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Bosworth Battlefield Rediscovered

Conference at Leicester County Hall

Saturday 20 February 2010

Report by Andy Grainger

Programme

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Professor Richard Holmes, President of The Battlefields Trust and Britain's leading military historian.

Finding Bosworth Field

Dr Glenn Foard, England's leading battlefield archaeologist and Director of the Bosworth Battlefield Survey

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Professor Anne Curry, University of Southampton
Author of *Agincourt* and expert in English Warfare in the 15th Century

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Professor Mathew Strickland, University of Glasgow
Expert in Medieval warfare in Britain, author, with Robert Hardy of *The Great Warbow*

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Dr Derek Allsop, ballistics expert at Cranfield University

Chairman

Prof Richard Morris, Leeds University

Discussant

Robert Hardy CBE, author of *The Longbow* and, with Matthew Strickland, of *The Great Warbow*

For further information visit www.bosworthbattlefield.com/



A webcast of the Conference is available at <http://www.bosworthbattlefield.com/>. It is useful if you were not able to attend the conference but would have been better if you could fast-forward to a particular point in the day. These notes therefore are only intended as a brief summary. I also refer readers to the report in *Mars & Clio* 23 and at <http://www.bcmh.org.uk/tours.php>

Introduction

Our President, Richard Holmes, opened the Conference in his capacity as President of the Battlefields Trust. The Trust, set up as recently as 1992, had been commissioned to conduct the search for the battlefield of Bosworth.

Richard emphasised, as did a number of subsequent speakers, that a co-ordinated approach by a number of institutions and individuals had been critical to the success of this project which itself served as an example as to how other battlefields be located and examined.

Apart from the commissioning process involving Leicester County Council, the Heritage Lottery Fund and the Battlefields Trust a great many other individuals had been involved from local landowners who offered access and metal detectorists who volunteered hours of painstaking work in all weathers. Others had been involved in the researching and digital mapping of the medieval landscape, place name research, soil surveys and other analyses. A complete list of the Team is shown below.

Finding Bosworth Field

Dr Glenn Foard, Director of the Project and who had addressed us in 2008, explained the background to the title, "Bosworth Battlefield Rediscovered". The location of the site had been known until after the English Civil War, a cavalry skirmish having taken place there in 1644 but it was lost during the 18th century when a succession of mapmakers put the symbol for the battlefield in the wrong place. In 1990 Peter Foss went back to original sources and fostered a debate that identified four possible sites. Computer technology enabled data from subjects such as place name analyses, soil samples, contemporary property records and maps to create a digitised map of the medieval landscape. This was very different to our own being much more open than the enclosed landscape to which we have become accustomed since then. Even so, this data did not enable the battlefield to be identified conclusively. The project showed that only archaeology, a source that is independent of the written record, could do this. One cannot argue with a cannon ball and, so far, over 20 have been found.

The story of the rediscovery of the battlefield and the competing theories can be found at <http://www.bosworthbattlefield.com/battle/archaeology/battlefield.htm>

The Armies

Professor Anne Curry of the University of Southampton talked about her research into the armies that had fought at Bosworth. She explained that there was a good deal of primary source material about 15th century armies in the form of indentures, muster rolls, receipts etc. But the sources for wars and campaigns waged by one monarch against another were much better than those for civil wars when monarchs were, in effect, trying to raise troops with key supporters and with as little effort as possible. On the other hand, the documentation



surrounding rebel armies was bound to be less since the troops were raised without any sanction from the incumbent government.

Richard's Army

Richard III had no standing army. He raised forces under four main heads:

1. The Commissioners of Array had the power to summon all able-bodied men to muster on behalf of the King.
2. Summoning the nobility to bring their retainers though of course he could not guarantee which individuals would turn up or how many men would accompany them,
3. Retainers from the Royal household,
4. Foreign troops, subject to cash being available.

The records include a Proclamation from December 1484 – what we would term a Warning Order. In June 1485 there are copies of letters to the Commissioners of Array which specified that each individual was to be prepared to be ready to move, fully equipped and armed, at one hour's notice. Some local records contain the call-out documents, none of which indicate that the shire levies were to be called out. This suggests that at this stage the King and his Commissioners preferred to raise a smaller number of properly equipped men than a mass of untrained and poorly equipped peasants.

Establishing the size of the retinue raised by a nobleman is difficult due to gaps in the records. In 1484 it seems that the Duke of Norfolk brought 1,000 men with him which was very large by the standards of the time. In 1475 it is known that the Duke of Northumberland raised 410 men and Lord Codnor 180 for a particular campaign.

It is thought Richard might have had about 1,000 men available from the Royal Household although how many accompanied him to Bosworth is not known.

Burgundian coins have been found at Bosworth but whether any Burgundian troops were present is not at all clear.

Finally, given the cannonball finds at Bosworth, there are unfortunately no contemporary records of guns at the Tower of London though there are references to guns and gunpowder possibly being sought from Calais.

Henry's Army

Records of Henry's army are even more sketchy since a good proportion were exiles. It is thought that his household contingent might have been around 400 and there may have been around 1,000 French troops.

Given the importance of the Stanleys at the battle it would be useful to know how many there were and where they were located but we don't yet know either of these things, partly at least because there was more than one Stanley. William had declared for Henry but his brother Thomas had not declared despite a meeting the day before the battle. Records indicate that the family provided a sizeable contingent of around 340 for the 1475 campaign. This is no great guide to the numbers they might have deployed ten years later though they clearly could call on significant numbers of troops.



In order to raise troops Henry issued summons in the same way that Richard did since he was also claiming to be king. The indications are that Henry's army grew as it moved through Wales. On the other hand Richard only seems to have started raising troops from 11th August and the battle took place on the 22nd so whilst many towns and counties will have received the summons their contingents may not have reached the battlefield in time.

It is thought that Richard's army was nonetheless larger than Henry's though because of the risk of defections a lower proportion may have been committed.

After the Battle

Not very many deaths are recorded and only a few claims for compensation. These latter offer some indication as to where contingents may have been billeted before the battle. It is possible that Richard's main body was based on Ambion Hill before the battle and therefore that further archaeological evidence may be found.

Sources

There is no choice but to look at the chroniclers although some useful administrative records have been discovered concerning inquests. These reveal a few deaths on the day before the battle, indicative of skirmishes by scouts. Polydore Vergil is a wonderful source to read but, as with some other writers, he may draw inspiration from Vegetius as to how a battle should be fought rather than recording how it actually was.

Numbers

As ever, very problematic. A total of 259 people have been identified as having been at the battle but many retinues are very small. Overall, Professor Curry felt that Richard might have had 5,000 men (declining and subject defections) and Henry 3,000 (and growing). If the Stanleys mustered 1,000 or so then they constituted a critical element and this helps to explain why the battle was fought where it was – a place where Henry could make contact with Sir Thomas Stanley.

Archery on 15th century Battlefields

Professor Mathew Strickland

Matthew Strickland commenced his discussion with a quotation "*like a trench or bulwark*" which defined the role of archers – to protect the main army. He explained that the works of the Roman author Vegetius were well-known to mediaeval leaders (see also the BCMH Spring Conference Report 2008) and that he recommended massing the best and strongest fighters in the vanguard.

Christine de Pisan had drawn up a military manual, possibly for the Dauphin, in 1410 which was heavily influenced by Vegetius and actually contains an order of battle for a contemporary army suggesting that she had consulted military leaders at the court. In this document the best men are placed in the centre of the vanguard flanked by bodies of handgunners, archers and crossbowmen.

How might Richard III's vanguard have been formed?

The battleplans of John the Fearless, Duke of Burgundy indicate that all his archers and missilemen were placed in the vanguard except for a small reserve of around 300. Jean de



Bueil, a soldier who fought the English in the mid 15th century and writing in 1466 referred to placing archers on the flanks of the vanguard.

Did archers form on the flanks of each battle or on the flanks of the army. Latest scholarship suggests that archers moved during the battle. At Agincourt they might have screened the whole army but then be prepared to fall back under heavy attack. There is a suggestion that this was also how they were deployed at Formigny in 1450 when they held off the initial French attacks.

It is still unclear as to whether the archers fought as a body or as groups of individuals with the men-at-arms. The Beauchamp Pageant dating from around 1490 certainly shows them fighting in this way and they certainly had a role in close combat. Archers were such a large proportion of English armies eg 80% at Agincourt that they cannot just be seen as missilemen.

He then discussed the capability and effectiveness of the warbow following research from examples discovered on the Mary Rose. It seems that there were light and heavy arrows which could be shot to a range of 350 and 250 yards respectively but with a 150lb pull. The heavy arrow delivered energy of about 89 joules¹ at extreme range and the light arrow 64 joules. It should be noted that 120 joules are need to defeat mail or wrought iron plate and this rises to 150 if the protection is padded. By the mid-15th century the highest quality Milanese plate armour needed up to 270 joules to be penetrated although only the highest status individuals would be likely to be protected to this level.

By way of comparison stab energy is about 50 joules with 86 being needed to kill. A projectile from any gun would produce energy of at least 250 joules. Thus arrows were effective against men-at-arms but the best protected knights would be almost impervious though that is not to say that significant bruising might not result from a hit.

Further, during the Hundred Years War English armies were often outnumbered by French or Scottish armies which often had far more heavy cavalry and, conversely, relatively few missilemen. Having to defeat cavalry they had to develop defensive tactics. In the Wars of the Roses archers were not decisive as both sides had them. The battle of Blore Heath in 1459 was the only time that cavalry attempted to attack archers and no-one tried it again. Apart from defending entrenchments, often in conjunction with guns, the firepower that archers could deliver also encouraged commanders to try to use them to provoke an attack. There are several examples of this including, famously as the Yorkist archers seemed to have done successfully both at Towton and Tewkesbury.

Could this have happened at Bosworth with Henry's troops persuading Richard's to come off the high ground and attack or perhaps they supported an attack by the Swiss-trained French attack?

¹ A Joule is a unit for measuring energy. One joule is approximately the energy required to lift a small apple one meter straight up.



Gunpowder Weapons on the 15th century battlefields

Steve Walton explained that traditionally the French campaign against the Italians in 1494 was held to be the first in which gunpowder weapons played a key role. Nevertheless artillery was used during the Wars of the Roses and widely on the Continent.

Between 1350 and 1450 there are many documented accounts of artillery in use during sieges but there was increasing interest in the use of field guns during the 15th century.

By the 1460's some cities had arsenals of several hundred guns.

In 1476 the Burgundian army of Charles the Bold was defeated by the Swiss at Grandson² and much of its park of several hundred guns³ was seized by them; several survive in museums at Grandson and elsewhere in Switzerland.

The recent archaeology reveals that small field guns and handguns were used at Bosworth and that there were several types though it is not clear whether they were used on both sides or only on one.

Attempts were made to standardise guns during the 1550's, hence the large numbers of barrel types and calibres.

Experimental firing of 15th century artillery

Dr Derek Allsopp from Cranfield concluded the formal papers with a presentation about the experiments that had been conducted with firing a 60mm round shot.

Since the archaeology had located balls in the ground, the idea was to find out how far they might have travelled and then possibly deduce where the guns that fired them might have been located.

He explained that it was not easy to find a range suitable for firing the metal pipe mounted on a trailer which did duty as the gun. The balls could fly up to 1km and might bounce up to ten times.

It was very early days yet since an ideal experiment would try to make use of a powder that was composed in the way that it had been in the 15th century. They would also want to try and reflect the windage (The difference in a given firearm between the diameter of the projectile fired and the diameter of the bore of the firearm) but this would also make the ball fly less predictably and so be more difficult to find!

² <http://home.eckerd.edu/~oberhot/grandson.htm> contains information about the battle and shows images of some of the guns.

³ http://www.royalarmourieshops.org/acatalog/The_Artillery_of_the_Dukes_of_Burgundy_1363-1477.html The Artillery of the Dukes of Burgundy 1363-1477 by Robert Smith and Kelly DeVries.



Conclusion

This was a most informative event but it became clear that the story has only just started. Whilst artefacts have been located, the analysis of what they mean has only just begun.

The audience was also remarkably diverse, being made up of academics, local farmers, metal detectorists, re-enactors, local residents and doubtless many others. This diversity reflected the multi-faceted approach that is required for the successful conclusion of a project such as this.

The Team

Dr Glenn Foard, The Battlefields Trust

Project director; metal detecting survey; analysis of lead munitions

Richard Mackinder, LCC

Day to day liaison and organising; metal detecting survey; finds processing

Professor Anne Curry & Dr Janet Dickinson, University of Southampton

Documentary analysis of the primary sources for the battle and the armies

David Hall

Reconstruction of medieval landscape

Tracey Partida

Digital mapping of medieval and early modern landscape

Dr Mark Page

Documentary research on medieval landscape

Professor Barrie Cox

Place name analysis

Rodney Burton

Soils survey

Dr Ben Geary et al, Universities of Birmingham

Palaeo-environmental analysis of peat deposits

Rob Janaway, University of Bradford

Artefact taphonomy and soil chemistry

Dr Graeme Swindals, University of Bradford

Palaeo-environmental analysis of peat deposits

Richard Knox, LCC

Analysis of all other finds



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Dr Derek Allsop, Cranfield University

Experimental firing of artillery

Liz Blood, Sue Alderman, Ursula and Mark Blagg-Newsome, Brian & Christine Googhan

Finds cleaning, photography and data entry work.

John Austin and team, along with metal detectorist Andrew Tansley, for

Research and fieldwork on the Atterton Theory site.

Metal detecting team:

Pete Riley, Carl Dawson, Malcolm Green, , Barry Wright, John Palmer, Pete Hartley, Simon Richardson, Bryn Gethin, David Beaumont, Clive Kibblewhite, Lee Macfarlane, Lee Walkeley and others.

Other advice and support

University of Leeds, University of Southampton, Royal Armouries, Museum of London and British Museum.

Mars & Clio 27 Autumn 2009



Letter from Martin Windrow (Mars & Clio 28, Summer 2010):

Bosworth Rediscovered - Experimental firing of 15th-Century artillery

With reference to Mars & Clio No.27, p.47; I was interested to read the brief mention of tests with a 60mm roundshot fired from a steel pipe on a trailer, achieving ranges of up to 1km with up to ten ‘grazes’ on the way. In 1992 I was present at the Chamblon army training area in Switzerland when live firing was carried out on a 300-metre range using the replica 1470s Burgundian cannon manufactured during the 1980s, under the supervision of Gerry Embleton and the armourer Ian Ashdown, for the Company of St George study and ‘living history’ group.

I am no technician, and the circumstances on the day did not allow for taking careful measurements, but I was familiar with the gun. The barrel was a length of high-pressure steam pipe roughly 1 metre/ 39ins long and with a bore of c.115mm/ 4.5ins, clad in heavy wrought-iron hoops for visual effect. Like the museum originals from which it was copied, it had a removable breech/ powder chamber, resembling a heavy iron tankard with a shallow flange for locating in the rear end of the barrel, and this was held in place with a heavy hammered wedge of iron-strapped wood. Since the piece was only designed for blank firing, the powder chamber in the breech was of significantly smaller diameter than in the originals – perhaps 40mm/ 1.6 inches? For ‘street theatre’ in front of an audience this was normally loaded with only 100g/ 3.5oz of powder (though occasionally, when ‘shock and awe’ were judged necessary, with 150g/ 5.25oz – which was enough to make the 300kg/ 660lb wheeled guncarriage recoil satisfactorily). Black powder was poured into the chamber from pre-measured 50g bags, and tamped with a wad of twisted grass; the breech was then inserted and wedged, priming was poured into and around the touchhole from a separate flask, and ignition was by conventional slowmatch on a short linstock.

I was told of an earlier test over Lac Noire that had been carried out with a single stone ball; this had travelled much further than expected, and although it definitely did not break up, no strike could be seen. For the Chamblon test, cast-iron Napoleonic ‘6-pdr’ (3000g) roundshot had been obtained. With a calibre of c.96mm these were a very loose fit, but the windage was reduced by wrapping them thickly in newspaper. The black-powder charge was calculated at c.1100g/ 38.8oz in proportion to the shot weight, but the breech chamber would not physically hold more than a reduced charge – perhaps c.70 per cent of that, as far as I can recall? Three shots were fired; at the third the breech-retaining wedge split and the breech-chamber jumped, so the experiment was concluded. When we walked the 300 metres down to the butt to dig the balls out, we found that all three had achieved a very flat trajectory and struck within a group not much more than 1 metre across – which I thought was remarkable, given the circumstances. Gerry Embleton, who had taken part in both tests, was struck not only by the much superior carry of the light stone ball compared with the heavier iron ball, but also by the greater strain the latter placed on the gun carriage even with the reduced charge.

(Incidentally, with three of the removable breeches a practised five-strong crew could keep up a respectable rate of blank firing without compromising safety – on which we were once complimented by a watching French Army artillery officer. Allowing for wet-swabbing the



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barrel, scouring out the chambers with a bronze brush, and reloading them in rotation, two to three shots per minute was routine. If ramming and wadding a roundshot had been introduced into the cycle, I believe that more than one shot per minute would still have been sustainable for long periods. I had the opportunity to help manhandle and crew this gun on many occasions, and believe that it was just as manoeuvrable across country – by manpower alone – as any light 18th-century or Napoleonic piece.)