Even if no formation smaller than a battalion is taken into account, several thousand different named and numbered units have been raised.

So, we have to recount the history of a major military organisation from the raising of the Yeomen of the Guard in 1485 through a civil war, massive expansion in two World Wars, to imperial withdrawal and today's relatively small establishment.

In addition to the temporal range of our subject we are also concerned with a vast geographical sweep. This is a major problem for curators and designers alike as the British Army raised its units throughout the empire, incuding Jamaica, where we bought slaves in 1801 for recruitment into our West Indian regiments.

Our first task was to divide the Army's history into episodes, each of which was recounted in a Story of the Army Gallery on the middle display floor of the new three-story building. On the upper floor we have presented a tiny fraction of our thousands of uniforms and hundreds of thousands of medals and items of insignia. The visitor who walks through the uniforms finds himself in the Art

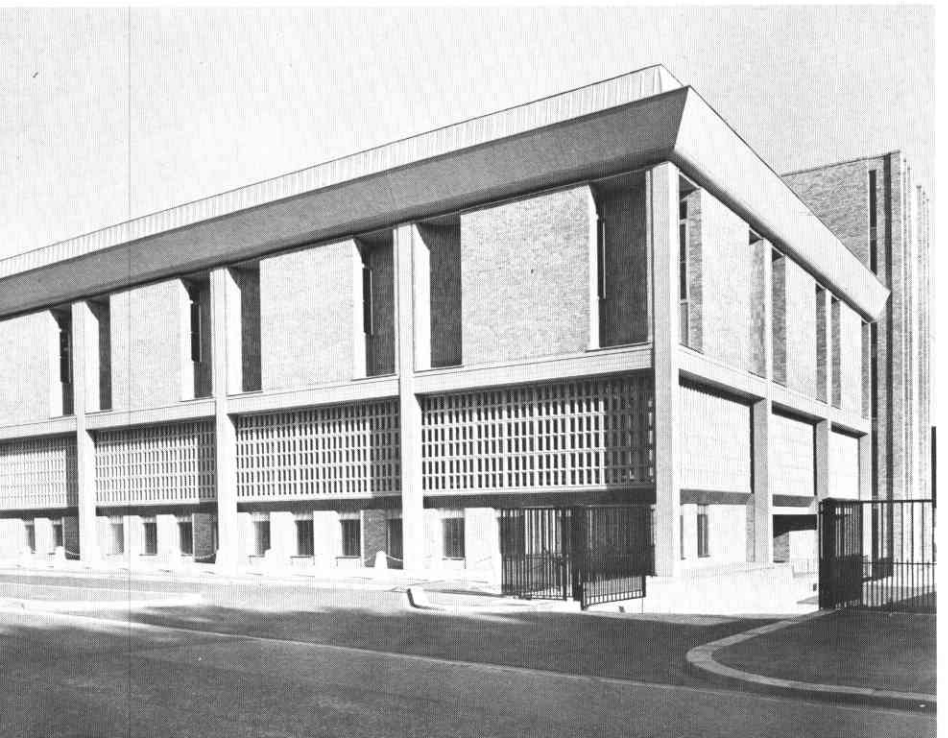


Figure 1. The National Army Museum, opened by Her Majesty the Queen, 11 November 1971.

Gallery which houses the finest of our collection of pictures. Among these I must confess that my favourite is of Colonel Francis Smith, who was nominally in command of the detached flank companies of all Gage's troops at Lexington on 19 April 1775 (figure 2).

We had neither the money to set up an arms display nor the time, before the Queen opened the new museum on Armistice Day 1971, eighteen months after the building was complete, but we have now started and today I shall tell you something about how we are describing the development of the weapons used by the British Army through almost five centuries. It is a complicated story, despite the fact that we are dealing with little more than the weapons carried by the infantry and cavalry, for there were occasions in this period when a cavalryman might carry pistols, a carbine, a sword and a lance.

In addition to these personal arms we must, of course, deal with the machinegun, grenades, mortars, bazookas and recoilless rifles. The display which I shall discuss traces, therefore, the development of hand-held weapons used by the British soldier from mediaeval times to the present. It shows the influence of tradition, emergency, fashion and science, and the special preferences and requirements of many individual regiments, of the East India Company, which ruled the great sub-continent until after the mutiny of 1857, and of the Indian Army.

I realize that there are many of you here today who know more about firearms, or about swords, or about the hafted weapons of the army than I do, but I know that you will forgive me if I labour the point of the complications created by the range of material which concerns us. In the 15th century the majority of weapons carried by warriors the world over were simple in their construction and not at all complicated in their use. Bows, axes, clubs, swords and spears used in combat had been known in various forms since before recorded history. The development of gunpowder to project a missile in the early 14th century and to the gradual introduction of firearms but it was not until the days of Queen Elizabeth I, who reigned from 1558 until 1603, that the musket made any positive impact on the use of bows and pikes as the main

Figure 2. Lieutenant Colonel Francis Smith, 10th Regiment of Foot, c1764, who commanded the detached flank companies of Gage's Troops at Lexington on 19 April 1775.
Oil painting by Francis Cotes.

armament of the British foot soldier, and not until the 20th century that the swords and lances of the cavalry were completely superseded by firearms.

The earliest identifiable weapon was a spear found between the ribs of a prehistoric elephant. The simple, sharpened stick was soon fitted with a flint head which looks much like the pikehead of the Middle Ages or the lancehead of the 19th century. But there were repeated changes in the form of the head, the haft, the shoe, the grip and, later of the sling. Almost from generation to generation opinions changed as to the correct length and weight of a spear for use on foot or from horseback. Here in America during your Civil War, the 9-foot lance was discarded by Rush's Lancers fighting in the woods of northern Virginia while most European armies were employing lancers, and in India the greater part of the cavalry of the three Presidencies, Bengal, Bombay and Madras, were armed with lances which they were later to take to France and to Mesopotamia between 1914 and 1918.

Modern man looking at a sword of the European bronze age or one of the early iron swords from Luristan could not help but identify it as a fighting weapon, but throughout the entire period with which the National Army Museum is concerned, even when there was some national standardisation, there were continual variations in the shapes of the hilt which could either leave the hand totally unprotected or enclosed in a steel shell. The blade could be used for cutting, for thrusting, or for both, and the scabbard which was made of a variety of materials was suspended from the wearer's body or saddle in one of several different ways.

The greatest variations are found, of course, in pistols and guns. The phrase 'lock, stock and barrel' encompasses some of the items which changed, to which must be added the evolution due to conflicting philosophies concerning the use of the bayonet and the means to fix it to a barrel, of sights, of ramrods and of many other minor variants which comprise development. Our plan was to relate all of these changes to the needs of the soldier, in the light of tactical and industrial change.

The experience of campaigns in Europe, Asia, North and South America, Africa, even in Australasia, and endless trials and experiments affected the evolution of the weapons and equipment carried through the drudgery, the terror and the pageantry of peace and war. Revolutionary ideas came from unexpected sources. Snider the wine-merchant; Forsyth, a minister of the Church; Pauly, an unsuccessful balloon-freak; Maynard, the dentist; Maxim, a former apprentice carriage-maker; Gatling, an agricultural-machinery maker; and Whitney the inventor of the cotton gin, are all part of our story.

A final difficulty is that the display area is smaller than we would like, so forcing us into a labyrinthine arrangement, with few opportunities for long views of full-scale dioramas.

The beginning of the preparations for telling this story of the weapons carried in war and ceremonial was a 30-page brief for the museum designer. It seemed to me that the level of display should be directed to the intelligent visitor who knows little or nothing about weapons. I also decided on a simple didactic approach with a pictorial presentation using models and diagrams, rather than an indigestible mass of text. Here and there, additional information is presented through the use of film and slide projectors with sound commentary. We have also arranged that the visitor will have some sort of tactile opportunity; that he can feel the metal and the woodwork of common weapons which will not be unduly harmed by being handled.

The original intention was to incorporate into the display specimens of every smallarm used from 1485 to the present, with simple expositions of techniques, tactics, training and technology, to explain the changes in the Army's methods of warfare. Unfortunately there are still a number of weapons which we have been unable to buy, beg, borrow or steal despite the generosity of many friends in Britain and America.

Since no single type of weapon was used in isolation, we have been faced with the difficult but essential task of integrating the illustrations of the tactical use and the technological development of the various types of small arms, swords, muskets, pistols and others, in the context of their combined use in the Army. Swords developed on their own but their design varied almost as frequently as did that of firearms. The pike, the halberd and the bill also changed while they were used alongside the musket (figure 2), before becoming obsolete through the development of cavalry tactics which, in their turn, were eliminated as automatic weapons were perfected.

I have already mentioned the labyrinthine nature of the case and panel lay-out. Throughout we have limited ourselves for economic reasons to a repeated curved module into which we can fit a series of cylindrical and semi-cylindrical showcases, which lend themselves to the display of elongated objects such as swords, muskets, spears and other arms. From time to time the modules have been separated to give a flat surface into which we can set projectors.

In addition to the cylindrical cases for exhibits, we are using larger cylinders with overhead film projection onto a round, knee-high table to show how formations moved in defence and attack.

It might be stretching your imagination a little if I were to invite you to follow me in your mind's eye through the new displays, but perhaps slides plus a lot of words from me will give you some idea of what is on display. What I cannot do is to give you an impression of scale and sound as you

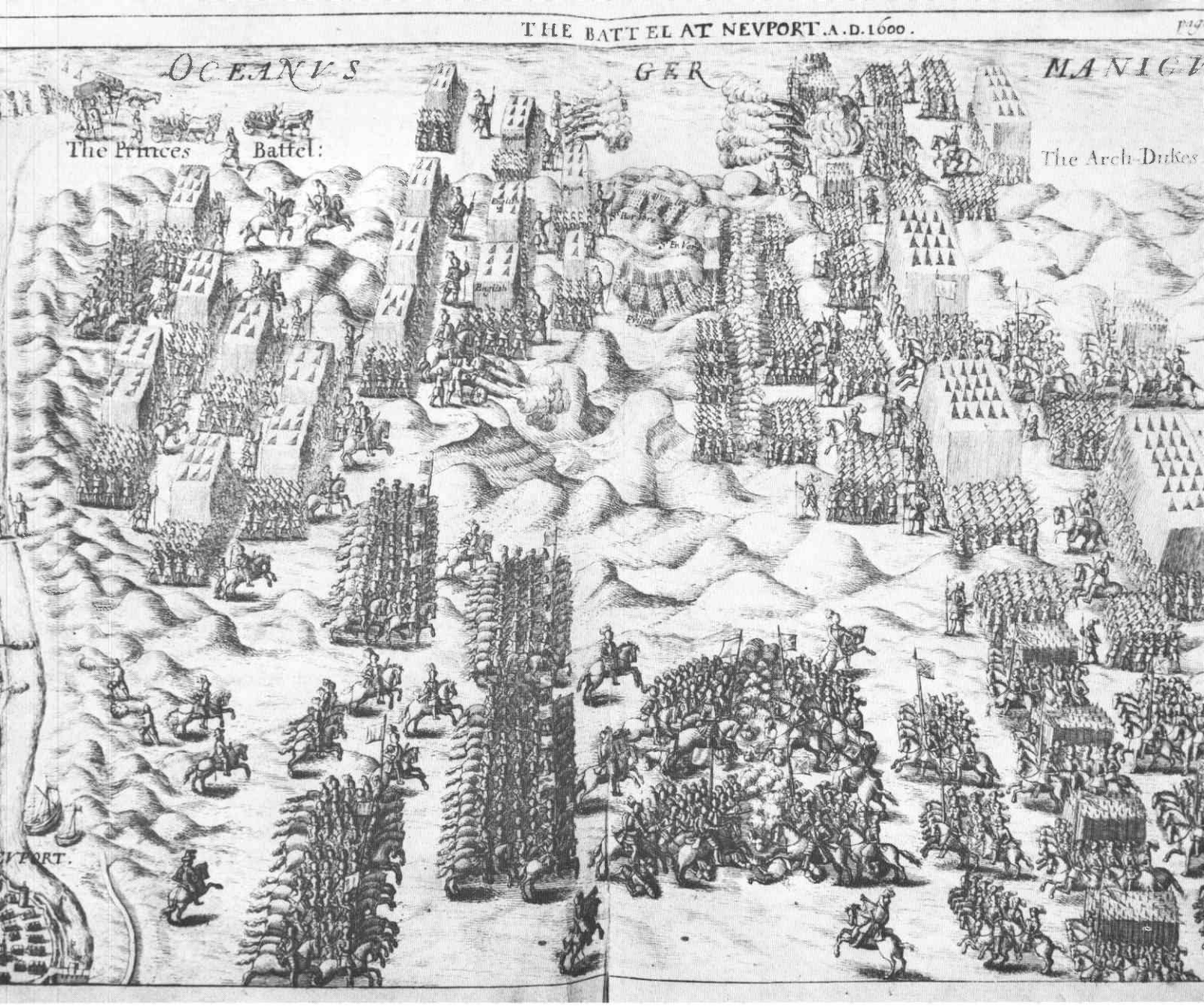


Figure 3. The Battle of Neuport, 1600 AD.
The display must interpret battles like this involving infantry, cavalry, and artillery.

pass through the chapters of our story.

We begin with the weapons of the Middle Ages exemplified by a few genuine arms and manuscript illustrations of archers, lancers, and swordsmen in action at Agincourt in 1415. In the background are the sounds of medieval soldiers' songs, of the clash of arms and the swish of arrows.

The reign of Henry VIII, from 1509 to 1547, was more interesting maritally, than it was martially, and contributed little to British military evolution, but we do show a contemporary longbow stave brought up from the king's ship *Mary Rose*, which was sunk in 1525(!)

At this point we tell the public how the skill of the English bowmen and the inaccuracy of early firearms delayed the introduction of handguns in Britain. Although the last great victory of the longbow was at Flodden in 1513 when the flower of Scotland's manhood was destroyed, archers went abroad to the wars for another century or so.

Alongside the archers of the 15th century stood well-trained pikemen who used an 18 ft weapon, that is more than three times my height. They were still in the field in the 17th century, fighting shoulder-to-shoulder with the vulnerable and slow-firing musketeers to protect them from cavalry attack. Around the standards and the artillery, and as bodyguards for monarchs and their nobles fought other men armed with halberds and bills. With the new guns came another class of soldier who could be quickly trained, while it took years of practice and much strength and skill to become a good archer.

With the evolution of the new weapon, the musket, the most important part of our history begins. In our Chapter 7 life-size figure of a pikeman wearing armour of about 1640 stands with a musketeer armed with his musket, rest, match, bandolier, priming-flask, bullet-bag and sword. Behind them graphics give an impression of how

Figure 4. The armour and weapons of a heavy cavalryman.
Line engraving from Militarie Instructions for the Cavallrie, 1632.

Figure 5. Sergeant, first regiment of Foot Guards, 1792 armed with a halberd. Drawn by E. Dayes, engraved by T. Kirk, published by Capt. Hewgill of The Coldstream Regt. of Guards, 1792.

their comrades looked in action. To show the mechanism of the matchlock and later ignition methods we have commissioned a series of drawings and models. We would have liked to use animated back-lit transparencies, but my experience has been that they have not been a success when they have been used. Before leaving the matchlock, perhaps I should mention that in its various forms and confusingly known as hagbut, demyhake, harquebuse, caliver, musket, and many other names, it was first authorised for military use in England in 1537. That was the year in which the regiment then known as the Guild of St George and active still as the Honourable Artillery Company was granted its patent. The matchlock was not obsolete until the reign of Queen Anne in the early years of the 18th century.

The other defensive armour, as opposed to breastplates and gorgets as worn adjuncts to uniform, with which we are concerned, was worn by the heavy calvary in the 17th century. Cruso illustrates the cuirassiers' armour and weapons in 'Militarie' Instructions for the Cavallrie' (figure 4). Long thigh defences and protection for the arms went out of use first as guns became more and more effective. In addition to showing the armour and weapons, we also plan to show what they looked like on hoof by the use of portraits of military men.

During the period when armour was common, some wheellocks were used in Britain, but very few were made there, the majority being imported from Continental Europe. The wheellock was, however, much better than the matchlock for mounted troops and for actions in the dark. During the years when it was most commonly used, the influence of Gustavus Adolphus, the great military innovator, was being felt throughout Europe. Speed and manoeuvrability were the essence of his tactics.

When we reach the point at which we discuss the various flint – and – steel gunlocks which first developed during the latter half of the 16th century, we have had to commit ourselves to a cold-blooded policy of simplifying the text and its illustrations, so as not to confuse the newcomer to this fascinating subject. We do little more than mention the differences between the snaphance lock, the English lock, and the flint lock.

Once again, we feel that exploded line drawings and models will help to get our story across, and again, we are using quotations and illustrations from contemporary books of military instruction, I have always been amused to read such seventeenth-century comments as that the carbine should be discharged at a range of not much more than twelve paces and the pistol at not more than three. Despite our attempts at simplification, we have still found a place for an occasional snippet of unimportant information, such as that sporting guns were used by sharpshooters during our Civil War in preference to the less accurate military musket.

Until this point we have barely touched on the sword and its use. To the British infantry, outside of Scotland, it was a secondary arm after the bill, the gun or the pike. The majority of swords were short and simple, but with the disappearance of armour came the development of long light-weight blades whose users were taught more complex swordplay in the salons of the fencing-masters. From the rapier used alone or with a buckler, a left-hand dagger, or even a folded cape, we trace the sword's development by means of examples, prints and paintings up to its decline as a weapon of war.

Towards the 1600s the long-bladed rapier became obsolete in warefare because of the difficulty of using it in close formation. The infantry adopted a short sword for hand-to-hand fighting. The cavalry who needed a much longer reach continued with the long straight blade but gave it a cutting edge.

At this stage we are again faced with the problem of inter-relating a number of different weapons which developed side-by-side. For example, as the gun improved, the halberd, a terrifying weapon in the hands of Swiss mercenaries, had declined to become no more than a symbol of authority. These frequently decorative but ineffectual weapons of the 18th and early 19th centuries were carried by bodyguards, and by sergeants of infantry. On the parade-ground they were used to get lines of men straight when practising their drills (figure 5). By the time the halberd was officially abolished by a General Order of 1792, it had been used in a more degrading capacity; three forming the tripod to which a man was tied for flogging.

The halberd was replaced by the spontoon carried by sergeants and some officers. The portrait of Francis Smith which we saw earlier appears to show that sluggish and incompetent officer using a spontoon to direct his troops, a use for which it had been issued.

The bayonet presents another series of problems, and we introduce it about one quarter of the way through our story and at that point discuss both the plug bayonet and early socket bayonet. Plug bayonets had been in use in Europe for some years before they were imported for the British forces some time before 1663. They were first manufactured for the Board of Ordnance in 1672 when 900 were issued to Prince Rupert's Regiment of Dragoons.

The socket bayonet survived from about 1700 to the Second World War despite the fact that the magazine rifle and battles fought at greater range made it of much less importance. At least one distinguished French soldier is recorded as having said that he had seen many positions taken, but none at the point of the bayonet.

We then find ourselves involved with an account of weapons production in Britain. In the chapter subtitled 'Order from Confusion' the Office of Ordnance, which was first known by that title in 1414, was responsible for the arms and equipment of the Crown forces. A controlling Board of Ordnance was established in 1597, and subsequently made many attempts to standardise the issue firearms. Despite their efforts standardisation was not achieved, and it was common as late as 1715 for an assortment of firearms to be stored with the wrong ammunition. The system was improved by the Board of Ordnance, which ensured at least some degree of uniformity by issuing sealed specimen patterns to manufacturers. Although there was a substantial gun trade in London, the majority of munition lock-makers, barrel-makers, furniture-makers and small-work makers were in Birmingham, 100 miles away. The finished parts were sent by the makers to the Tower of London and inspected before being issued to setters-up in the nearby Minories where the parts were assembled, and returned as complete arms to be stored until required for issue.

In the 1790s several Acts of Parliament allowed the raising of regiments of Volunteers to protect Britain from invasion by the French. With few exceptions, they were not expected to serve overseas. The majority were armed by the Ordnance, but some, formed by wealthy men with their own ideas about arms, bought privately. As a result, many of the better makers received wholesale orders to produce fine or unusual weapons, which included some dual-purpose weapons of varying efficiency. The makers were, of course, delighted to have the lucrative orders, as their other main customer, the Board of Ordnance, had a dreadful reputation for being slow payers. We will hear more about Volunteers later.

Returning to the Regular Army: We have again taken the risk of giving an account in some detail, of the weapon improvements on each side of 1800, and for the first time we mention the names of the innovators, Nock, the Duke of Richmond, General Paget, and others, who began to make their marks.

It was in 1796, the year that a board of general officers met to examine complaints that some cavalry weapons were out-of-date and awkward to handle, that a series of new pattern swords was introduced for infantry and cavalry. Here again, we show a series of patterns of blade, hilt and scabbard and, for the first time, a group of sword-straps and knots. When they were first used their purpose was to fasten the weapon to the swordsman's hand in case he should lose his grip on the hilt. From a simple leather strap with a sliding keeper, the knot became little more than a decorative appendage.

The infantry officer's sword, based on the civilian smallsword of the day, has in its turn degenerated to the court sword still worn with state dress. Until the 1796 General Order, most cavalry regiments carried swords selected by their colonels, with the officers carrying a better quality version of the trooper's sword. The order laid

Figure 6. A Private, 9th Lancers, 1828. Drawn by E. Hull, lithographed by M. Gauci, published by Engelmann, Graf, Coindet & Co., 1828.

down new rules. Light cavalry used a curved slashing blade, similar to the talwar of India. The heavy cavalry trooper's sword had a heavy straight blade and a disc-shaped guard which subsequently underwent a number of changes. The blades for many of these weapons were imported from the Continent, as there were marked differences in quality between the blades available in England and those from, say, Solingen.

Half way through the story there had been a sufficient increase in firearms accuracy and range to allow us to make valid comparisons between half-a-dozen weapons ranging from the smoothbore musket, which was just about serviceable at 75 yds. firing up to 3 shots a minute and our equivalent of your Springfield .03, the Short Magazine Lee-Enfield, which was dangerous at 800 yds and with which a good soldier could fire 15 - 20 shots per minute in battle. With one or two exceptions we also indicate at this point that as firearms became more accurate, battles began at progressively greater ranges. Around the same area we also discuss the spinning ball, beginning with the fresh interest aroused in rifled arms during the French and Indian Wars. I find it interesting that one of the two regiments which were established in 1800 as rifle regiments was the 60th Foot. The 60th began its life as the Royal Americans, raised mainly among Pennsylvania Germans in 1755. The new riflemen had a pattern of Baker's simplified version of the Jaeger rifle.

That was in 1800. 30 years later the Board of Ordnance accepted in principle that percussion ignition for military firearms was here to stay. But still Manton's flintlock carbine was issued to the 9th Lancers and the 7th Dragoon Guards as late as 1833. Economies and pressure on the gun trade forced the Ordnance to incorporate parts of 30,000 India pattern muskets in the new 1839 percussion musket.

With such small items as gun-tools, percussion locks and caps, we have found it essential to illustrate their development by old and new drawings, which we have also used to show rifling

systems. Alongside these drawings are targets specially shot for the museum with old arms by the British Muzzle-Loading Firearms Association and a selection from our huge collection of old photographs.

Our display of weapons used by the various units employed by the East India Company and its successors after the Mutiny is intended to show not only the issue arms but those which were brought to the recruiting posts by native cavalry enlisted under the *Silladar* system where a man brought his own horse, equipment and arms with him. Alongside this we show special arms marked with the titles of the Scinde Irregular Horse, Jacob's Rifles, and Indian cavalry units whose swords were much influenced by the native talwar.

As I mentioned in my introduction, many of these units also carried lances, which had ceased to be a Western weapon for a century or so, returning to some measure of popularity around 1800 with the Cossacks and Napoleon's Polish Lancers. Some British regiments were converted to Lancers in 1816, soon after the Napoleonic war, equipped with pistols, lance and sabre, and dressed in a style of uniform based on the Continental fashion (figure 6). This included the ridiculously impractical chapka. Very quickly the ash or bamboo haft of the 15 ft. lance was shortened to 9 ft. We also have a number of very short lances of about 5½ ft. much like hog-spears, one of which was used at Bhurtpore in India in 1826, and was probably the first lance used in combat by modern British cavalry.

Quite clearly, even if we had all the weapons required we would undoubtedly confuse our visitors if we attempted to detail the introduction of breech-loading arms into the British Army. It was to Jacob Snider, a Dutch-American wine merchant, that the Board of Ordnance eventually turned for its first cheap and simple foray into the field of breech-loading arms. This was after fifty conversion designs had been examined and eight had undergone trials. Even as the resulting Snider-Enfield first saw service in the Abyssinian campaign of 1867, the authorities were offering prizes for a new breech, barrel and cartridge back in Britain. No single weapon out of 104 entries was considered worthy of the first prize of £1,000 and in the end the weapon sent for troop trials was a combination of Scottish, American and Austrian genius. The Martini-Henry used a barrel submitted by Alexander Henry of Edinburgh fitted to the breech action by the Austrian Friedrich von Martini, which was in its turn developed from an

Figure 7. British Volunteers c1870, from several units. Photograph by Knight.

Figure 8. British Lancer with full equipment, c1917, his weapons are 1912 cavalry sword and Lee Enfield carbine.

American design. Colonel Boxer's ammunition which was already used with the Snider was issued with the new .45 rifle in 1874.

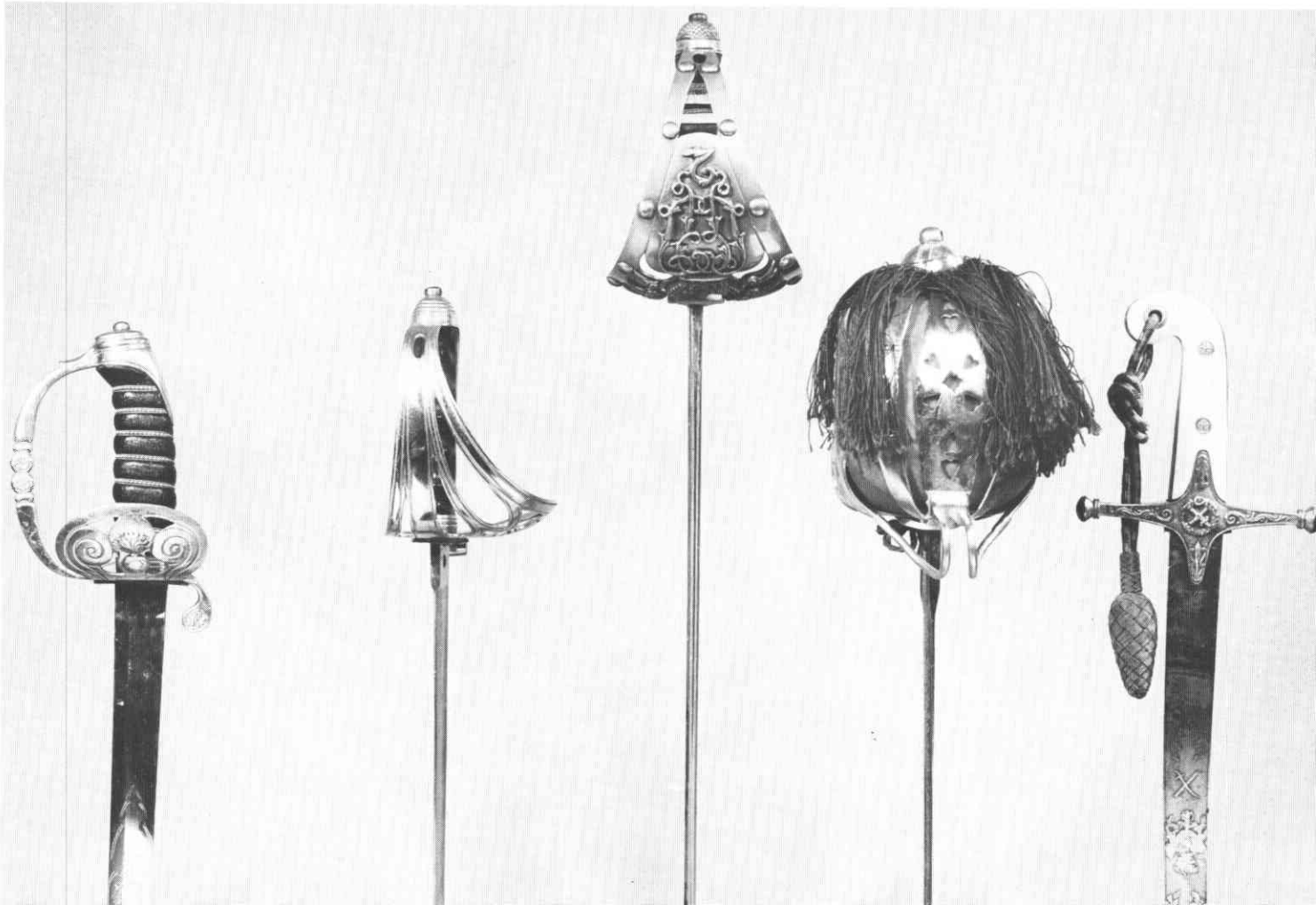
Now we come to a point at which I think we have attempted to give our poor visitor too much information. Breech-loading mechanisms, mostly using a special breech to give a tight bullet fit, and muzzle-loading using special bullets, are complicated subjects which may be child's play to many members of the American Society of Arms Collectors, but they are not easily interpreted to the newcomer to the study of arms. In fact, I do not find them easy to interpret for myself. The Board of Ordnance again sifted, tested and tried a mass of different designs, discarding the majority and not committing itself to a single pattern of rifle or carbine until the excellent Lee-Metford and Lee-Enfield rifles, which again involved an international link, were evolved.

By this time the Royal Small Arms Factory which still operates at Enfield was well established; it had produced a number of good, solid military arms and introduced relatively sophisticated gauging systems influenced by American manufacturing techniques. They did not go in for the manufacture of swords because this was done so much better and cheaper either elsewhere in Britain or abroad. Messrs Wilkinson, one of whose razor blades I used this morning (and that was not a commercial) have given us a fascinating series of partly-made swords which show the various stages of manufacture of blade and hilt. These are displayed in conjunction with a slide-programme showing the making and testing of military swords, neither of which has changed much over the past three or four centuries.

In 1859, as the French again began to flex their muscles in Europe, the British Government sanctioned the revival of the Volunteer Corps (figure 7). Like their predecessors of Napoleonic times many of the new corps bought their own equipment and practised marksmanship. The training of some of their leaders at the School of Musketry, which had been founded on the south coast of England at Hythe in 1853, led to an enthusiasm for target shooting as a sport and to the establishment near London of our National Rifle Association in 1860.

While the Volunteers and the regular army were shooting Enfields, Whitworths, Sniders and Martini-Henrys the swords of the cavalry were going through a number of changes, none of which was entirely satisfactory. During the Crimean War of 1854-56 and the Sudan campaign of 1884-98 so many blades failed as to give rise to a national scandal. By the time that the most effective sword

Figure 9. Officer's sword, Honourable Artillery Company c1850. Rifle Regiment officer's sword, 1834 pattern with special grip. 2nd Life Guards officer's dress sword. 1874 pattern. Scottish Regimental officer's broadsword, 1865 pattern. General officer's sword, 1831 pattern.



ever issued to British troops was designed in 1912 (figure 8) the sword had ceased to be an important weapon even for the cavalry, although swordsmanship was still taught to both cavalry and infantry. Specialist units, such as Pioneers, the Royal Hospital Corps, the Land Transport Corps and many bands, had their own impracticable swords for parade use. In addition to the official patterns many regiments carried variants which further complicate the history which we are attempting to recount (figure 9).

More technically advanced arms continued to develop, if rather slowly. As early as 1819 the British Army had turned down Collier's flintlock revolver. From about 1835 percussion pepperbox pistols and some transitional revolvers were bought privately by army officers (figure 10) but official acceptance of the revolver came late. For four years up to 1855 the War Office tested revolvers before buying quantities of 1851 Colts and Beaumont-Adams revolvers of the 1855 pattern. In the Crimean War the revolver became widely used by officers and remained in service in many patterns until NATO standardisation brought in the 9 mm Browning as the British service pistol. During this period the Royal Small Arms factory at Enfield made many patterns of self-extracting revolvers from the .476 Mk I of 1880 up to the .38 Mk VI of 1917, and on to the simple, cheap .38 Enfield of 1936.

Just as there had been prejudice against revolving pistols so too there was a distaste for repeating rifles, due in part to a worry that men would shoot too fast. These objections were eventually overcome in time for the development of yet another arm based on the work of more than one man. A War Office special committee after considering, among others, the Spencer, the Winchester, the Mauser, and the 1879 United States naval rifle decided on a combination of the magazine and bolt action design by James Paris Lee of Hartford, Connecticut, and the Englishman, William Metford's rifling system. Within three years of its adoption for British service in

Figure 10. Tranter double-trigger percussion revolver c1854-55. 38 bore, 5 chambers, 7⅞in. barrel. British Patent No. 212 of 1853, retailed by Rigby of Dublin. Serial No. 20601 Y. Frame marked "Adams Patent". Formerly owned by General William Charles Forrest CB. William Charles Forrest was Major, 4th Dragoon Guards in charge of the Heavy Brigade at Balaclava.

December 1888, British developments of Vieille's work on smokeless powder led to the introduction of the Mk I Cordite cartridge for the Lee-Metford magazine rifle in November 1891. A range of Lee-Metford, Lee-Enfield and P14 rifles is shown, accompanied by a Spencer, a Winchester and a Kropatschek to show their foreign contemporaries. The introduction of the bolt-action rifle led to rates of aimed fire in battle of some 20 rounds per minute. But this was not enough and the second half of the 19th century saw a continual attempt to increase rates of fire by using multi-barrelled or multi-chambered arms firing vollies or successive shots.

Once self-contained metallic ammunition using smokeless power was available the machine gun as we know it was a practical proposition. The first to be used in action by the British Army was again an American creation. War Office trials of the crank-operated machine gun patented by Richard Gatling in 1862 were not held in Britain until 1870, and the weapon did not see action until the Ashanti War in 1873-74, and the Zulu War of 1879. Our good friends in the Connecticut State Library have been kind enough to lend us a six-barrel 1883 Gatling with its Accles magazine (figure 11). Two other crank-operated guns ought to find a place in our story but I am afraid that we have not yet been able to get hold of a Nordenfeldt although we do have a Gardner on its wheeled carriage.

It is quite extraordinary the influence that the American inventive genius had on British machine gun development. Our first automatic machine gun, using the recoil produced by an explosive powder charge to eject the used case and reload, was invented by another American, Hiram Maxim while he was working in London. Its 1887 trials were satisfactory but it was not adopted by the regular army until the purchase of a small number in 1891 (figure 12). Just as some Volunteer units bought their own rifles so some, like the 26th Middlesex Cycle Battalion bought their own Maxims (figure 13). They were used by colonial forces against charging Matabele in 1893, in northern India in 1895, and at Omdurman in 1898 where they caused very heavy casualties among the Dervishes. Both sides had machine guns during the South African War of 1899 to 1902, but it was not until the Russo-Japanese War of 1904-5 that large numbers were used: the Maxim by the Russians and the Hotchkiss by the Japanese. Our Hotchkiss, a Mk I of 1916 is another reason for us to be grateful to an American friend. It was presented by Mr. Val Forgett of the Service Armament Company.

While the machine gun was being brought to a high standard of efficiency the British Army was concentrating on its musketry and resisting pleas for more machine guns from a few enthusiasts who included Brig-Gen N R McMahon, Chief Instructor at the School of Musketry from 1905-1909. At that

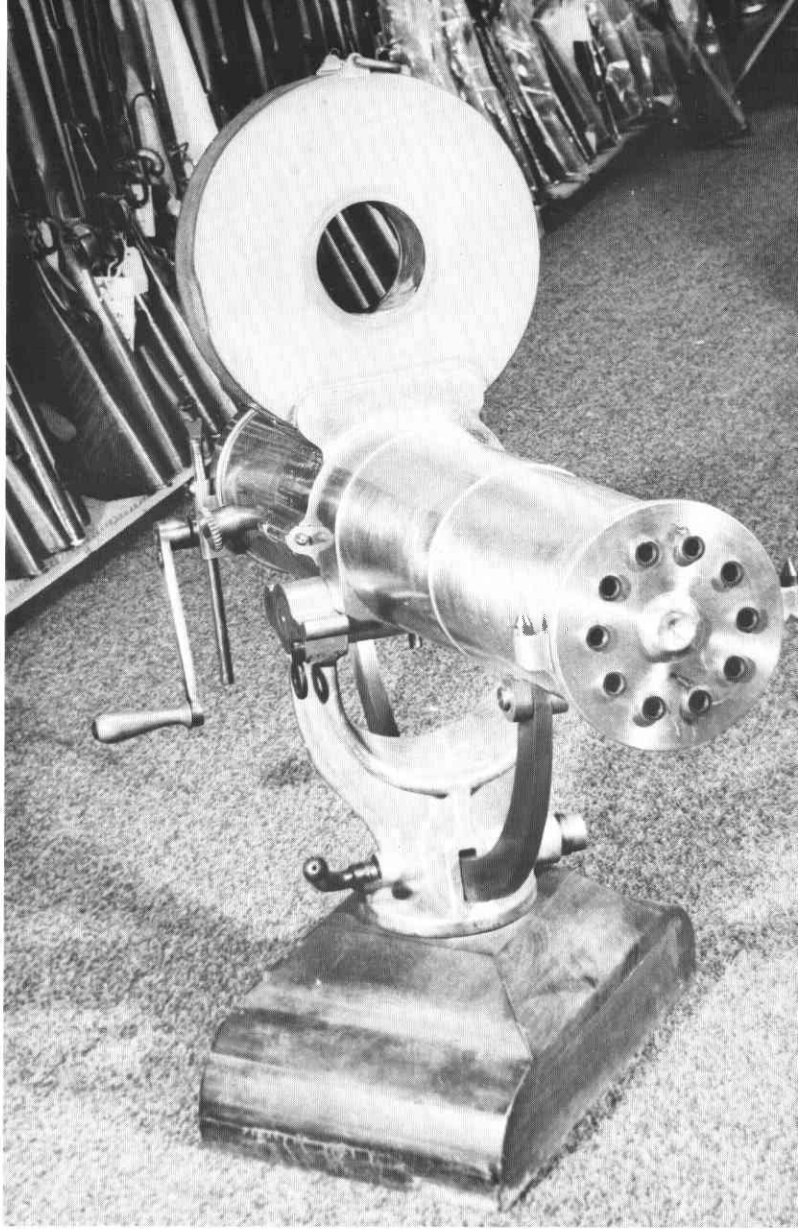


Figure 11. Gatling machine gun, model of 1883, by Colts Patent Firearms Manufacturing Co. Loan: Connecticut State Library Museum.

time each infantry battalion of 300 men had only two Maxims of an obsolete pattern so that, when the First World War started, Britain's small professional army had about 120 machine guns against the 12,500 of their German enemies. An attempt to correct this imbalance was made when the Machine Gun Corps was formed in 1915. Vickers Maxims on tripod mountings were used for sustained fire. The lighter, easily portable Lewis gun was used in a more mobile role. The standard rifles of the army were the Short Magazine Lee-Enfield (figures 14 and 15), and for sniping the Pattern 1914 Enfield rifle with telescopic sight. Webley Mk VI revolvers of .455 calibre and Colt New Service revolvers were used by officers. For the first time mass-produced steel helmets were issued by the middle of 1916 and some who could afford them bought armoured jackets privately, but the most important defensive equipment of all in the First World War, the gas mask, in all its

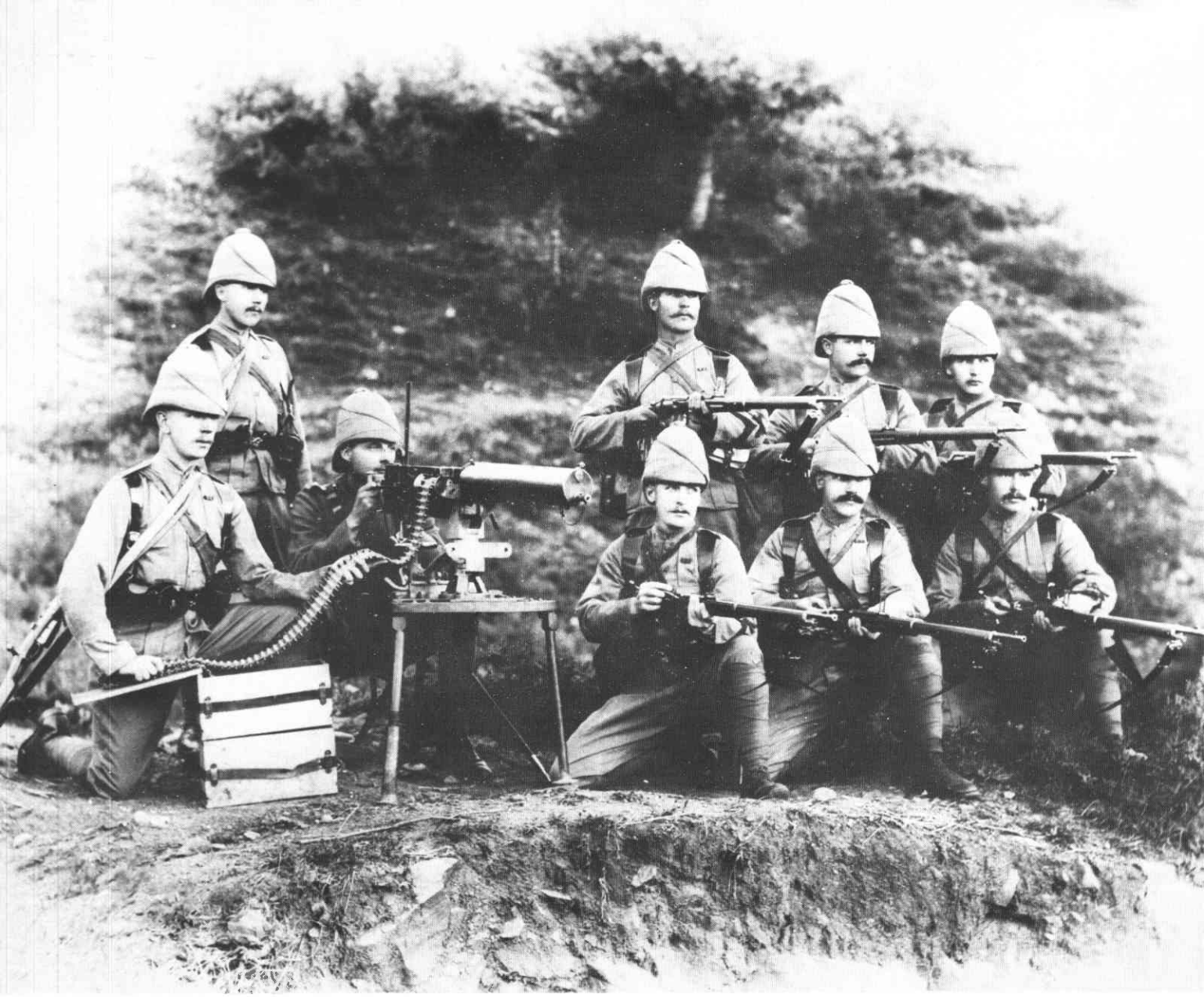


Figure 12. Maxim gun detachment, 1st Battalion King's Royal Rifle Corps., Chitral Campaign, 1895.

forms was an official issue. Beginning its life as little more than a surgical mask and passing through the stage of a damp canvas bag, by the end of the war it was a relatively sophisticated mask similar to the one issued to every man, woman and child in Britain in the Second World War.

The additional weapons in the hand-to-hand fighting of the trenches included clubs and knives. Cheaply made mortars, ideal weapons for lobbing bombs into enemy tranches, and grenades were used with increasing frequency as the war went on.

From 1918 until 1939 our weapons changed little. In 1936 the .38 Enfield revolver replaced the .455 Webley. We took the Czech Bren light machine gun into service in 1935 although some Lewis guns remained in use throughout the Second War. The Indian Army decided in 1933 that the Vickers-Berthier was the machine gun for them although they did not pension off all their Hitchkisses. Our Boys bolt-action magazine anti-tank rifle, quite capable of piercing a Coca-Cola can, was introduced in 1938. There was almost no change in the infantry rifle other than the introduction of a spiked, socet bayonet and a simplification of the construction of the rifle itself. We had no self-loading rifles such as your Garand, and although we had toyed with machine carbines since 1915 none was adopted until 1940.

The demand for sub-machine guns led to the import of model 1928 Thompsons. Later, when I was a small boy helping my local Home Guard company to clean the weapons sent over by the United States, they included some ageing Browning Automatic Rifles. We had so much trouble getting the grease out of the barrels that I wondered in my youthful innocence whether or not our war effort was being sabotaged in a very subtle way.

Figure 13. 25th City of London Cyclist Battalion. The London Regiment in camp, 1913.

Figure 14. A gas sentry writes a field postcard to his folks at home. His rifle is on SMLE. Note the cartridge case used as an alarm gong. First World War.

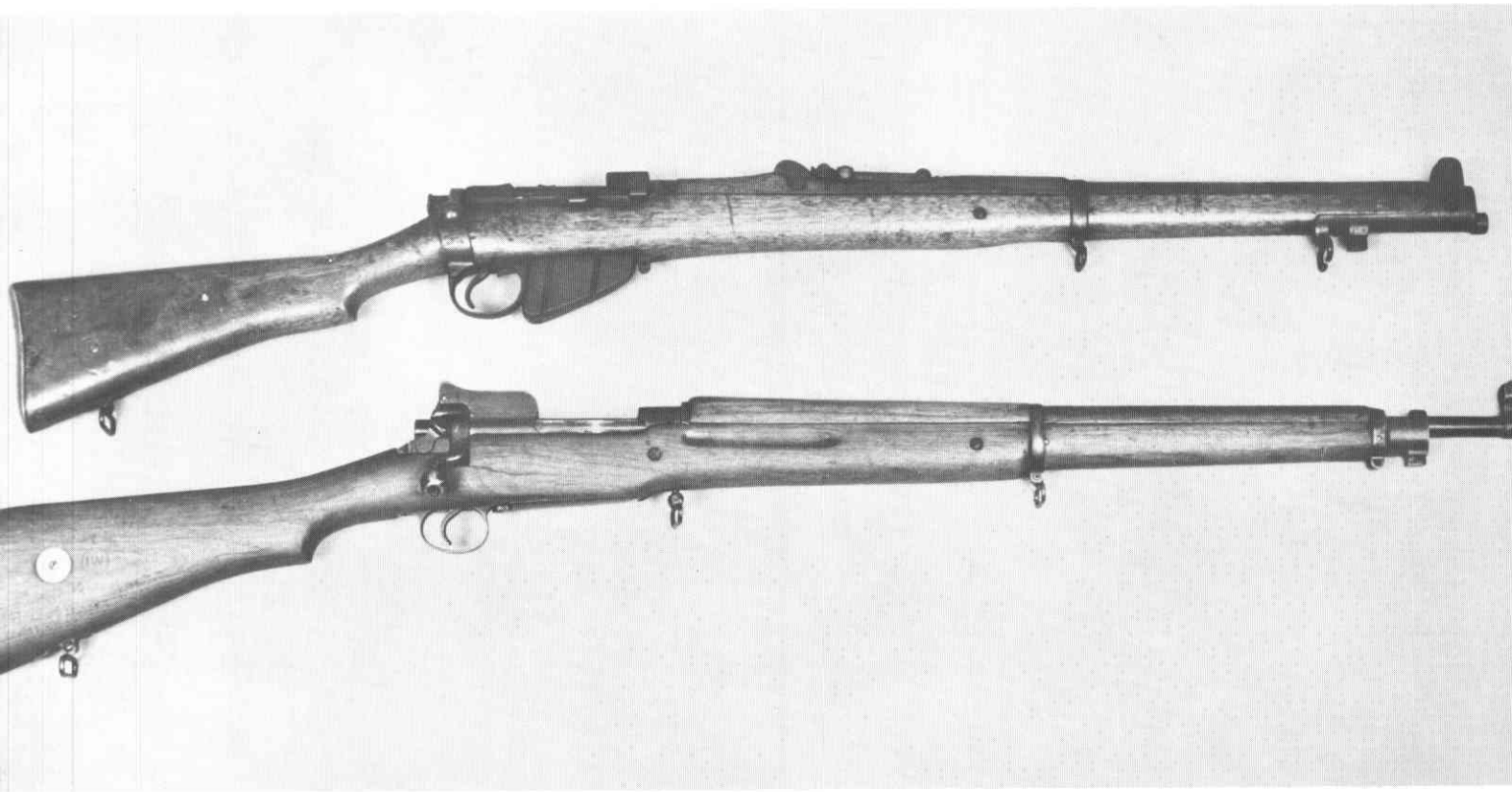


Figure 15. Above: Rifle, .303in. Short Magazine Lee-Enfield Mk 1. Introduced 2 July 1906, superseded 26 January 1907 by SMLE Mk III.*
Below: Rifle .303in Enfield, Pattern 1914.

In 1942 the Projector Infantry Anti-Tank, the PIAT, replaced the Boys anti-tank rifle and the following year the British Army received some bazooka rocket launchers. But the main support weapons throughout the war were 2 inch and 3 inch mortars. Our national stock of handguns was built up by many 1911 Colt automatics and a perfectly horrible revolving pistol made by a British commercial motor manufacturer. For the first time a fighting knife was issued to some British troops, the Commandos, and First World War bayonets rammed into lengths of steel pipes served as a crude weapon and by way of a reminder to the Home Guard, to whom they were issued, that our country was in a very tough spot indeed in 1940 and 1941.

When I became an armament officer in Germany just after the war, I was faced with two unpleasant jobs. The first was to return to a United States Army depot the Colt and the Smith and Wesson revolvers which had come to us as part of your Lease-Lend commitment. That was bad enough, but I also had to destroy thousands of confiscated pistols and other firearms and burn millions of rounds of ammunition. If I were faced with these two tasks today I doubt very much if I could carry out either of them with quite the same degree of honesty. The Colts and Smith and Wessons had to be replaced with our own nasty little .38 Enfield.

As I mentioned earlier the British Army has always felt that self-loading pistols are all very well for men who have time to keep them clean, but in the sand of the Western Desert, the jungles of Burma or the bitter cold of the Rhine crossing in 1944, there seemed to be too many possibilities of failure. The same sort of philosophy delayed the introduction of the semi-automatic rifle until 1957 when the British Army accepted the 7.92 calibre L1A1 designed by Belgium's Fabrique Nationale (figure 16).

Eleven years later our army began to replace the Bren gun, after 30 years of good service, with another FN weapon in the same calibre; the L7A1 general purpose machine gun. Discussions with a number of experienced infantrymen suggest that many of them would much prefer to go back to their dear old Bren with its box-magazine instead of link-fed GPMG.

Although not much used under today's conditions, the Sten gun, perhaps the least complicated of all machine carbines, has been replaced by the Patchett Mk I which was formerly adopted in 1953. Soldiers serving in armoured regiments are now armed with a version of the Patchett made by the Stirling Armament Company and known by the official designation SMG L2A1, or 2, or 3.

Our troops in Ireland today are in the latest, and in my view the foulest, of a continuing run of

Figure 16. Commonwealth troops (New Zealanders of the 22nd SAS) on a jungle patrol, Malaya,

The tracker has an Owen machine-carbine. (Soldier Magazine).

active service situations stretching back to the end of the Second World War, they have served with United Nations contingents as in Korea, Cyprus and the Congo; as part of a Commonwealth force resisting a nakedly communist insurgence in Malaya, and in an attempt to preserve democracy, in Arabia in 1945, Greece in 1946, Trieste in 1947, the Caribbean in 1949, and in many other places throughout the world. The British Army has had to rely more on its discipline, experience and integrity than on new weapons to maintain political stability in a counter-insurgency role. For during the phase of imperial withdrawal, the army which has seen action more frequently and in more varied conditions than any other land forces in the world, reverted to its pre-war role of policing. Few of its opponents, some think too few, have been killed, few gas canisters have been thrown, and casualties due to wooden, rubber or plastic bullets have been very much less than would have been the case had our soldiers been told to settle their affairs without any concern about the number of casualties suffered by their enemies.

In our museum displays it has been difficult to tell the story of this later period although we can underline the fact that service with the United Nations and deployment within NATO have added to the record of a remarkable army, which, with the exception of two years in Malaya when the commander of our forces was invited by Winston Churchill to accept absolute power and by doing so won the war, have repeatedly been involved in actions where they were expected to conquer without hurting anybody. However should it be necessary for American and British troops to fight alongside each other again you will not find them wanting in any of the military virtues. In the story of their weapons we have omitted this last point, but here in this delightful State I hope that you will forgive me a gentle boast about the qualities of my soldier friends in many regiments, and accept that it comes with genuine respect and liking, and is not mere nationalism.

Although the weapons of Armageddon are with us, I shall close with four apt lines from Alan Herbert's 'Salute to the Soldier'

'New men, new weapons, bear the brunt;
New slogans gild the ancient game;
The infantry are still in front
And mud and dust are much the same.'