



BCMh AUTUMN CONFERENCE

“Arms & the Man”

18 November 2006

Royal Armouries, Leeds

Our Autumn Conference was held in the Wellington Suite of the Royal Armouries in Leeds on Saturday 18th November.

On behalf of the membership, Richard Holmes thanked Peter Smithurst (Senior Curator, Firearms), on behalf of Graeme Rimer, the Academic Director of the Royal Armouries who was unfortunately unable to attend.

Programme

1045 Peter Smithurst *Introduction to the Royal Armouries & Its Collections*

1115 Royal Armouries Interpretation Team *“How a Man Shall Be Armyd”*

1145 Matthew Bennett *Arms & the Man – Weapons & Heraldry in the Middle Ages”*

1245 Lunch

1400 Nick Evans *Small-Bore Magazine Rifles, Smokeless Ammunition and Quick-Firing Artillery – The Human Implications for the British Army*

1500 David Pinder¹ *Arms Maketh the Man or Man Maketh Arms; A Survey of the Relationships Between the Soldier, Technology & Tactics Through History*

Andy Grainger

¹ Unfortunately, I do not have David’s paper, the MS being lost in transit.



Introduction to the Royal Armouries

By Peter Smithurst

For those of us who still thought that the Royal Armouries were largely based in the White Tower Peter explained that the Armouries now comprised four sites:

1. The Tower of London is the traditional home of the Royal Armouries and tells the story of a great fortress, arsenal and royal arms collecting.
2. Fort Nelson, Hampshire is the home of the heavy weapons collection, especially that of artillery and its related history.
3. Leeds is the headquarters of the Royal Armouries and houses its main galleries, research collections, conservation department and the National Firearms Centre and now....
4. Frazier Historical Arms Museum in Louisville, Kentucky, houses the Royal Armouries US branch and mirrors in a smaller scale the main museum in Leeds.

Together these sites bring together the National Museum of Arms and Armour.

The Royal Armouries is Britain's oldest museum originally set up by Henry VIII and continuously housed at the Tower of London. It now houses in excess of 65,000 objects; firearms, edged weapons, armour and related material. It tells the story of arms and armour, conflict, art and technology. The collection is cared for and interpreted by some of the worlds leading specialists in the field of arms and armour.

The National Firearms Centre at the Royal Armouries

The National Firearms Centre, opened in September 2005, formed through the amalgamation of the Royal Armouries' world famous firearms collection and that of the equally renowned Ministry of Defence Pattern Room collection. This results in arguably one of the largest collections in the world, with in excess of 25,000 firearms, and an unrivalled archive on the subject forming the heart of the Small Arms Technical Information Centre (SATIC), now forming part of the Royal Armouries Library Service.

Further information about the Royal Armouries is at <http://www.royalarmouries.org/>



“How a Man Shall be Armyd”

**Royal Armouries Interpretation
Team**

Report by Andy Grainger and Ian DGLISH

The Royal Armouries Interpretation Team of a “knight” and his “lady” assisting presented a display that was a particularly hard act to follow for the subsequent speakers. This report levels the playing field, however, since my words (even assisted by Ian DGLISH) cannot offer more than a sketch of the expertise demonstrated by the team.

The lady assisted her knight to arm himself in plate armour of about 1400. During this process it was explained that the wearers of armour were a warrior élite who spent significant amounts of time preparing and training for combat. In its turn, the Team had learned a great deal in recent years about how armour was manufactured and worn by practical experiment. They still had a way to go; there were certain pieces of the armour whose functions they did not fully understand and they did not think that modern manufacturers had yet discovered all the tricks of their 15th century forbears. For example, the Team thought that contemporary armour similar to the one they were demonstrating would have weighed a little less for an equivalent level of protection.

Around 1350-1400 there had been something of a revolution in metallurgy. For centuries warriors had protected themselves largely with mail but in the later 14th century greater amounts of plate were used until this type of protection covered the entire body. Plate armour offered significant advantages. It was not only lighter than mail (chainmail is a Victorian term) but its smooth surfaces might also deflect blades and arrows in a way that mail could not. The improvements continued into the 15th and 16th centuries.

The weight of a mail hauberk dragged on the wearer’s shoulders and it was generally supported around the waist by a broad leather belt. Plate armour was very well articulated; it was entirely possible to run around in it and even to do handstands! The howlers of men being



winched into saddles have long been exploded and it was thought they may have arisen from accounts of elder statesmen in heavier tournament armour being mounted for a parade – perhaps in the manner that certain National Service Guardsmen were carried bodily to their posts by their comrades so that the soles of their highly polished boots did not become soiled due to contact with the ground.

But to achieve a good level of mobility in plate it was recommended that the armour be tailored to the wearer. It had to fit tightly, in the manner of a corset, and it was explained that the fit of the greaves on the calves was particularly important. If these were too tight the wearer could not walk properly but if they were too loose then the articulation of the whole panoply was affected by the metal surfaces rubbing against leather straps, each other and possibly the wearer's body.

Once our “knight” was “armyd” there was a good deal of discussion on subjects such as fatigue, whether to be “open” or “buttoned up” and horses. The “knight” recalled an occasion on which he had been armyd over an eight hour day for a film shoot. There were very intense periods of activity but also *longueurs*. He felt that, like a modern rugby match, the tempo of a mediaeval battle (perhaps any battle) would have been imposed by the efforts of the fighting men. He explained that in battle the armour rapidly gets very hot but as the body becomes drenched in sweat so air circulates and stabilizes the body temperature.

He explained that, even closed down, there was ample visibility when facing one's opponent but it was impossible to hear anything. In practice he and his colleagues found that it was a matter of personal taste whether to keep their visors up or down. He personally closed down for the advance but opened up in combat to give himself broader peripheral vision. It was noted that these issues were precisely similar to those faced by the crews of armoured vehicles.

Apart from making, wearing and using their own armours and weapons, the Team also took part in jousting and had learnt some interesting things about training horses to gallop directly towards another (deeply stupid) rider who was certain to impart a massive shock to the occupant of his own saddle. Horses are flight animals and the Team explained that they found it easiest to try and accustom the horse to the idea that it was galloping down a tunnel (presumably on the basis that it would want to get to the light as quickly as possible). To this end they aimed to go from halt to gallop in four strides (so the mediaeval *destrier* was not a carthorse) and to use a minimum of contact on the reins. This latter was important since once the opponent's lance hit you the resulting jerk on your own reins would cause the horse to stop dead, if not rear, and throw you out of the saddle. Forward momentum is obtained by the deep seat and training – and in medieval times by ferocious spurs. The Team used to think that projecting knee-guards (*genouillères*) were removed from the inside knee to permit riding. Now they feel that this was not the reason for dispensing with them since the thighs are not used to guide the horse. In combat, rather than the joust, steering would probably be done with the reins and spurs.

In summary, plate armour was a highly sophisticated form of protection which also offered good mobility. It offered a high level of defence against arrows and so the idea of advancing on foot against the English at Agincourt seemed sensible. Even a mounted charge could have its advantages because although the horses were more vulnerable to the arrows the riders



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could pass through the arrow storm fairly quickly. This advantage was reduced if the ground was bad or the archers were behind defences as the English often were. But the arrows were also more effective against the less well armoured men-at-arms and squires. These people gave essential close-in protection to their more heavily armoured brethren in mêlée and, as we had heard, knights were very vulnerable to attacks from the flank or rear if distracted in front.

Again, one could not escape parallels with armoured warfare in the 20th century and the travails of the small number of powerful German Tiger and Elefant vehicles hampered by difficult terrain and the vulnerability of their escorts to Russian anti-tank weapons.

This was a tremendously impressive presentation since the theoretical knowledge and expertise of the Team was so strongly backed by their practical experience. It may, alone, have even persuaded a number of us that there really is life north of Watford!

I took very few notes and in desperation looked at the internet when I got home. There are surprisingly rich pickings in the form of sites dealing with academic and scholarly material, re-enactment techniques all the way to the manufacture and sale of reproduction clothing and equipment.

A selection of sites is shown below:

How a Man shall be Armyd

<http://www.chronique.com/Library/Armour/Armyd.htm>

Classical Fencing, the Martial Art of Incurable Romantics

<http://www.classicalfencing.com/mcridder.php>

The Association for Renaissance Martial Arts

<http://www.thearma.org/>

Revival Clothing

<http://www.revivalclothing.com/>

Arms and Armor (a series of links from a Heraldry website)

<http://www.digiserve.com/heraldry/armor.htm>

Institute for Medieval Studies (Leeds University)

<http://www.leeds.ac.uk/ims/index.html>



Weapons and Heraldry in the Middle Ages

Matthew Bennett,

Royal Military Academy Sandhurst

There is an intentional pun in the title, referring to how warriors represented themselves as much as what equipment they used. The origins of heraldry are obscure, but certain points of development can be identified. The Bayeux Tapestry's representation of the battle of Hastings was probably created (most likely by English crafts folk) about a decade after the battle (c. 1077). Although there are plenty of decorated shields on show, none seem to be attributed to a particular individual, not even the main participants. It is possible that the banner carried by Eustace of Boulogne, bearing a cross with four blobs in each quarter is meant to represent the papal arms, and it may be significant that just such a design is found on the coins of Boulogne dynasty c. 1100.

The earliest coats-of-arms

The next earliest illustration of what seems to be a real coat of arms is the chequered surcoat of the count of Vermandois in c. 1120. It is not until the 1130s that practice became more widespread, however. It appears in illustrations to the Chronicle of Henry of Huntingdon, where knights are shown carrying shields with bearing chevron designs. Late in the decade, probably around 1138, Geoffrey of Monmouth's History of the King's of Britain, the original Arthurian tale, contains references to knights bearing coats of arms at a tournament. The decoration and the activity are, in fact, closely related.

The question might be asked why the practice did not emerge earlier; after all, it was always difficult to distinguish a leader from the rest. At Hastings duke William, had to raise his helmet to prove that he had not been killed, as otherwise the broad nasal obscured his identity. A decade earlier he had apparently offered a challenge to single combat with to Geoffrey count of Anjou, detailing his armour and the horse he would be riding.

The couched lance

So, my suggestion is the development of heraldry is directly linked to the use of the lance. The couched lance attack is the iconic representation of a knightly cavalry charge. This had possibly been used as one option of lance handling in earlier times, but generally prior to about 1100, it is shown as two-handed or over arm. The couched lance, tucked under the arm, does appear on the Bayeux Tapestry although not as majority use. The reason for this may be that the English opponents in 1066 were dismounted and the tactic was actually designed for unhorsing mounted opponents.

How do we know this? Well in Old French epic poetry – such as the Song of Roland – there appears the poetic formula that when a hero charged his he enemy he: 'threw him a lance length leaving his pennant in the enemy's belly'. Strikingly, this formula also appears in First Crusade Latin literature immediately post-1100 (although the vernacular texts are later in



date) suggesting that the technique was well known by then. It may also tie in with the development of the tournament.

The tournament

The first reference to this sport may date as early as 1066 in an Angevin chronicle source when a knight is described as being killed in some kind of lance play. This may be too early though, a result of prequelling the activity in a later source. Again, the tournament only really appears clearly in the Arthurian tales. One topos of this genre, made popular in the later 12th century by poets such as Chretien de Troyes is of the unknown knight at a tournament. This strongly suggests by the 1170s that an important man would be recognisable by his coat-of-arms.

It might be expected that royal arms preceded those of the higher nobility, and were then followed by lesser men. This certainly seems to have been the case in the development of personal seals authenticating documents, but it's not quite so clear.

One of the very earliest confirmed coats-of-arms is the chequy of the Beaumont family – yellow and blue – dating to the 1130s again. The royal arms of England seem to have developed later, the three lions first appearing on seal of Richard I in 1190. It is true that a memorial enamel plaque was produced for his grandfather Geoffrey le Bel, count of Anjou, produced in the mid-1150s shows lions, but it is unclear if Henry II used them. Lions were obviously a very popular sign, symbolising bravery and ferocious strength, and by the late 12th century they were widely used. The French king's use of the fleur-de-lis also dates to around 1190, so it is possible that the symbols were adopted to help distinguish the rival French and English contingents on the Third Crusade (1189-92).

Arms and armament

So how is the development of coats-of-arms related to the use of weapons? Well, because the couched lance changed the use of the shield on horseback. 9th and 10th century illustrations show round shields – English manuscripts and the Bayeux Tapestry show them quite strongly dished – these are useful for foot fighting but not so good on horseback. In western manuscripts of the early to mid-11th century onwards the teardrop or kite shield begins to make an appearance. No one quite knows why, it could be Byzantine influence, or possibly from the Muslims via Spain or Sicily. It is notable that on Bayeux Tapestry all the Norman knights carry long kite shields which cover their left flank, providing useful protection; but this not very wieldy shield needed complex strapping and also a long strap (guige) that hung around the shoulders. Early illustrations show the left hand brought over to grip the lance, both for stability and to strengthen the hold. Do note that the lance was held in a reverse grip with the fingers curling around the top of the lance stave in the right hand, to enable the lance to come back with impact, if necessary, when an opponent careered on past the attacker. There might also be the need to raise the shield – carried in the left hand against enemy attack, especially against sword blows, and for that the handgrip was used. Lifting a tall heavy shield in this way must have been problematic.



Development of horse furniture

That the lance attack required technical developments, as well as technique, can be linked to the changes in horse harness around 1100. Bernard Bachrach has pointed out that the double girthing of saddles, which also featured higher pommels and cantles, can be related to the development of the lance attack. I wish to suggest that a smaller shield also helped the couched lance style, this combined with the desire to decorate it with personal insignia, coats-of arms, as it could be brought around to the front of the fighter and led to the classic style of the charging knight seen for as long as the technique had military utility.

By the end of the 12th century, heraldry proper had been established and was widely in use. The use of quartering – cutting the arms of one family with another – was already taking place. It became normal to display coats-of-arms not just on shields, but on helmets, surcoats (themselves a product of the 12th century and probably – though not certainly - to be linked with the crusades), horse trappings and so on. Also, by this period there are descriptions of the non-noble followers of arms bearers wearing simplified versions of their lord's arms usually as parti-coloured dress, although the uniform nature of such clothing should not be exaggerated. The development of livery, as such common form of clothing was usually called, was not frequently issued until the 15th century. Certain great men, like Edward I, did issue liveries as early as 1300. It is a mistake to believe that these were always the same colours, however, in fact, it was more usual to issue clothing of different colours, often depending upon the event that the distribution of such gifts was celebrating, rather than keeping to a standard colour.

Editor adds:

I found Matthew's paper very stimulating and was pleased to hear an explanation of the difference between heraldry and livery – the former to denote who you were and the latter to denote whom you served.

In April 2006 we had visited the battlefield at Bouvines (1214). In the late nineteenth century the church in the village was decorated with a series of 21 magnificent stained glass windows which seem to represent the armour of the period reasonably faithfully – although I imagine that the scholarship has moved on to an extent since then.

One of the rare set-piece battles in the period, the action seems to have been characterised by charges between relatively small bodies of knights rather than large disciplined formations. This would seem to suggest that combat was primarily between groups of individuals, doubtless displaying the latest '*gere*'.

A certain amount of information about the windows is to be found at

www.lesamisdebouvines.fr/fm/



Small-bore Magazine Rifles, Smokeless Ammunition and Quick Firing (QF) Artillery in South Africa; the Human Implications for the British Army²

Nick Evans

This article is divided like Gaul into three parts. The first deals with how firepower had increased before 1899. Secondly what were the increase's tactical effects in South Africa? The third is how these tactical effects changed an array of what may be termed human factors including initiative, education, discipline, training and leadership.

Firepower and Weapons

*Don't call your Martini a cross eyed old bitch,
She's human as you are and treat her as sitch,
And she'll fight for the young British Soldier.³*

The greatest increase of firepower in the years before 1899 was undoubtedly the smallbore magazine rifle firing smokeless ammunition. The latter was very important in enabling fieldcraft and concealment. There are lies, damned lies, statistics and casualty statistics, but the evidence is pretty clear that most British casualties were from small arms fire. The second was Breech-Loading (BL) artillery firing accurately fuzed shrapnel. Most artillery pieces fired smokeless ammunition, again with considerable tactical implications. The third was the use of effective machineguns in a major war and the fourth were howitzers sometimes firing Indirect.

The first development was flat trajectory fire. The difference between the trajectories of the Lee-Metford (LM), later the SMLE, and the Martini-Henry (MH) was significant. In the former fire from 0-500 yards was such that, providing the aim was correct for direction, there was, unlike the MH, no need to set a range. On level ground there was theoretically no chance of missing.⁴

The next advance was the adoption of small-bore rifles. Now some may be surprised to hear the .303 LM and SMLE described as small bore. But this contemporary designation is comprehensible when they are compared with the .450 inch MH and the .577 Snider. These were designed to stop a galloping horse with one shot. Smaller calibre rounds meant that the weight of each was halved, with the result that soldiers could carry more ammunition. This increased firepower. Smaller calibres meant that muzzle velocities could be raised, thus flattening trajectories and raising hit probabilities. Clearly increasing the MH's muzzle velocity to that of the LM's while keeping the same weight bullet would have imposed unacceptable recoil forces on the firer and the weapon. Another advance was that the LM and Mauser were magazine rifles. This meant that typically 10 rounds could be fired before the rifle needed reloading. This again greatly increased firepower, the Mauser went one better as it was reloaded by slotting a 5 round clip into the magazine, increasing the rate of fire further.

² I am very grateful to Professor Spiers who chaired the paper given at Leeds and the Commission's members for their comments. The paper has been amended in their light. All books London unless specified

³ Kipling 'The Young British Soldier' AG.

⁴ WW Greener *The Gun and Its Development* (1899), p664 compares MH and LM trajectories.



Contrastingly once the LM's magazine had been emptied, it then had to be reloaded round by round. This was a design feature to prevent rounds being fired off by undisciplined soldiers. Contemporaries concluded that modern rifles' firepower had increased by 10 times before 1899.⁵

Artillery in 1899 was poised on the brink of the QF revolution. Whether QF weapons were used there is a matter of debate. Professor Spiers is adamant that they were and cites the British use of RN 12 Pounder and 4.7" guns. Professor Beckett is more sceptical.⁶ All that can be said here is that ammunition supply is a critical factor. Though the British undoubtedly had QF weapons in the RN guns, the Elswick 12 Pdr battery and in various guns on armoured trains, it seems doubtful whether logistics and in some instances mountings, an RN gun lashed on a pair of wheels, whether the weapons would have been capable of QF rates of fire in field combat. But some of these guns were platform-mounted and thus capable of firing fast. The British also used pom poms, QF weapons though not field artillery, extensively. But the British assessed that they had faced Boer QFs.⁷ For professional soldiers the implications of QF artillery were becoming clear. Combat quickly showed that British 15 Pounders were not only inferior to long-range Boer heavy guns but also to Boer field guns. This was a great drawback in South Africa's open terrain.

We have a prejudice when talking of weapons that we term the projector a weapon, while calling the real weapon just ammunition. In South Africa the British field gun ammunition was almost exclusively shrapnel. This was excellent at killing men in the open when properly burst, but had little effect on structures. But bursting shrapnel 6-12 feet off the ground demanded great skill. Though the Boers artillery pieces were generally more advanced than British fieldguns, their ammunition was badly fused and ineffective. A Gunner colonel commented caustically at Ladysmith. 'I don't mind Boer shells but I do object to being shot at with British ammunition. Their shells don't function, ours' do!'⁸ Furthermore the Boers had problems bursting their shrapnel due to poor training. Only at Spion Kop was Boer artillery fire effective. Here it was the British plan which thrust a salient in the Boer line in a position where it was impossible for the RA to support their Infantry that gave the former their opportunity.

Shrapnel is optimised for direct fire and limited range. The latter is due to the fact that the shell does not impart velocity to the shrapnel balls through the shell's explosive. Instead the shell gives the balls their velocity through its own kinetic energy. To produce adequate lethality the minimum velocity had to be about 600 feet per second. Shrapnel is also most effective when it is burst as near parallel to ground as possible, thus maximising the probability of hitting. But the longer ranges shells are fired at, the steeper the angle of descent, thus shrapnel becomes less efficient, while HE shells become more. As engagement ranges grew this was an argument for Indirect Fire. Shrapnel meant that artillery fire was more lethal at troops in the open in 1899 than in 1870 when German rounds were impact

⁵ PRO 30/40/16 'Memorandum on Weapons.'

⁶ EM Spiers 'Rearming the Edwardian Artillery' *JSAHR* 57 (1979), IFW Beckett *The Victorians at War* (Hambledon and London 2003), p237.

⁷ WO 33/235, p389 describes the Boer 75mm Creusot and the 120mm Krupp Howitzer as QF; this was a postwar technical report on captured weapons.

⁸ Lt Col Coxhead 'The IInd Brigade Division, RFA, in the Natal Campaign' *RA Proceedings* (1900-1). Here it is worth emphasising that Boer artillery caused relatively few casualties in Ladysmith despite the defenders being exposed from all sides, on lower ground and with little ammunition for CB.



fuzed. Generally British artillery did not inflict as many casualties as gunners felt they should have, but they neutralised enemy defences. Buller fought the 2 battles where artillery was used most effectively: Pieters and Bergendal. It is possible to detect tactical differences between Buller's and Roberts' troops. The former maximised firepower, the latter mobility.

The British also deployed BL 5" howitzers some of which used Indirect Fire. The latter, capable of engaging targets sited on reverse slopes, benefits from the steeper angles of descent typical of Indirect Fire. Such fire can also search into trenches, while HE shells splinter more efficiently as the angle of arrival increases. HE naturally has a greater effect on structures. Unfortunately British Lyddite, of which great things were expected, and its fuzes proved unreliable. But this use of howitzers was significant. Both Howitzers and Indirect Fire received, despite General Bailey's statement to the contrary a great boost from South Africa. This suggests that the Army felt it was more likely to have to engage trenches and hidden positions. Indirect Fire had profound effects on warfare but space does not allow analysis here.⁹

Machineguns were the third significant weapon. The British deployed some 400 and though conditions were often unsuitable, they did well. The general impression and one stated in the technical historiography is that they failed in South Africa. This is wrong. It is true that unlike Omdurman they did not carve swathes through the Boer ranks but in Natal Buller's force found them excellent for neutralising Boer positions and covering moving troops. This was despite the fact that many machineguns were mounted on vulnerable carriages, were relatively old and unreliable.

South Africa was the first war in which everyone apart from a few Boer diehards carried magazine rifles firing smokeless ammunition. Callwell commented:

[t]he disappearance of black powder has exerted a far more potent influence in moulding tactics...than the increased power and accuracy or the rapid fire of the modern rifle or gun. Concealmenthas gained a ... commanding importance.

Most artillery fired smokeless powder, though the Boer 155s and the British mountain guns did not; both suffered severely. Technically smokeless ammunition's propellants were more energetic which led to greater ranges that could be exploited in South Africa's open terrain. They left far less fouling, which enhanced the rate of fire. Nor did the firer have to wait for smoke obscuration to disappear before firing again. For the first time since the introduction of firearms, fieldcraft was still effective after fire had been opened. For commanders and combatants no longer was it possible to gauge an enemy position instantly.

⁹ Maj Gen Bailey *Field Artillery and Firepower* (Annapolis 2004), p223; *Annual Report of the School of Gunnery 1901* (1902), p17. Col J Bailey *The First World War and the Birth of Modern Warfare* (Camberley nd) for Indirect Fire's effects.



The Tactical Effects of Firepower

*An' now the hugly bullets come peckin' through the dust,
An' no one wants to face them but every bugger must,*¹⁰

British casualties were stiff from the start at least in public and military opinion. Most were from Boer rifles. The first effect of increased firepower in South Africa was to compel tactical extension. Prewar British norms had ranged from about 1-2 paces between men but these increased. There were deep implications:

*the private ... is to become ...capable of thinking and acting for himself, and not....a mere machine. The machine was good enough in the days of "Brown Bess" when troops could be manoeuvred in close formation to within 300 yards of the enemy; but now it is necessary to shake out ... at 1000 yards, it is obvious that men who may find themselves 10 or 20 yards from a comrade, must ... "play the game off their own bats."*¹¹

The spatial conditions of combat had altered dramatically with further consequences. Firstly control by superiors became very hard if not impossible. In turn this meant that subalterns, sergeants and soldiers had to rely on their own initiative. This had further implications. No longer was it possible to impose 'external' discipline in combat. Instead the Army had to switch towards 'internal' discipline based on regimental pride, patriotism, morale and so on.¹² Another consequence of extension, particularly for mounted troops, was greater stress on detached duties and reconnaissance, made harder by smokeless ammunition. Soldiers now had to read maps. This demanded education.

Smokeless ammunition meant that, for the first time when fire was opened, the firer's position was not given away. Lanchester argues that concealment favours advanced weapons and counters numerical superiority.¹³ This meant that fieldcraft became not just practical but essential for survival. Fieldcraft, basically an individual skill, demands initiative. Fieldcraft gives the crafty the ability to evade combat, reinforcing the importance of internal discipline. Before 1899 the Army had not taught fieldcraft universally, but combat emphasised:

*the training of infantry in shooting from behind cover ... without exposing themselves...
[T]he average British infantryman usually exposes half his body... and frequently puts himself into such a position that he can neither aim accurately nor shoot quickly.*¹⁴

Pre-war fire tactics had been based on volleys to ensure control. Now against hidden enemies, with one's own soldiers dispersed, Independent became the normal method of firing. This also demanded that individuals used initiative. Fieldcraft was stressed in training and rangework as Table 5 shows.

¹⁰ Kipling 'The 'Eathen', AG.

¹¹ 'Infantry Officer' 'Army Shooting, and Its Improvement' *Blackwood's Magazine* CLXIX (1901),p320.

¹² *Standing Orders...Somerset Light Infantry* (Devonport 1910), Section VII.

¹³ *Aircraft in War* (1916),p29. He cites South Africa as an example.

¹⁴ Col Henderson *The Science of War* (1905), pp350-1. The quotation was added after his 1899 lecture.



There was further effect of firepower; it was simply that combat was becoming more complex. This was partly the effect of long-range weapons and dispersal. French at Colesberg commanded across a 33 mile front by field-telegraph and heliograph.¹⁵ Later on 60 or so mobile columns combined with poor communications and dispersal meant that subordinates had to use initiative. Their ability to do so was hampered by the lack of an army-wide doctrinal framework and poor pre-war training. There was also the crude effect of numbers combined with staff shortages and the vast extent of South Africa in causing complexity:

*But when the Army grew to ... 300,000...appointments had to be filled by men with whom want of [staff] experience was the rule.*¹⁶

There were also the effects of technology, this was the first WT war and the first involving mechanically propelled armoured vehicles. Also balloons, searchlights, steam transport, railways and logistics had to be integrated into tactics. Howitzers, long range guns, small arms, machineguns and siege artillery had to be combined to defeat greater defensive firepower. This demanded better staffwork and greater professionalism.

The Wider Changes

*But 'e wasn't taking chances in them 'igh and 'ostile krantzies-
He was markin' time to earn a KCB...
(Panicky, perishin' old men),
That 'amper an 'inder and scold men,
For fear o' Stellenbosh!*¹⁷

Extended order demands that individuals display initiative but it is relatively easy for them to evade combat. Equally commanders, as Kipling suggests, had to show initiative in conditions of uncertainty. These conditions produced by long engagement ranges and smokeless ammunition discouraged risk-taking in individuals who had been conditioned to obey and not to initiate. To accommodate these imperatives of the dispersed battlefield, a new type of discipline was needed.

*Of all the rich windfalls garnered ... from ... South Africa ... one of the best was her new Discipline (sic). Lessons learnt ... during ... Tirah ... had prepared our minds for the change and the fresh experiences of kopje and veldt soon convinced our officers that, in open country and during daylight, the ancient mechanical discipline ... could not be applied to the new tactics. Armament, necessitating ... wide extensions, isolated the individual. Neither by voice nor revolver could the captain dominate a firing line extended at [5-10] paces interval through the uproar ... of a battle.*¹⁸

Table 2 provides evidence for the change. Roughly court-martials halved between 1898-1912. Why this occurred is impossible to prove, but Roberts was clear that:

¹⁵ WO 108/376 p23-4.

¹⁶ *Royal Commission on South Africa (RCWSA) Report* (1903),p53.

¹⁷ Kipling 'Stellenbosch', AG.

¹⁸ *The Soul and Body of an Army* (1921),p101.



*Discipline is as important now as it was then but self reliance is what is wanted, not the rigid discipline of the barrack square. Officers, [NCOs] and men must be encouraged to think and act for themselves.*¹⁹

Education certificates more than doubled between 1903-1912. Ahrenfeldt states that there is a link between education and discipline.²⁰ Again it is impossible to prove conclusively why certificates increased. Though the slow operation of the 1870 Act had an effect, the annual recruiting statistics show that there was no major improvement of entry level education standards. Historians suggest the state of education was poor. The most likely explanation is that the Army deliberately promoted it. One of the criteria for the award of Service Pay was an education qualification. Senior officers were convinced that:

*Education makes ... men more intelligent, which is what we require nowadays when men are often isolated from their officers and required to exercise ... initiative.*²¹

On the extended battlefield officers could no longer physically lead. Instead command had to be exerted by leadership, that combination of example, persuasion and compulsion. In this professional ability and knowledge were substantial components. The Duke was emphatic that officers should be gentlemen and social status was critical, though one also notes his cutting: 'nothing so stupid as a gallant officer.' Now professional ability was becoming more important, not least because combat was becoming more complex. Hamilton, a former Adjutant General and responsible for discipline, summarised the change:

*the balance point of discipline has... insensibly shifted in the past ten years. ...[O]ur officers have definitely faced the new conditions and have made up their minds to seek discipline for the future in the effects of good example, sympathy and kindness, in ... traditions, in the maintenance of a high level of camaraderie; in the intelligent comprehension by the rank and file of the why and the wherefore of an order and in their keenness to carry it out.*²²

Complex tactical conditions caused by modern weapons meant that the Army's training had to be developed. This also ties into the need for professionalism and Roberts' suggestion of the switch from drill. The Akers-Douglas Committee caused radical change at Sandhurst, Rawlinson, Wilson and Robertson improved the Staff College; there were alterations to basic soldier training and a great increase in manoeuvres and staff rides. NCOs were trained more professionally and initiative was delegated to them. Colvile saw the way ahead:

While a strong advocate of smartness and unbending discipline, I am inclined to think that the former quality has been given undue weight in the selection of [NCOs]. In battle a great weight of responsibility often falls on these men ... [I]t is of the utmost importance that they should be quick, intelligent, resourceful, and have an eye for country.

¹⁹FM Roberts 'The Army-As It Was and As It Is' *The Nineteenth Century and After* LVI (1905),p23.

²⁰ R Ahrenfeldt *Psychiatry in the British Army in the Second World War* (1958), pp77-80,126-7; Table 3.

²¹ Gen RC Hart WO 163/12 Précis 324, pp61-2. For reasons of space, entry education statistics are not included, but these can be supplied to anyone who is interested.

²² Hamilton Papers 15/1/36 pp58-9.



Evelyn Wood organised an NCOs school and several units trained NCOs in a modern way from 1902.²³

Hitherto social status had largely sufficed for command. Now no longer was it possible for officers to physically lead in modern conditions. Instead command started to depend on leadership and professional ability. The latter was fostered by responsibility for training:

*The officer ought to be in all respects the instructor and leader of his men.... He must show himself superior to the soldier in knowledge, experience and strength of character, and he must be competent to carry out his duty in any situation whatsoever without shirking from responsibility, or, when thrown on his own resources, without waiting for orders.*²⁴

Complexity demands that control and initiative are balanced. To achieve this modern armies stress inculcating doctrine: 'fundamental principles by which the military forces guide their actions in support of objectives.' Here a current analysis of doctrine's military benefits is valuable in understanding it:

*Knowledge and understanding of doctrine... aid clarity of thought in the chaos of war. Sound doctrine provides a common approach... which is not bound by prescriptive rules. This will lead through training to consistent behaviour, mutual confidence and properly orchestrated collective action, without constraining individual initiative.*²⁵

The evidence for the adoption of doctrine is suggested by the Army's stress on developing principles, its accentuation of initiative, its development of weapons doctrinally, that is by specifying requirements rather than accepting what makers had available, its attempts to reorganize formations on a more rational basis, the works such as *Combined Training 1902* and *Field Service Regulations 1909*, the development of the General Staff, as well as those who called directly for doctrine. French advocated:

*the formulation and laying down of principles deduced from the highest and best war experience. I hold that these principles and the power of applying them to any given problem or situation must be, as it were, instilled as a second nature in the mind of any soldier who aspires to exercise high command in war. I regret to report that I observed a distinct lack of these qualifications in most of our higher leaders, and hence results the hesitation, ill-timed combination, faulty plans, and grave tactical errors which have been a marked feature of the larger manoeuvres.*²⁶

Inevitably introducing doctrine had major implications for the staff that body charged with systematically examining issues. Here it seems significant that the changes to enhance initiative, education, training, doctrine and discipline seem to be related, and the effects were synergistic. Others, most notably our last President have examined the staff's development, so

²³ RCWSA Evidence II p286; *The Journal of the Leinster Regiment I* (1910),p245. Lt Dill was responsible.

²⁴ WO 123/43 pp4-5; eds B Condell, DT Zabecki *Truppenfuhrung* (Boulder 2001), p5 cites a similar order. The quotation has a very Germanic ring.

²⁵ *Design for Military Operations* (1996),p1-1; *British Defence Doctrine* (1996),p1-4.

²⁶ WO 163/16 'Annual Report Inspector General of the Forces 1910' pp219-220.



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this is as good a time to end. Solzhenitsyn stated that: *'to taste the sea one needs only one gulp.'* To compress 100,000 words and some years into a few pages is beyond me and so:

*A great and glorious thing it is,
To learn, for seven years or so,
The Lord knows what of this and that,
Ere reckoned fit to face the foe.²⁷*

²⁷ Kipling 'Arithmetic on the Frontier' AG.



Table 1. SMLE and Martini-Henry Compared.²⁸

Ser	Characteristic	Martini-Henry	SMLE
(a)	(b)	(c)	(d)
1	Propellant	Black Powder	Cordite
2	Muzzle Velocity (fps)	1350	2050
3	Magazine	None	10 round magazine
4	Calibre (inches)	0.45	0.303
5	Introduced	1871	1903
6	Weight	9 Lbs	8 Lbs
7	Ammo wt	1.8 ozs	1 oz
8	Loading	Single Round	5 Round Clip

The Lee Metford was similar to the SMLE except that it weighed more and was not clip loading. Greener *The Gun and Its Development* (1907), p672 has a useful comparison of trajectories.

Table 2. Disciplinary Offences 1898-1912.²⁹

Ser	Year	Average Strength	No Courts Martials (CM)	CM Offences	Number Imprisoned	% of Army CMed	% of men fined drunk
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	1898	225,027	9676	14,044	8001	4.47%	6.6%
2	1904	287,240	12,017	16,382	10243	4.5%	5%
3	1906	263,117	8125	11053	6725	3.24%	4.5%
4	1908	251,324	7181	10083	6338	3.11%	6.8%
5	1910	252,686	6433	9404	6345	2.72%	5.00%
6	1912	253,762	5161	7557	4380	2.18%	4.62%

²⁸ BA Temple and ID Skennerton *A Treatise on the British Military Martini* (Burbank 1983), *Text Book of Small Arms 1904* (1904).

²⁹ Tables 2 and 3 from *General Army Reports* for the respective year. Incomplete data 1899-1903 in Table



Table 3. Education Certificates 1903-1912

Ser	Year	Average Strength	NCOs and Men with Education Certificates	% (d) of (c)
(a)	(b)	(c)	(d)	(e)
1.	1903	303,600	79,860	26.3
2	1904	267601	111,928	41.8
3	1905	254,748	120,754	47.4
4	1906	245,978	128,749	52.3
5	1907	232,154	129,308	55.7
6	1908	235,409	139,065	59.0
7	1909	237,205	148,025	62.4
8	1910	236,496	159,778	67.6
9	1911	237,722	168,148	70.7
10	1912	234,901	172,670	73.5

The totals in Cols (c) of Tables 2 and 3 do not agree. The author is satisfied that he has copied correctly and suspects that Table 2 involves the Army's total strength while Table 3 just totals soldiers serving with units; officers were assumed, correctly or not, to be educated. 1903's total in col (d) is distorted by the war's aftermath.

Table 4. Musketry Comparison 1898-1903.³⁰

1898 Trained Men Range Course					1903 Trained Men Range Course			
Ser	Type	Rds	Remarks	1898 Practice	Type	Rds	Remarks	1903 Practices
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	Deliberate Individual	42		1-6	Independent	35		1,3,5,6,8
2	Deliberate Volleys	21		7,10,13	Rapid Independent	28	*1	2,4,7,9
3	Rapid Volleys	21		8,11,14	Snap	35	*1	10-13, 16
4	Rapid Independent	14		9,12	Moving	15		14-15
5	Attack Practice	21		15	Skirmishing	10		17
6	Moving	-	*3	-	Fixed Sight	7		18
7					Long-range Independent	10	*2	19
8	Totals	119				140		

*1 Includes magazine practices. *2 Marksmen and 1st Class Shots only 800 yds.*3 Discretionary, no ammunition scaled. Types of practice have been aggregated in cols (b) and (f). Using cols (e) and (i), they can be separated.



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Table 5. Use of Cover Trained Soldiers' Practices 1898-1903

Ser	Type	1898 Practices	1903 Practices
(a)	(b)	(c)	(d)
1	Lying	3,5, 6,13,14	8,19
2	Lying using cover	-	4,7,9,12
3	Using other cover	-	2,11,13,15,16