

The Military Archery at Neville's Cross, 1346

ROBERT HARDY

On 26 August 1346, Edward III's army of English men-at-arms and archers and Welsh archers and spearmen crushed the vastly superior forces of Philip of France, on the low ridge and valley that runs between Crécy-en-Ponthieu and Wadicourt. The victory was a great shock to the French. The thousands of longbowmen of Edward's army, preserving perfect discipline and shooting arrows 'so thickly and evenly that they fell like snow',¹ outranged the mercenary crossbowmen sent forward by the French to open their attack, and then shot down fifteen or sixteen separate cavalry charges, or so disorganised them that, though hard-pressed, the English men-at-arms, fighting on foot, were able to hold their positions. France reeled; King Philip, wounded in the face by an arrow, narrowly escaped and set about persuading his young Scottish ally, King David, to invade England and provide a diversion.

The details of the Scottish attack, the sacking of Lanercost and so forth, and the advance towards Durham, are dealt with earlier in this volume. Edward of England, with rare strategic foresight, had provided for just such a contingency, and was able to field a capable army to oppose the invasion. It seems as if this army, under the command of Henry Percy, Ralph Neville, the archbishop of York, Lord Mowbray and Thomas of Rokeby, was comparable to the small force with which Henry V, sixty-nine years later, faced the massive French army at Agincourt. It is likely the total English force at Neville's Cross was about 6,000 strong, though the proportion of men-at-arms to archers was probably higher than the Agincourt force which numbered 1,000 men-at-arms and 5,000 archers.

The contemporary *Anonimale Chronicle* of St Mary's Abbey at York speaks of an army of over 10,000 archers and men-at-arms,² and equally contemporary lists suggest a number of just over 3,000 mounted archers.³ The speed with which the English responded to the Scottish threat rather suggests that at least the greater part of the archer force had been swift-moving, so I am inclined to think that between 3,000 and 4,000 archers out of a total force of 10,000 represents the proportion fielded at

¹ *Froissart Chronicles*, ed. G. Brereton (Harmondsworth 1968), p. 88.

² Document d.

³ PRO E101/25/10; document i.

Neville's Cross. Thus, if the total was more like 6,000, 2,000 archers would seem a likely proportion, most of them mounted. The question is: how effective were they, and what could they achieve with their weapons in 1346?

David of Scotland thought the main strength of the English was across the Channel. Edward III, foreseeing the threat, had provided against it, and though he probably took the cream of both English and Welsh bowmen with him, he certainly left behind a force of archers to be reckoned with.

According to a report of the battle written in a letter by one Thomas Sampson, and of which copies can be seen in the Bodleian Library, Oxford, 'twice', once battle was joined, 'the archers were driven back' (*deux fois se retraierent les archers e communes de nostre partie, mais nos gents d'armes se combatièrent e se continuerent durment bien tantq les arches e communes reassemblerent*). We are offered a picture of an archer force which perhaps lacked both the numbers and the solid cohesion of the Crécy bowmen, but which nevertheless was sufficiently well-ordered and disciplined to get themselves back into action after a reverse.⁴

Before offering a little research into the effectiveness of these archers' weapons, a short footnote: why, at a Durham battle was the warlike Thomas Hatfield, bishop of Durham, not in the command structure? He was, in fact, with Edward's army in France, and when during the Battle of Crécy the sixteen-year old Prince Edward of Wales in the vanguard, or English right wing, was hard pressed by the French, those about the prince sent for help to his father, who held a large reserve behind the immediate battle-lines. The king sent the famous answer back 'let the boy win his spurs',⁵ but did allow the Bishop of Durham, with twenty knights, to go to his son's assistance.

In my book *Longbow: A Social and Military History*, first published in 1976, I wrote: 'I believe we cannot be far wrong if we say that by the reign of Edward III his archers would have used longbows of 80 lb up to 160 lb draw-weight, achieving ranges up to 300 yards.'⁶ When the archery world in general laughed at my claim, I argued that my guesswork was based on the sort of bow-strength that would best have suited the one surviving medieval arrow we then knew of, found in Westminster Abbey in 1878, which I and my team had measured for 'spine', or stiffness, and weight, allowing for shrinkage and desiccation. The results of those measurements suggested very heavy bows – heavy, that is, to modern longbow archers who seldom use bows stronger than 60–65 lbs draw-weight.

⁴ Document b.

⁵ *Froissart Chronicles*, p. 92.

⁶ 3rd edn (Sparkford, 1992), p. 54.

THE MILITARY ARCHERY AT NEVILLE'S CROSS

Indeed, one was working in the dark until in 1979 unexpected, almost unbelievable, light began to flood the obscurity. It will be remembered that the wreck of the *Mary Rose*, located in the 1830s, then lost because of inaccurate charting, had been re-discovered in the 1960s.⁷ The ship, Henry VIII's vice-admiral, and the pride of his fleet had sunk with all hands in full view both of the king and his troops at Southsea, and of a large French invasion fleet in the Solent in the summer of 1545. In 1979 I was telephoned by Dr Margaret Rule, Archaeological Director of the *Mary Rose* Trust. On her desk, among the many books on shipbuilding, ship rigging, ship armament and so on, was a copy of *Longbow*. Dr Rule had said, 'Try and get hold of this Robert Hardy.' I raced down to Portsmouth with Professor Peter Pratt and Professor John Levy; the first, Professor of Crystal Physics at the Imperial College of Science and Technology with whom I had been working on longbow research for some time; the second, Professor of Wood Science, also at Imperial College, who was already consultant to the Trust on the ship's timbers. The chief diver had surfaced the day before our arrival with a long, rather knobbly stave from the wreck site and Dr Rule, identifying it as a longbow, one of the 250 listed in the ship's armaments roll, which is to be seen in Magdalene College, Cambridge, wanted longbow people to examine it. Was it a bow, or, as some thought, a pikestaff? It was a bow, a great big Tudor war-bow, blackened from long immersion and covered in oyster spat and other underwater accretions. Our excitement was intense. It was the first truly authenticatable military bow of such an early date, and it was obviously of a hefty weight. The roughness of its timber hardly surprised us, because it is hard to find long clean staves of yew-wood without pins and knots, and this weapon was all but seven feet long. Then came another, and another, and in no long time a whole bow-box full of bows was brought up to the deck of *Sleipnir*, the support vessel moored permanently over the wreck-site. Another full box followed, and box by box, thousands of arrows.

The world knows that the *Mary Rose*, finally emptied of all her treasures, was raised to the surface in 1982, and eventually put on public view in a new museum in Portsmouth harbour, beside HMS *Victory*, and not many yards from where, as the first purpose-built Tudor warship, her keel was laid in 1509.

The wealth of artefacts raised from the wreck, and now to be seen in the museum, is beyond compare. For our purposes we must turn aside from the stern beauty of the guns, the intimacy of the thumb-print in the ointment box found in the barber-surgeon's cabin, the golden glow of the 'angel' coins, and concentrate on the 138 complete longbows, the many broken pieces of other bows, and the thousands of arrows that had been

⁷ Margaret Rule, *The Mary Rose* (London, 1982), *passim*.

issued to the archers aboard *Mary Rose* in 1545 and which now provide us with irrefutable proof of the skill of Tudor bowyers and fletchers, the potential power of the weapons and the strength and constant practice that were needed from the archers to make them formidable weapons of war.

As the slow processes of conservation began and the bow timbers began drying out, it became apparent that we were dealing with big weapons, well beyond the capabilities of most archers nowadays, and with fully completed bows of the finest quality imaginable, none as knobbly as that very first bow raised.

It was evident that all the bows were made of fine-grained yew timber, cut radially from logs across the sapwood and heartwood boundary, which allows the highly tensile sapwood to remain on the back, or convex side, of the drawn bow, lying against its own heartwood towards the centre of the log, which forms the belly or concave side of the bow, and which is probably the timber with the best resistance to compression known to man. Yew timber, if so cut and used, offers a natural spring, and no other timber has been found to surpass its combination of tensility and strength.

When the bows from the chests were still wet, they had almost the appearance of new wood, though it was only after drying that the pale sapwood took on the true colour that one sees today in a yew bow made fifty or a hundred years ago. The deep reddish brown of the belly lightened as the timber dried through the months, and later gentle oiling and waxing restored to them something of their youthful look. It was possible from the detailed examination of broken fragments to establish that there was a degree of cell degradation in the timber surfaces, but whether there was vital degradation in the many complete bows could only be revealed by testing their elasticity and strength. It was also clear from the narrowness of the growth rings, in some cases reaching over 100 to the inch that the timber was extremely slowly grown. This suggested two things: strength and a foreign provenance; and the average radius of the growth rings suggested that the bowmakers had chosen grown timber of more than eight inches diameter.

During the long months of cleaning and drying, each bow was examined, and preliminary measurements were taken. A complicated system of description and identification was begun to record the idiosyncrasies of each weapon. In many instances, among the best preserved, the extraordinary skill and confidence of the bowyers with their draw-knives, or 'floats', were plain to see, even to feel, like delicate fluting on a glass stem. So sure were the bowmakers of their skills and of their timber that they clearly felt no need to work out those last straight marks of manufacture, as we would now.

THE MILITARY ARCHERY AT NEVILLE'S CROSS

The bows were found variously about the ship, on the weather deck, in which number must be included those that fell into the ship from the bow and stern castles, either on impact with the sea bottom or during later disintegration of the castles; in the gun deck, and in the orlop. In one chest were forty-eight bows, in the other thirty-six, almost all in miraculously fine condition after 437 years' immersion. The rapid inflow of silt accounts for the good state of preservation, which is far better than would have been the case if the bows had been preserved in air, since much of the natural make-up of the timber was sealed in anaerobic conditions.

It was noticed at once that every bow, no matter what condition it was in otherwise, as long as one or both tips remained, showed at the tips a plain differentiation of colour for some 5 cms. This was clear evidence that the tips had originally been covered by an applied nock of some kind. Since horn is and was the most usual material for such applied nocks, and since horn has been proved to perish fairly rapidly in the conditions of the Solent silt, it can safely be assumed that the nocks were of horn. This is borne out by the fact that of the thousands of arrows recovered, having a slot at the nock end which runs down towards the fletching and which would originally have taken a horn sliver for the purpose of strengthening the force-absorbing end of the arrow, only one or two still have the horn in place. Those few only remain as a result of being protected, for instance by a coil of tarred rope, from the effects of micro-biological and seawater decay. It is also notable that among all the *Mary Rose* finds, no horn buttons have survived, no horn panels for lanthorns, no horn handles, though it is obvious that there had been many such articles in 1545.

Since writing that paragraph, which remains true, the exception proving the rule has arisen. In July 1997, Maggie Richards, Research Assistant at the *Mary Rose* Trust, wrote me a letter, from which I quote:

I thought that you would be interested in a recent *Mary Rose* find (MR97A0003). It is a horn nock for a longbow! Last Thursday, I was excavating a concretion containing human bones, when I came across the nock. Immediately I knew it was a longbow tip; but due to its size and the depth of the notch for the bow string, I was also convinced that it was covered with a horn nock. I am glad to say that my initial instincts have proved correct, Dr Mark Jones has today confirmed that it is horn, and is investigating the best method for conservation. I have enclosed a 1:1 drawing for your records.

The concretion was recovered from the Upper Deck sector 5. The unfortunate individual whose bones were caught in the concretion may have been an archer. Besides the longbow nock, a small fragment of arrow was also found. The concretion also contained what could possibly be very degraded body armour. I have searched the database for a longbow from U5 with its tip missing, but have had no success.

I hope this information is of interest; it is satisfying to have positive evidence for the attachment of horn longbow rocks, in addition to the discolouration of the bow tips. This new piece of evidence surely will convince any remaining 'doubters' that the *Mary Rose* bows are not bowstaves, but are indeed bows ready for use as you state in your book *Longbow*.

In the opinion of the Consultants these *Mary Rose* longbows, whether found at action stations or in boxes in the orlop, were finished weapons ready for use. It might seem unnecessary to make such an obvious claim, but it is necessary because within the archery world a good deal has been said and written expressing the view that the *Mary Rose* longbows are not bows, but bowstaves, unfinished and not ready for use. Apart from the very oddity of the idea that a ship of war, in time of war and actually in action against the enemy, should put to sea for action with no longbows but a large number of unfinished staves, there is the massive evidence of the bows themselves. What started the hare of this nonsense was our first published suggestion of the draw-weights of these bows. It was hard to believe them ourselves. Few believed us when we came up with the first massive weights, arguing that the *Mary Rose* bows ran from about 100 *lb* drawweight at 30 inches to 180 *lb*. These estimates were obtained from a computer model invented by Dr Bob Kooi of Gröningen University to whom we supplied detailed measurements and he in turn came up with the bows' optimum and original strengths. Many said these weights were impossible, and that therefore the bows must be unfinished, carrying more timber and hence more weight than they would when completed. That they are completed is now self-evident.

By this time we ourselves had completed three or four copies of *Mary Rose* bows, or rather 'approximations' (since in following the dictates of individual staves, a true copy can never be achieved) of which we knew all the relevant details. When the vital statistics of these weapons were fed into the Kooi computer their draw-weights came out with absolute accuracy, so we had to believe them.

All the bows were made from yew timber, each from a single, unjointed, unpieced stave. The quality of the timber, its density, the extreme fineness of the grain in most cases, suggested that we were dealing with imported staves of a straighter and finer quality than can readily be found in the soft climates of the British Isles. That most of it was imported from the Continent there is small doubt, and several documents from Henry VIII's reign record such imports either through Venice by the Doge's special permission or from elsewhere by special mandate of the Emperor Maximilian.⁸ Such timber would be gathered from those parts of

⁸ *Letters and Papers Foreign and Domestic of the reign of Henry VIII, 1509-13*, p. 529.

Europe – Spain, when she was not our enemy, Italy, Austria, Poland – where the yew grew high and fine-grained, and where for centuries timber had been felled and split into staves to supply our military needs.⁹ Henry VIII was a great encourager of the military use of the longbow, just as he keenly pursued the development of gunpowder artillery. He sent his agents into Europe to choose the finest yew timber, selecting at a time thousands of the best staves which were then stamped with the Rose and Crown for export to England. The orders were almost always large – one part-order was for 40,000 staves to be sent to England through Venice¹⁰ – and the names exist of five bowyers who made up 600 of this particular batch of staves into finished bows, for which they were paid altogether £200 13s. 4d. at a time when a master carpenter was paid 4d. a day and beef was about 2d. a pound.

After long and frequent examination we came to the conclusion that the bows showed exactly what today's longbows show in the way of age and use. Those in regular use exhibit a slight or a marked 'string-follow', that is they remain curved towards the belly, or 'de-flexed'; one of the deck bows was certainly in use when the ship foundered and the string somehow survived long enough to set the bow in the braced position for good. Others lie almost straight; but a majority of the boxed bows show a 'reflex', a bend towards the back, away from the natural bow shape. The probable reasons for this curvature are either natural, the bowyers selecting timber with a natural bend towards the back, or the fact that when bowstaves are split from recently cut logs they will tend to reflex themselves. The result in either case is just what the bowyers were after, timber that would maintain optimum straightness after much use, which means a longer and faster return of the limbs from full-draw to the braced position at which the arrow quits the string. The faster that return, the greater the bow's ability to cast an arrow. Since most of the boxed bows appear to be new bows, they were probably intended for land service not naval use.

The *Mary Rose* bows are handle-less. There are no indications of any binding being put on them, and it must be assumed they had none. The approximate position of the 'arrow-pass' is just above the handle position (for even without a marked handle section, there is of course still a handle position), and it is in very many cases indicated on the *Mary Rose* bows by incised, pricked, and in some cases stamped, marks.

The marks consist mainly of groups of incised dots, as if made with a chisel corner (perhaps a float-blade corner) arranged in pairs, threes,

Also *ibid.*, p. 566 (4 September 1510), and *Calendar of State Papers, Venetian*, II, 78 (Licence passed 5 May 1510 for 40,000 longbows).

⁹ Roger Ascham, *Toxophilus*, 1545, ed. Edward Arber (London, 1902).

¹⁰ *Letters and Papers Foreign and Domestic, Henry VIII*, p. 757 (see above, n. 8).

crosses, or little tree-like groups. There is a variety of circular marks: plain circles, circles with a cross, segmented circles, some apparently made with dividers, one or two possibly with a tubular stamp. There are variations on the cross: plain, and with dots in various arrangements. There are other linear marks, often in association with dots, sometimes whole clusters of pinpricks up to thirty or more in number. In general there seems a difference between the heavy marks which suggest a maker's advice or identification, and rather more random markings which could be personal additions. But those bows which are not marked at all, some fifth of the total, do not seem to be generally inferior, or different from the marked bows.

Though it is hard to detect a standard in these marks, it is certain there was hardly a standard bow; yew does not yield to a standard; there are not two dozen bows at exactly 100 *lb* and two dozen at exactly 110 *lb* and so forth. There are more standard arrows at predictable lengths; the bow by its nature is personal and unique, first in the timber, then in the bowyer's hands, then in the hands of the archer.

There is a painting in the manuscript collection of Christ Church, Oxford, an illumination of 1326, showing a castle defended by two women, one using a massive crossbow, the other an equally massive longbow. The moral of that is: training can make nearly all things possible. Does anything lead us to suppose that bows of the weights represented by the *Mary Rose* collection would be unusable? The answer must be no. If they were unusable they would not be there. So, if we admit them usable, what is there to suggest that the men who used them were specially selected, specially trained? The answer is: a very great deal. Those skeletons found in the *Mary Rose* which can undoubtedly be linked with archery tackle, and can be presumed to have been those of archers, belonged to large men, six-footers or so, and described by the Senior Consultant Anthropologist to the Trust who examined them as 'huge ... not necessarily tall, but massively boned'. The shipboard location of skeletons representing the highest percentage of bone-changes attributable to the use of heavy bows occurs in the areas most associated with archery equipment. Even with the lighter bows we use for sport today it is in the shoulders, the upper arm and the elbows that things tend to go wrong. The lengths of the bows, from just over 6 feet to just under 7 feet suggest men of some 5 feet 7 inches to over 6 feet, and the arrow measurements, with average draw-lengths of 30 inches confirm these as likely proportions.¹¹

Increasingly today there are to be found those who are teaching themselves to master bows of such great weights. I know of, and benefit

¹¹ The arrow-lengths range from 28 inches to 34 inches. See the *Mary Rose* full report of finds, yet to be published.

THE MILITARY ARCHERY AT NEVILLE'S CROSS

from the skills of, young archers who can handle weights well over 100 *lbs*, as well as those who have trained themselves to shoot, with reliable accuracy, twenty and more arrows in a minute. Turn those few into thousands and one begins to get a genuine idea of the formidable power of our archer corps throughout the long years of its military ascendancy. What sort of men could use the *Mary Rose* bows? Young, fit men in constant practice chosen for well-paid military service from a nation to which the shooting of longbows had been second nature for 250 years at least; men who by and large came from intensive rural labour, whose bodies, and stamina were certainly formidable in comparison with average male bodily strengths today.

By Henry VIII's reign, military archery was in decline. Can we infer that in these heavy bows rescued from the Solent we have the sort of weapons that were used at Bosworth, at Towton, at Agincourt, Poitiers, and at Crécy and Neville's Cross 200 years before the *Mary Rose* archers sailed out of Portsmouth? I see no reason why we cannot be confident of that. If decline in the use of the weapon is going to change anything in the weapon itself, it will tend surely to diminish the strength of it, not increase it. We cannot but believe we now have available to see and to study nearly 140 bows that represent the great period of military archery. The *Mary Rose* bows were part of the equipment of the army of Henry VIII, himself a fine longbowman, who went to great lengths to procure the finest timber for his archers; he was also an innovator in the use and development of artillery. Within those terms of reference it seems to me unlikely either that he was demanding from his bowyers the making or from his archers the use of either heavier, or lighter bows than were previously in general use. Because of the growth of artillery we might expect a downturn in the strength of bows, just as there is a lowering of the proportion of archers to other arms in his army recruitment. It cannot be that there is a drop in bow strengths, because if there is, from what weights, drawable by man, can bows of 180 *lb* draw-weight have diminished? Can we suppose that he demanded greater weights, greater feats than he inherited from the past of military archery? When it was becoming increasingly difficult to recruit and train archers, it is scarcely credible that the use of the weapon itself should have been put beyond average trained practitioners. I see no reason to suppose these bows we have from 1545 differ in general from the military weapons of the Hundred Years' War. Therefore I believe we can argue usage and tactics during these wars from the evidence of the weapons that we have recovered from the Solent.

We are now beginning to know from practical experiments (which are by no means complete) that effective bow range can exceed 300 yards, though not I think by much. It depends on the purpose of long-range

shooting, and the weights and designs of arrows shot. So let us take 300 yards as the length at which the first fall of arrows can begin to be effective, and let us take 2.8–3.3 oz (80–95 gms) as the sort of all-up arrow weights that would be shot those distances; arrows with armour-piercing bodkin heads or small barbed heads. We now know from practical tests that it not only takes a very powerful bow to propel such arrows, but that once shot from a strong bow such heavy arrows fly long and well and strike with great impact. Given the proportion of archers to men-at-arms at Agincourt, or Crécy, what would the commanders have done? Deployed them to best advantage, I take to be the answer. At Agincourt the English and French engaged on a front of approximately 1,000 yards; at Crécy where larger numbers were involved, and again from the lie of the land, which because of terracing would have allowed for a very light defence of the centre, the whole front seems likely to have been almost a mile. If, as is sometimes argued, the archers were placed only on the wings of the entire battle array, then there was at Agincourt at least 300 yards of front which the French could attack, unswept by the fall of arrows; at Crécy there was something like 1,100 yards. Does that make any sort of sense? We are left with the only sensible proposition: that each ‘battle’ in the whole army line-up, whether it was double or triple, had its own archer wings, so deployed as comfortably to cover the front from the left of the rearguard to the right of the vanguard. The fact that I believe archers were often placed in front of the whole line during the early stages of attack, and that drills existed for them to move sideways among their fellows on the wings, or back behind the men-at-arms to re-deploy as needed, will probably not greatly influence those who force contemporary accounts to back their beliefs that the vastly effective English archer forces were only deployed on the extreme wings of the entire battle line, and thus unable to cover the centre of the field of action. Alas, there are no drill-books. We still do not know quite how the archers stood, or moved in their formations, how orders were given for general marshalling, or for companies in the roar and din of battle, but we are pushed towards various common-sense conclusions, and guided by – dare I repeat Alfred Burne’s extremely sensible phrase ‘inherent military probability’?

Let us look at the man himself – the archer of the Hundred Years’ War. After Crécy, the great shocks the French had to face were that their chivalry could be shot down, and that crossbows were outranged by longbows. The crossbow of the time, with wooden or composite limbs, was probably not capable of much more than 200 yards. The Genoese could have had the 6,000 that some chroniclers attribute to them,¹² and still the battle would have been no different.

¹² Giovanni Villani (d. 1348), *Cronica: con le continuazioni di Matteo e Filippo* (Turin,

THE MILITARY ARCHERY AT NEVILLE'S CROSS

When two such armies met again ten years later at Poitiers the crossbows on the French side appear to have done considerable damage, but were certainly not decisive.¹³ They would remain in military use, and the invention of the steel bow would greatly improve their range and penetration, and turn them into a siege weapon or a marksman's bow of high value. In 1901 a 400-year-old crossbow was shot by Sir Ralph Payne-Gallwey, reaching nearly 400 yards.¹⁴ By the time of Agincourt there is no doubt that crossbows could reach something like 400 yards, and probably outrange longbows, but with their increase in power came complications in loading, and the hopeless inequality of shooting speed was increased. Tests today, as well as the evidence of history, suggest that a crossbow could only be spanned and shot twice in a minute, while a skilled longbowman can and no doubt could loose up to 20 aimed arrows in the same time.

There is a footnote worth adding to the question of military archery for the armies of the late middle ages. By the time the rifle had reached a speed of fire that equalled the speed of shooting of longbowmen nearly 600 years earlier, most British riflemen carried 150 rounds each in their belts and pouches. There would be a further 100 rounds per man in the ammunition trains for each regiment, another 50 rounds each in Brigade ammunition columns, 50 more in Divisional columns, and a further 200 each in the base ammunition park and in reserve columns. The total for an infantry rifleman was thus 550 rounds. The long history of the handgun, which replaced the bow, shows that as the weapon became more efficient and capable of faster fire so the number of rounds provided for each soldier increased. In 1338 the king's 'artiller' was Nicholas Corand, who was ordered at one time to buy 1,000 bows and 4,000 sheaves of arrows, to make what he could not buy, and despatch them with all haste to John de Flete, keeper of the king's armour.¹⁵ The proportion of arrows to bows in this instance is either 96 to 1 or 120 to 1 depending upon whether the sheaves in 1338 contained 24 or 30 arrows each. Here anyway is an indication that an archer on campaign could count on 100 shafts, more or less, presumably replenished as often as necessary and possible. I find it impossible to believe that commanders of the calibre of Edward III and Henry V, and the rest, wasted the enormous potential of their infantry

1979); *Froissart Chronicles*, p. 88, speaks of 15,000 Genoese, surely much too high. Their commanders were Odone Doria and Carlo Grimaldi.

¹³ *Chronicon Galfridi le Baker de Swynbroke*, ed. E. M. Thompson (Oxford, 1889), pp. 147-8.

¹⁴ Sir R. Payne-Gallwey, Bt, *Crossbow: Mediaeval and Modern, Military and Sporting*, 2nd edn (London, 1958), p. 21.

¹⁵ *CPR 1338-40*, pp. 124-5.

weapon by failing to supply their archers with enough arrows. What those archers achieved proves that they had, apart from exceptional instances, enough arrows.

In the wake of the victories at Crécy and Neville's Cross, Edward III had no great difficulty in raising men and money for his new army to besiege Calais and at the same time hold off any French attempts to attack him or relieve the town. The roll of his forces at Calais exists. In 1347 he had cavalry numbering 5,340 and foot totalling 26,963. Of these, 20,076 were archers, 4,025 of them mounted.¹⁶ That vast host of 32,303 men must have been the largest English army ever to take the field until that time, and the figures are trustworthy.

Within the year the Black Death had begun to ravage Europe and the British Isles, killing perhaps a third of the population before it died out, and it was a long time before such armies could be equalled again. But whatever the size of the armies, from now the proportion of longbowmen in them was always as high as could be achieved. Proportions of 3, 4, 5 to 1 were common and sometimes reached as high as 20 to 1. To quite a substantial degree the archer could be seen as replacing the man-at-arms.

The fourteenth century, in the situation of hostility between France and England, was witnessing the emergence of a kind of national consciousness in England, certainly an anti-French and anti-Scots feeling in general, in which many Welshmen joined. In this context I would refer anyone to Professor Prestwich's *The Three Edwards*¹⁷ where he not only points out how in the century before Neville's Cross, an interdependent method of army organisation had been achieved, but goes on to give good reason for English and Welsh apprehension of Scottish fighting methods. Speaking of Falkirk (1298) he says:

Now a properly combined force could be organised, with the archers providing the offensive fire-power and the men-at-arms the muscle for hand to hand conflict. By the 1330s a standard battle formation had been developed, with each battalion of dismounted men-at-arms flanked by wings of archers.

He continues:

It was said that James Douglas, who died in 1330, had such a respect for the English longbow that he either cut off the right hand or gouged out the right eye of any English archer he captured. A legal record of

¹⁶ G. Wrottesley, *Crécy and Calais* (1989), pp. 191–204. For a recent discussion of the size of 1346–7 army, see A. Ayton, 'The English Army and the Normandy Campaign of 1346', in *England and Normandy in the Middle Ages*, ed. D. Bates and A. Curry (1994), pp. 253–68.

¹⁷ Michael Prestwich, *The Three Edwards: War and State in England 1272–1377*, 2nd edn (London, 1993), p. 70 and *passim*.

THE MILITARY ARCHERY AT NEVILLE'S CROSS

Edward II's time describes three sorts of bow: one of these 'the classic longbow', was two ells in length, and fired a *clotharrow* a yard long. ... These bows were made of imported Spanish yew, but native yew was also used... It is likely that the heaviest bows had a range of up to 400 yards, though real accuracy was unlikely beyond 200. A rate of fire of ten flights a minute was possible; a constantly reiterated simile of fourteenth-century chroniclers is that arrows fell like snow on the battlefield; but unlike snow, arrows produced a terrifying noise, bewildering men and panicking horses. At Dupplin Moor and Halidon Hill the archers were able to decimate the Scottish troops before they even approached close to the English positions, so anticipating the later successes of Crécy and Poitiers.

And of course, Neville's Cross.

It has been said that those who fought with the two Edwards at Crécy comprised an army that was part-Norman, part-Saxon, Angevin and Celtic, but which in some way thought of itself as the army of England.¹⁸ Care and effort were taken to explain to people in general, often from the pulpit, often in the market place, what was happening, how the war was going, why the French or the Scots were liable to invade, and why England must go to war in France.¹⁹

The war allowed the king to take advantage of the desires of men outlawed for many sorts of crime to regain freedom within the law. In 1339 and 1340, 850 charters of pardon were granted to men who had served as soldiers or sailors. In the year of Crécy several hundred more were granted, both for service in Scotland in and France.²⁰ It would be foolish to over-emphasise the outlaw element in the armies of the period but something like ten per cent of those who fought for England were conditionally pardoned outlaws, some three quarters of whom were likely to have been guilty of manslaughter or murder.²¹

After the great victory of Crécy, the capture of Calais, the successes in arms of the English in Gascony and the defeat of the Scots at Neville's Cross, any English commander could count on a fervent rush of recruits ready to seek fortune and the comradeship of arms on a full tide of national feeling. The capture of a Frenchman of importance could carry a ransom that amounted to a fortune for the soldier responsible. There was every kind of rich finery, weapons, furs, gold and silver, and wine in abundance to be had after a battle or the taking of a town.

¹⁸ H. J. Hewitt, *The Organisation of War under Edward III 1338-62* (Manchester, 1966), ch. 7.

¹⁹ *CCR 1339-41*, p. 636 etc.

²⁰ *CPR 1338-40; 1345-48, passim; 1354-57*, p. 478 etc; *1358-61*, pp. 5-16 etc.

²¹ *Register of the Black Prince, IV, A.D. 1351-1365* (1933), pp. 237-75 etc.

The gradual changes in methods of recruitment to the English armies during the early part of the fourteenth century and the whole period under review will be familiar, but it is worth noticing some of the experiences and duties of Commissioners of Array: in 1341, for instance, they issued a writ to recruit for service 160 archers from Northampton and Rutland. In this case Rutland was charged with raising forty archers, but the county protested that Northamptonshire contained twenty-six hundreds, 'whereof the smallest is larger than the whole of Rutland', and an adjustment was made.²² The number raised often fell short of the number projected, but the arrayers did their best to choose, test for the skills the archers should have acquired or maintained at the local butts, and array 'les meillors et plus suffisants, les plus forcibles et plus vigerous archers',²³ to clothe, equip, and where necessary mount them, to pay them, and send them with a leader to a collecting place, or hold them ready for departure. The feeble were to be avoided and the 'ailing and weakly' were sent home from the ports of embarkation, even from abroad. Men could buy out their services for 'reasonable fines', but, when the feeling for success was high, the proportion that did so was small. Exemption could be granted where there was need.

It was usual for writs to contain some mention of clothing, 'gowns', 'hoods', 'one suit' apiece and so on, which we can assume was uniform of a kind, though details of such dress are limited. Archers raised in Cheshire and Flint were to be provided with woollen 'short coats' and hats, half green and half white, green on the right, white on the left,²⁴ and it seems every group raised from those areas during Edward III's reign was so dressed. The uniforms were sometimes delivered at the points of array, sometimes in London.

Cheshire archers, marching to Sandwich for embarkation in 1346, were paid for the period of their journey.²⁵ Though not all counties treated their men so well, the Cheshire practice became gradually more widespread. In the following year recruits were given sixteen days' wages in advance for the journey from Chester to Calais, and in 1355 they had twenty-one days' wages to reach Plymouth. Obviously advance payment was essential if travelling troops were to eat properly on the journey without ruthlessly living off the land. Sometimes counties paid these travelling allowances to an agreed point, after which they were 'at the king's charges'.²⁶ The usual

²² *CCR 1341-3*, p. 190.

²³ Treaty Roll, PRO C 76/22 (20 Edward III) and Hewitt, *Organisation of War*, p. 37.

²⁴ *Register of the Black Prince*, I, pp. 13, 14, 49.

²⁵ Cheshire County Court Rolls (Chetham Society) 1925, xliii-liv, p. 115.

²⁶ Hewitt, *Organisation of War under Edward III*, pp. 40-1.

arrangement was for arrayed men to march to their county boundaries without pay, from there to the point of embarkation at the county's expense, and from then on to be paid by the king, even if there were delays before sailing.²⁷

In 1345, the year before Crécy, while the king was collecting his army of invasion, 125 Staffordshire archers assembled at Lichfield on May 25th, and with six days' pay in their pockets (probably 18*d.*) set off for Southampton and duly arrived in a week; 100 Shropshire men met at Bridgnorth on 12 May, and set off for Sandwich with 1*s.* 9*d.* each; but twenty-two Buckinghamshire bowmen who gathered at Aylesbury on 10 May had to be content with 6*d.* each to reach Sandwich. The organisation of archers and other troops on the march was by 'hundreds' and 'vintaines' of twenty, each county contingent going in charge of a leader appointed by the king, who carried the wages and the nominal roll and was responsible for getting his charges safely to their port.²⁸

At Yarmouth in 1340, 30 ships were provided by the town for forty days' service as troopers, and they were victualled at the town's expense. The bailiffs' accounts show that, apart from the foodstuffs, 60,400 gallons of ale, supplied by Johanna Hikkesson, Peter Grymbolp and John Gayter, were taken on board, at a cost to the bailiffs, hence the townsfolk, of £251 13*s.* 4*d.*²⁹ The allowance seems to have been one gallon a day to each of the men in the ships.

From all over Wales and England came the weapons of war — swords, knives, spears and lances from the iron-producing areas, bought and provided by the counties; arrowheads of all the different designs and weights; there were 4,000 from Chester Castle in 1359, 52*s.* 5*d.* the lot;³⁰ arrowheads had to be 'well brazed, and hardened at the points with steel';³¹ shafts and feathers, mostly goose-wing feathers, bowstaves and made bows were constantly demanded. Later orders give an indication of earlier demands: in February 1417 six feathers from every goose in twenty southern counties were to be at the Tower by 14 March.³² On 1 December 1418, sheriffs were ordered to supply 1,190,000 goose feathers by

²⁷ PRO E 372/184 (Pipe Roll, 13 Edward III).

²⁸ PRO E 372/190 (Pipe Roll, 19 Edward III), m. 6; Hewitt, *Organisation of War under Edward III*, p. 42.

²⁹ PRO E 101/22/25; Hewitt, *Organisation of War under Edward III*, p. 52.

³⁰ *Accounts of the Chamberlains and other Officers of the County of Chester, 1301-60*, ed. R. Stewart Brown (Record Society of Lancashire and Cheshire, 1910), p. 273.

³¹ CPR 1358-61, p. 323.

³² *Foedera*, IX, p. 436.

Michaelmas.³³ Year by year the orders went out to replace the stocks that were sent out to the archers.

Bows were divided into two kinds, 'white', which cost about 1*s.* 6*d.* each or 12 deniers, and 'painted' which were 2*s.* or 18*d.*, a more expensive article.³⁴ No one knows what these designations meant. Yew bows come into both categories, so if 'white' were fairly raw, not long-seasoned bows, 'green' staves, which in the case of yew would show a gleaming ivory colour on the sapwood back that fades with age, that would suggest that 'painted' bows were of thoroughly seasoned staves, treated with some sort of paint or varnish, as we treat them now, to inhibit the drying out of the last vestiges of liquid in the wood, that final ten per cent or so that stops a bow becoming too brittle.

As they were collected from local manufacturers, the bows were packed in canvas and the arrow-sheaves corded together for stowage in wooden tuns.³⁵ These were in turn stacked in carts and wagons which were hired for the purpose, covered with tarpaulins of horse-hide, pulled by teams of two to eight horses, and accompanied by clerks who kept the tallies, saw to the delivery and got receipts in exchange. The orders sent out to counties were not always filled in one consignment. Some would come in early and the rest would be promised to follow as soon as possible; and some orders were never completely honoured. A thousand sheaves of arrows ordered from Hereford on one occasion dwindled to 363 sheaves actually delivered.³⁶ The orders were not regular yearly demands. In times of truce fewer orders were sent out, but whenever war was renewed massive quantities of arrows would be received at the Tower of London alone.³⁷ In 1356 the Chamberlain of Chester learned that 'no arrows can be obtained from England because the King has ... taken for his use all the arrows that can be found anywhere there'.³⁸ He then had to get for the Prince of Wales, 1,000 bows, 2,000 sheaves of arrows and 400 gross of bowstrings, requisition all available immediately and make certain that production continued until the order was fulfilled.

Available figures show that in 1359, the year of a new royal expedition after the truce, the counties supplied over 850,000 arrows to the Tower, and about 20,000 bows and 50,000 bowstrings.³⁹ That does not include already existing stocks, nor the fact that the orders continued to pour in to

³³ CPR, 1416-22, p. 178.

³⁴ PRO E 101/392/14.

³⁵ PRO E 372/191 m. 11.

³⁶ PRO E 372/201.

³⁷ See for example William Rothwell's accounts in PRO E 101/392/14.

³⁸ *Register of the Black Prince*, III, 23.

³⁹ CCR 1354-60, pp 574 and 601-2. Also PRO E 101/392/14 etc.

the suppliers for more and more of everything, nor the fact that large quantities of arms went direct to the appropriate ports. If one accepts the idea of 6,000 archers shooting off half a million arrows in one of the rare major engagements, then the production of a million arrows in a year would seem too low a figure, but it should be remembered that, from a million arrows shot off, some proportion would be recovered. Every arrow that quit the string in battle was not a lost arrow.

The cartage problem is a tricky one. A million arrows might weigh about 40 tons, and that, in the wagonage of the day, and in relation to the poor roads and rough country to be crossed, would represent a large and cumbrous part of the baggage train; but the argument of the difficulty of carriage suggesting that carriage was not achieved is a poor one. Armour had to be carried as well, tents and pavilions, food, spare bows, guns, sulphur and saltpetre, the whole equipment of the field kitchens and so forth. 40 tons of arrows, those vital components of English success in arms, may have been hard to transport, but it is quite certain that arrows were carried in great quantity.

By the time Henry VIII was campaigning against the French, taking a leaf out of Henry V's book, we can see many more details of transport. For example in 1513 his massive army of invasion marched in three 'wards' or 'battles' just as in Edward III's time, though the proportion of archers to other arms had dropped by then to one in three, or less. In one of these wards, of approximately 15,000 men, there were 90 vehicles allowed for spare weapons and equipment. 5,200 in parcels of 400 were carried in thirteen wagons; 86,000 bowstrings in twenty barrels were in two wagons; and 240,000 arrows needed twenty-six wagons, a little under 10,000 arrows a wagon.⁴⁰ Possibly in this case the artillery and its ammunition needed the big wagons, so that small carts were used for arrow-transport, and possibly in the past the bigger wagons with larger teams of oxen or horses were used for bows and arrows, which would have much increased each load and lessened the number of vehicles.

So where do such facts and figures leave us in relation to the Battle at Neville's Cross? Before looking at the role of the archers according to contemporary sources, I return to Professor Prestwich. I do so because it seems to me that again and again in his late medieval studies he understands the development of the archer arm and its tactical deployment, and in such understanding stands as a lonely eminence among most medieval historians addressing the question of the longbow's effective influence on warfare in the thirteenth, fourteenth and fifteenth centuries. In

⁴⁰ C. G. Cruickshank, *Army Royal: Henry VIII's Invasion of France, 1513* (Oxford, 1969), p. 78 and London, British Library, MS Stowe 146, pp. 60-8.

his *Armies and Warfare in the Middle Ages: The English Experience*⁴¹ he writes:

The crucial role of archery was to deter, slow and even halt an enemy advance. Once the English developed in the fourteenth century their tactics of fighting from a defensive position, archery frequently proved devastating, and the longbow was a true battle-winning weapon. Horses were especially vulnerable to arrows, but the Scots discovered to their cost at Neville's Cross that archery was also effective against their massed defensive formations on foot, compelling them to take the fight to the English with disastrous results.

There you have the nub of the argument and the basic position of the longbow and the archer arm throughout the Hundred Years War. Add to that some of the revealed facts concerning the strength, range and penetration of the weapon and its missiles and the whole picture, though never complete, is vastly clearer than it was before.

What can we add to the detail of Neville's Cross from contemporary chronicles and letters? The answer, sadly, is not a great deal. The absurd biblical paean against the Scots by the *Lanercost Chronicle*⁴² only helps us with the battle beginning 'about the third hour' with 'arrows flying', 'but few Englishmen killed', and 'nearly the whole army of Scotland either captured or slain'. It hinders us with a wholly absurd claim that King David Bruce had with him 10,000 archers. If he had even a third of that number, what on earth were they doing during the battle?

The *Anonimale Chronicle* of St Mary's Abbey in York,⁴³ probably relying on the same source, but dispensing with the invective, is helpful about location: King David, it says, advanced 'from Beaurepaire (now Bearpark) ... devers la Nevyle Croice pres de Dorem ... son host en trois batailles dyvyse', and continues that the English, using the same triple division, drew up their array 'joust la croice de Nevylle avandite'.

A letter of commendation sent from His Majesty's Tower of London, three days after the battle speaks of an English victory at Durham.⁴⁴ A letter from Prior Fossor, however, provides more accurate information, and demonstrates that the battle was fought between Durham City and Bearpark.⁴⁵ That fixed point, together with the knowledge we have of the direction of approach of each army, and the lie of the land even today suggests the very probable positions of each army and the course of the battle, in broad terms, fought, as it was then, on open moorland. The Scots

⁴¹ M. Prestwich, *Armies and Warfare in the Middle Ages: the English Experience* (New Haven and London 1996), p. 324.

⁴² Document c.

⁴³ Document d.

⁴⁴ *Rot. Scot.*, I, 677.

⁴⁵ Document b.

